



한남비뇨의학회  
The Hannam Urological Association

# 2021 제45회 한남비뇨의학회 추계학술대회

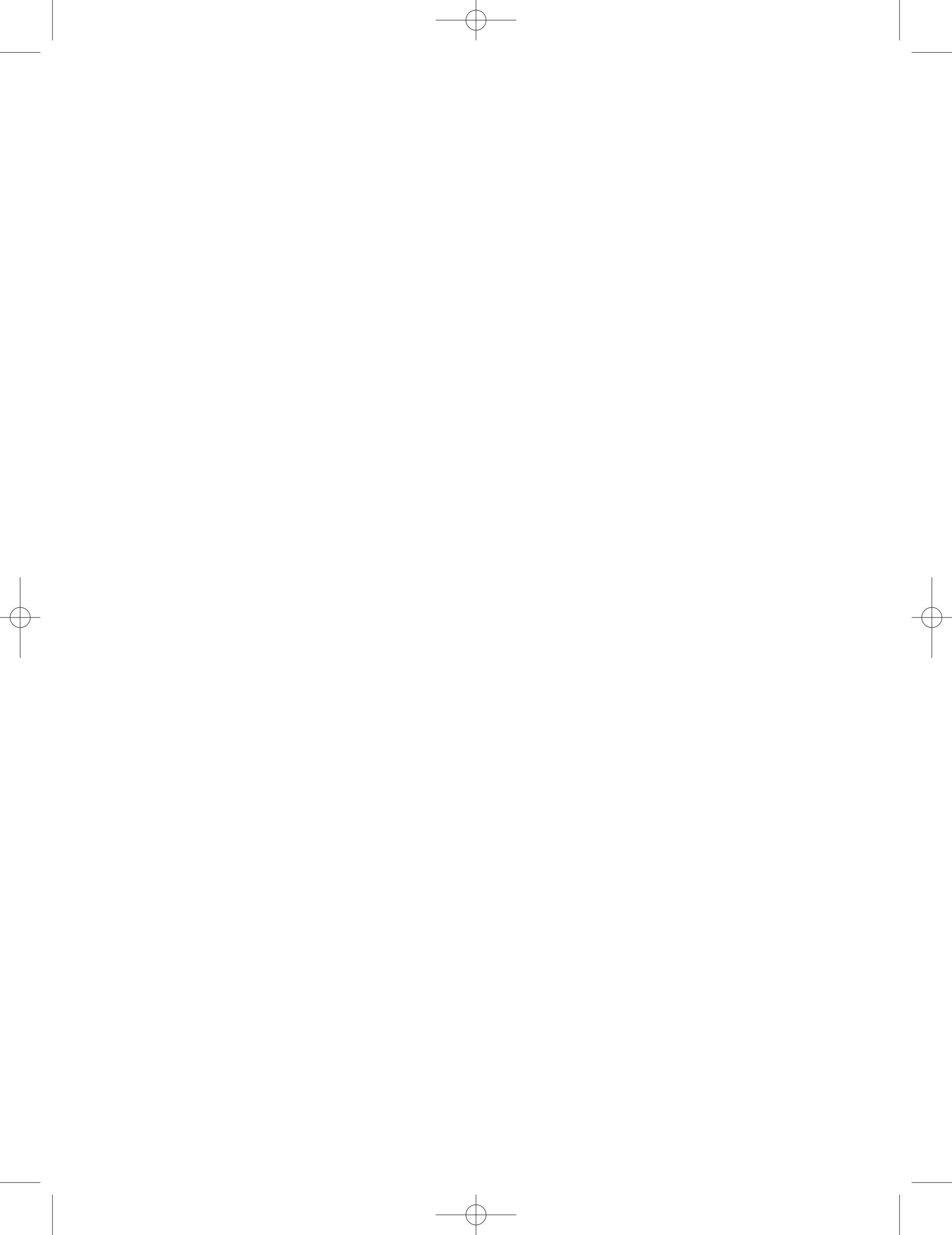
Learning Advanced Urology, Sharing Humanity Literacy  
배우는 선진비뇨의학, 함께하는 인문학 소양

한남비뇨의학회 상임이사회 / 한남비뇨의학회 이사회 / 한남비뇨의학 추계 심포지움

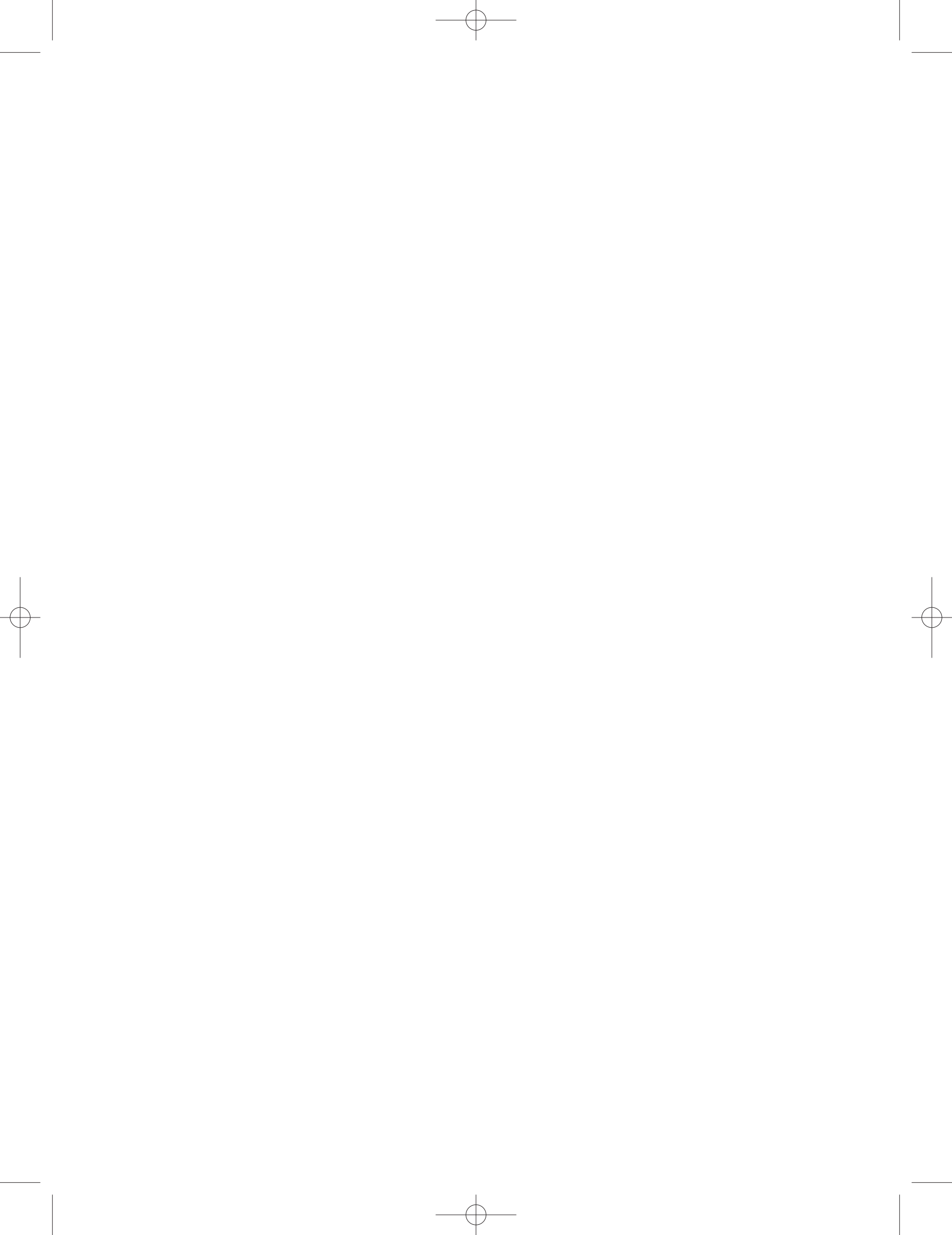
2021년 10월 29일 (금)\_대구 호텔 인터불고 엑스코, B1 아이리스홀

한남비뇨의학회 추계학술대회

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## 2021 제45회 한남비뇨의학회 추계학술대회

### Welcome Address

한남비뇨의학회 회원 여러분 안녕하십니까?

10월 초가 되어도 물러설 기미를 보이지 않던 더위도 이제 자리를 내어주고 있는 가을입니다. 지난 해와 더불어 올 한해도 COVID-19 상황이 개선되지 않고 지속되고 있습니다. 다행히 지난 첫 봄학회는 많은 회원들과 매우 성공적으로 치루어져 대면 학회에 대한 염원이 드높았음을 피부로 느낄 수 있었습니다.

이런 염원을 바탕으로 가을 학회도 대면 학회로 진행하고자 많은 노력을 하였습니다. 좌장, 강사 및 패널의 적절한 연륜 배분을 통해 좌장의 세션 기획, 연자의 짜임새 있는 강의, 시니어 패널의 심도 있는 경험 등이 어우러질 수 있도록 학회 프로그램을 알차게 꾸몄습니다. 특히 debate 세션은 매우 흥미로울 것으로 생각합니다. 학회에서 진행하는 사업은 속도가 느리긴 하지만 차질 없이 진행할 수 있도록 계속 노력하겠습니다.

여러 회원들께서 이 가을에 다시 한번 서로 환한 얼굴을 마주하시고 즐거운 경험을 하실 것을 믿어의심치 않으며 많은 회원들께서 참석해주시기를 부탁드립니다. 그리고 전공의들도 가능한 많이 참석할 수 있도록 배려 부탁드립니다.

감사합니다.

한남비뇨의학회 회장 민 권 식  
한남비뇨의학회 학술대회 대회장 김 병 훈

## Organization

### • 임원 명단

회 장 민 권 식 인제의대 차기회장 권 동 득 전남의대		
부 회 장 김 형 지 단 국 의 대	기 획 이 사 강 택 원 전 남 의 대	표준진료이사 임 동 훈 조 선 의 대
총 무 이 사 문 경 현 울 산 의 대	편 집 이 사 정 재 민 부 산 의 대	미래전략이사 고 영 휘 영 남 의 대
부 총 무 감 성 철 경 상 의 대	정 보 이 사 김 용 준 충 북 의 대	윤리특별이사 신 동 길 부 산 의 대
부 총 무 정 홍 건 국 의 대	문화기획이사 노 준 화 광주기독병원	대외협력이사 김 완 석 인 제 의 대
학 술 이 사 정 승 일 전 남 의 대	보 험 이 사 김 태 환 경 북 의 대	법 제 이 사 송 필 현 영 남 의 대
연 구 이 사 김 태 효 동 아 의 대	교육수련이사 김 명 기 전 북 의 대	회 무 감 사 나 용 길 충 남 의 대
재 무 이 사 임 재 성 충 남 의 대	홍 보 이 사 장 영 섭 건 양 의 대	재 무 감 사 현 재 석 경 상 의 대
국제교류단장 서 일 영 원 광 의 대	간 행 이 사 허 정 식 제 주 의 대	

### • 역대회장단

	임기	회장	부회장	총무
제1대	1998~1999	박양일 (전 남 의 대)	김광세 (계 명 의 대)	박광성 (전 남 의 대)
제2대	1999~2001	김광세 (계 명 의 대)	박영경 (전 북 의 대)	박철희 (계 명 의 대)
제3대	2001~2002	박영경 (전 북 의 대)	박동춘 (영 남 의 대)	김형진 (전 북 의 대)
제4대	2002~2003	박동춘 (영 남 의 대)	최성협 (인 제 의 대)	정희창 (영 남 의 대)
제5대	2003~2004	최성협 (인 제 의 대)	윤진한 (동 아 의 대)	민권식 (인 제 의 대)
제6대	2004~2005	윤진한 (동 아 의 대)	류수방 (전 남 의 대)	조원열 (동 아 의 대)
제7대	2005~2006	류수방 (전 남 의 대)	박윤규 (경 북 의 대)	권동득 (전 남 의 대)
제8대	2006~2007	박윤규 (경 북 의 대)	이남규 (순천향의대)	권태균 (경 북 의 대)
제9대	2007~2008	이남규 (순천향의대)	김법완 (경 북 의 대)	전윤수 (순천향의대)
제10대	2008~2009	김법완 (경 북 의 대)	설종구 (충 남 의 대)	류현열 (고 신 의 대)
제11대	2009~2010	설종구 (충 남 의 대)	임정식 (원 광 의 대)	류현열 (고 신 의 대)
제12대	2011~2012	임정식 (원 광 의 대)	류현열 (고 신 의 대)	박남철 (부 산 의 대)
제13대	2013~2014	류현열 (고 신 의 대)	김철성 (조 선 의 대)	민권식 (인 제 의 대)
제14대	2015~2016	김철성 (조 선 의 대)	박철희 (계 명 의 대)	이상돈 (부 산 의 대)
제15대	2017~2018	박철희 (계 명 의 대)	김홍섭 (건 국 의 대)	권동득 (전 남 의 대)
제16대	2019~2020	김홍섭 (건 국 의 대)	민권식 (인 제 의 대)	신동길 (부 산 의 대)

## • 원로회원 명단

김광세 계 명 의 대	김법완 경 북 의 대	김천일 계 명 의 대	김철성 조 선 의 대
류수방 전 남 의 대	류현열 고 신 의 대	박동춘 영 남 의 대	박양일 전 남 의 대
박영경 전 북 의 대	박윤규 경 북 의 대	설종구 충 남 의 대	윤진한 동 아 의 대
이남규 순 천 향 의 대	임정식 원 광 의 대	정문기 부 산 의 대	조성룡 파 티 마 병 원
최성협 인 제 의 대			

## • 자문위원 명단

김형진 전 북 의 대	박광성 전 남 의 대	박남철 부 산 의 대	박재신 대구가톨릭의대
박종관 전 북 의 대	성경탁 동 아 의 대	이경섭 계 명 의 대	이길호 단 국 의 대
이정주 부 산 의 대	최 성 고 신 의 대		

## • 이사회 명단

### 당연직이사

김수환 고 신 의 대	권동득 전 남 의 대	권세윤 동 국 의 대	권준범 대구파티마병원
김계환 충 남 의 대	김대경 을 지 의 대	김두상 순 천 향 의 대	김병훈 계 명 의 대
김선옥 전 남 의 대	김완석 인 제 의 대	김용준 충 북 의 대	김진범 건 양 의 대
김태환 경 북 의 대	김태효 동 아 의 대	김현태 경 북 의 대	김홍섭 건 국 의 대
남종길 부 산 의 대	노준화 광주기독병원	박경기 제 주 의 대	박성찬 울 산 의 대
박승철 원 광 의 대	송필현 영 남 의 대	오철규 인 제 의 대	오태희 성균관의대
육승모 대전성모병원	이천우 경 상 의 대	임재성 충 남 의 대	정승일 전 남 의 대
정영범 전 북 의 대	정현진 대구가톨릭의대	조원진 조 선 의 대	하홍구 부 산 의 대
홍정희 단 국 의 대	화정석 경 상 의 대		

### 임명직이사

김덕윤 대구가톨릭의대	류동수 성균관의대	문기학 영 남 의 대	서영진 동 국 의 대
송기학 충 남 의 대	양상국 건 국 의 대	유은상 경 북 의 대	이상돈 부 산 의 대
이상철 충 북 의 대	전상현 울 산 의 대	전윤수 순 천 향 의 대	조원열 동 아 의 대



## Organization

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### • 위원회 명단

#### 학술위원회

학술이사 : 정승일

간 사 : 정호석

종 양 : 박성우, 황의창

배뇨장애 : 조원진, 정재승

소 아 : 김선옥, 이준녕

남 성 : 신유섭, 박현준

전립선 : 김원태, 김현태

감 염 : 정 홍, 임동훈

내비뇨 : 오철규, 김범수



## Congress History

### •역대 학술대회 개최 현황

구분	일시	장소	주관	대회장
제 1 회	1998.11.28.	전남대학교 학동캠퍼스 명학회관 대강당	전남의대	박양일
제 2 회	1999.06.12.	동아의료원 5층 대강당	동아의대	윤진한
제 3 회	1999.12.04.	충남대학교 소아병원 대강당	충남의대	설종구
제 4 회	2000.06.03.	계명대학교 동산의료원 대강당	계명의대	김광세
제 5 회	2001.05.26.	전북대학교 의과대학 합동강의실	전북의대	김영곤
제 6 회	2001.10.20.	부산대학교 대학본부 대회의실	부산의대	박남철
제 7 회	2002.05.04.	충북대학교 개신문화관	충북의대	김원재
제 8 회	2002.10.26.	영남대학교 국제관 대회의실	영남의대	박동춘
제 9 회	2003.05.10.	원광대학교 송산기념관	원광의대	임정식
제10회	2003.10.18.	인제대학교 인당관	인제의대	최성협
제11회	2004.04.17.	단국대학교 의과대학 대강당	단국의대	이길호
제12회	2004.10.23.	경북대학교 정보전산원 1세미나실	경북의대	김법완
제13회	2005.04.30.	조선대학교 서석홀 4층 대강당	조선의대	장대수
제14회	2005.10.15.	고신대학교 의과대학 대강당	고신의대	최 성
제15회	2006.04.29.	건국대학교 충주캠퍼스 행정관1층 국제회의실	건국의대	김홍섭
제16회	2006.09.30.	동국대학교 경주캠퍼스 백상관 컨벤션홀	동국의대	이경섭
제17회	2007.04.28.	전남대학교 의과대학 명학회관	전남의대	박광성
제18회	2007.10.27.	경상대학교병원 경남지역 암 센터 2층 강당	경상의대	현재석
제19회	2008.04.26.	순천향대학교 인문대 강당	순천향의대	전윤수
제20회	2008.10.18.	대구가톨릭대학교하양캠퍼스 중앙도서관영상세미나실	대구가톨릭의대	박재신
제21회	2009.05.23.	원광대학교 의과대학병원 외래 1관 4층 법당	원광의대	정희중
제22회	2009.10.17.	울산과학기술대동부캠퍼스 내 현대중공업 인재교육원 2층 대강당	울산의대	전상현
제23회	2010.04.02.	을지대학병원 3층 범석홀	을지의대	김대경
제24회	2011.06.04.	계명대학교 성서 의과대학 대강당	계명의대	김천일
제25회	2011.10.22.	조선의대 서석홀 4층 대강당	조선의대	김철성
제26회	2012.05.26.	부산 벅스코 제2전시장 1층 회의실	동아의대	조원열
제27회	2012.10.20.	충남대학교 유성캠퍼스 정심화 국제문화회관	충남의대	나용길
제28회	2013.05.25.	영남대 천마 아트센터	영남의대	문기학
제29회	2013.10.26.	전북대학교 의학전문대학원 본관 1층 합동강의실	전북의대	박종관
제30회	2014.05.31.	양산부산대학교병원 모암홀	부산의대	이상돈
제31회	2014.11.01.	충북대학교 개신문화관 대공연장	충북의대	김원재
제32회	2015.04.25.	칠곡경북대학교병원 지하1층 대강당	경북의대	권태균
제33회	2015.10.31.	화순전남대병원 의생명연구센터 지하1층 대강당	전남의대	권동득
제34회	2016.05.14.	부산해운대백병원 대강당	인제의대	정재일
제35회	2016.11.04.	단국대학교 천안캠퍼스 약학관 대강의실	단국의대	홍정희
제36회	2017.05.27.	동국대학교 경주캠퍼스 100주년 기념관 대강당	동국의대	서영진
제37회	2017.10.28.	원광대학교/원광보건대학교 WM홀	원광의대	서일영
제38회	2018.05.12.	제주대학교병원 대강당	제주의대	허정식
제39회	2018.10.20.	고신의료원 대강당	고신의대	김택상
제40회	2019.04.20.	건국대학교 글로벌캠퍼스 교양강의동 1층(상허홀)	건국의대	정 흥
제41회	2019.10.05.	대구가톨릭대학교 의과대학 (루가관) 7층 강당	대구가톨릭의대	김덕윤
제42회	2020.07.18.	김대중컨벤션센터, 컨벤션동 4층 컨벤션1홀	조선의대	조원진
제43회	2020.10.31.	창원컨벤션센터 컨벤션홀 III	경상의대	화정석
제44회	2021.04.17	신라스테이 천안, 2층 연회장	순천향의대	김두상

## 후원사

한올바이오파마

한국아스텔라스제약(주)

한국화이자제약

한미약품

입센코리아

GSK

한국페링제약

알보젠코리아

바드코리아(주)

올림푸스 한국

오가논

(주)한국팜비오

일양약품

다케다제약

제일약품(주)

아주약품

JW중외제약

동아에스티

칼스툴츠엔도스코피코리아(유)

(주)한국얀센

종근당

제이텍바이오젠

SK케미칼

한국 로슈

## 일정표

2021년 10월 29일 (금) \_대구 호텔 인터볼고 엑스코

### 한남비뇨의학회 상임이사회 및 이사회

14:00-16:00	한남비뇨의학회 상임이사회   대구 호텔 인터볼고 엑스코, B1 아이리스홀
16:00-16:50	한남비뇨의학회 이사회   대구 호텔 인터볼고 엑스코, B1 아이리스홀
<b>한남비뇨의학 추계 심포지움   대구 호텔 인터볼고 엑스코, B1 아이리스홀</b>	
16:50-17:00	한남비뇨의학회장 인사말
17:00-19:00	한남비뇨의학 심포지움
19:00~	Welcome reception

2021년 10월 30일 (토) \_대구 EXCO

### 2021년 제45회 한남비뇨의학회 추계학술대회

08:30-09:00	<b>학회등록</b>
09:00-09:40	State of the Art Lecture: Application of robotic surgery in non-oncologic diseases (endourology)
09:40-10:20	Debate Session (Treatment of Huge BPH: debate): Voiding dysfunction/ Incontinence Session
10:20-10:30	Coffee Break
10:30-10:40	개회사/학회장인사/대회장인사/축사 사회: 총무이사 문경현 (울산의대)
10:40-11:20	Andrology Session
11:20-12:00	Debate Session (which do you prefer Between Adjuvant and Early-Salvage Postprostatectomy Radiotherapy for Prostate Cancer With Adverse Pathological Features?): oncology
12:00-13:00	Photo and Lunch time
13:00-13:15	총회
13:15-13:30	연구지원사업 선정연구 보고
13:30-14:10	문화행사
14:10-14:50	Debate Session (Is combination antibiotic therapy superior to monotherapy for adult patients with pyelonephritis related to urinary tract obstruction?)
14:50-15:05	Coffee Break
15:05-15:45	Pediatric Urology
15:45-16:25	Management of genitourinary cancer during COVID-19 pandemic
16:25	폐회사

## Program

2021년 10월 29일 (금)

대구 호텔 인터볼고 엑스코

### 한남비뇨의학회 상임이사회

14:00-16:00 | 대구 호텔 인터볼고 엑스코, B1 아이리스홀

### 한남비뇨의학회 이사회

16:00-16:50 | 대구 호텔 인터볼고 엑스코, B1 아이리스홀

### 한남비뇨의학 추계 심포지움

16:50-19:00 | 대구 호텔 인터볼고 엑스코, B1 아이리스홀

사회: 학술이사 정승일 (전남의대)

16:50-17:00 한남비뇨의학회장 인사말 민권식 (인제의대)

17:00-18:00 Satellite Symposium: current update of urology 민권식 (인제의대), 권동득 (전남의대)

COVID-19가 남성 생식기능 및 성기능에 미치는 영향 박현준 (부산의대)

야간뇨 (Nocturia)의 병태생리를 분석하기 위한 배뇨일지의 활용법 김성철 (울산의대)

Gut microbiota as the key controllers of "healthy" aging 권세윤 (동국의대)

Panel: 장영섭 (건양의대), 김용준 (충북의대), 김명기 (전북의대)

#### Honorary panel:

김광세 (계명의대), 김법완 (경북의대), 김영곤 (전북의대), 김원재 (충북의대), 김천일 (계명의대)  
김철성 (조선의대), 류수방 (전남의대), 류현열 (고신대의대), 박동춘 (영남의대), 박양일 (전남의대)  
박영경 (전북의대), 박윤규 (경북의대), 설종구 (충남의대), 윤진한 (동아대의대), 이남규 (순천향의대)  
임정식 (원광의대), 정문기 (부산의대), 정성광 (경북의대), 조성룡 (파티마병원), 최성협 (인제의대)

18:00-19:00 International Session 성경탁 (동아대의대), 서일영 (원광의대)

Urethral stricture reconstruction Jun Jae park (Singapore)

Robotic partial nephrectomy at Cho Ray Hospital Thanh-Tuan NGUYEN (Vietnam)

discussion

19:00~ Welcome reception



2021년 10월 30일 (토)

대구 EXCO

## 2021년 제45회 한남비뇨의학회 추계학술대회

Learning Advanced Urology, Sharing Humanity Literacy  
배우는 선진비뇨의학, 함께하는 인문학 소양

사회: 학술이사 정승일 (전남의대)

08:30-09:00 등록

**09:00-09:40 State of the Art Lecture: Application of robotic surgery in non-oncologic diseases (endourology)**  
좌장: 전상현 (울산의대), 송필현 (영남의대)

Robotic stone surgery 정원호 (계명대의대)

Robotic reconstructive surgery (e.g. ureteroneocystostomy) 김정호 (인제의대)

Panel: 이상철 (충북의대), 화정석 (경상의대), 최재영 (영남의대)

**09:40-10:20 Debate Session (Treatment of Huge BPH: debate): Voiding dysfunction/ Incontinence Session**  
좌장: 김대경 (울지의대), 유은상 (경북의대)

Holmium laser enucleation techniques 김범수 (경북의대)

Robotic surgery (Robotic Simple Prostatectomy, Aquablation) 김병훈 (계명대의대)

Panel: 김덕윤 (대구가톨릭의대), 김형지 (단국의대)

10:20-10:30 Coffee Break

**10:30-10:40 개회사/학회장인사/대회장인사/축사** 사회: 총무이사 문경현 (울산의대)

**10:40-11:20 Andrology Session** 좌장: 문경현 (울산의대), 김태호 (동아대의대)

Effects of testosterone replacement therapy on male lower urinary tract symptoms  
김성철 (경상의대)

Orgasmic Dysfunction after Radical Prostatectomy 고동훈 (건양의대)

Panel: 박종관 (전북의대), 문기학 (영남의대), 현재석 (경상의대)

**11:20-12:00 Debate Session (which do you prefer Between Adjuvant and Early-Salvage Postprostatectomy Radiotherapy for Prostate Cancer With Adverse Pathological Features ?): oncology**  
좌장: 박승철 (원광의대), 김태환 (경북의대)

adjuvant RT 김완석 (인제의대)

early -salvage RT 김태남 (부산의대)

Panel: 김홍섭 (건국의대), 권태균 (경북의대), 고영희 (영남의대)

12:00-13:00 Photo and Lunch time

**13:00-13:15 총회**



## Program

<b>13:15-13:30</b>	<b>연구지원사업 선정연구 보고</b>	<b>김태효 (동아의대)</b>
	연구보고	고영휘 (영남의대)
	연구보고	김범수 (경북의대)
<b>13:30-14:10</b>	<b>문화행사</b>	<b>노준화 (광주기독병원)</b>
	대구음식인문학 - 대구에서 뭐무꼬?	이춘호 기자 (영남일보)
<b>14:10-14:50</b>	<b>Debate Session (Is combination antibiotic therapy superior to monotherapy for adult patients with pyelonephritis related to urinary tract obstruction?) 좌장: 허정식 (제주의대), 정승일 (전남의대)</b>	
	initial antibiotics: monotherapy	양희조 (순천향의대)
	initial antibiotics: combination	임동훈 (조선의대)
	Panel: 이길호 (단국의대), 고혁준 (동아의대)	
<b>14:50-15:05</b>	Coffee Break	
<b>15:05-15:45</b>	<b>Pediatric Urology</b>	<b>좌장: 조원열 (동아의대), 류동수 (성균관의대)</b>
	Current issue in concealed penis	정재민 (부산의대)
	Pediatric hydrocele - laparoscopic treatment, characteristics and classification	하지용 (계명의대)
	Panel: 박재신 (대구가톨릭의대), 신주현 (충남의대), 이준녕 (경북의대)	
<b>15:45-16:25</b>	<b>Management of genitourinary cancer during COVID-19 pandemic</b>	
	<b>좌장: 임재성 (충남의대), 강택원 (전남의대)</b>	
	Risks from deferring treatment for GU cancer during the COVID-19 pandemic	김민석 (조선의대)
	Adjustment in the use of intravesical instillations of BCG for high risk NMIBC during COVID-19 pandemic	박성찬 (울산의대)
	Panel: 이경섭 (계명의대), 김형진 (전북의대), 정재일 (인제의대), 황의창 (전남의대)	
<b>16:25</b>	<b>폐회사</b>	

## Location

### MAP



대구 EXCO 대구광역시 북구 엑스코로 10



# DAY 1(금)

대구 호텔 인터불고 엑스코, B1 아이리스홀



# 2021 제45회 한남비뇨의학회 추계학술대회



## Satellite Symposium: current update of urology

민권식 (인제의대), 권동득 (전남의대)

COVID-19가 남성 생식기능 및 성기능에 미치는 영향

박현준 (부산의대)

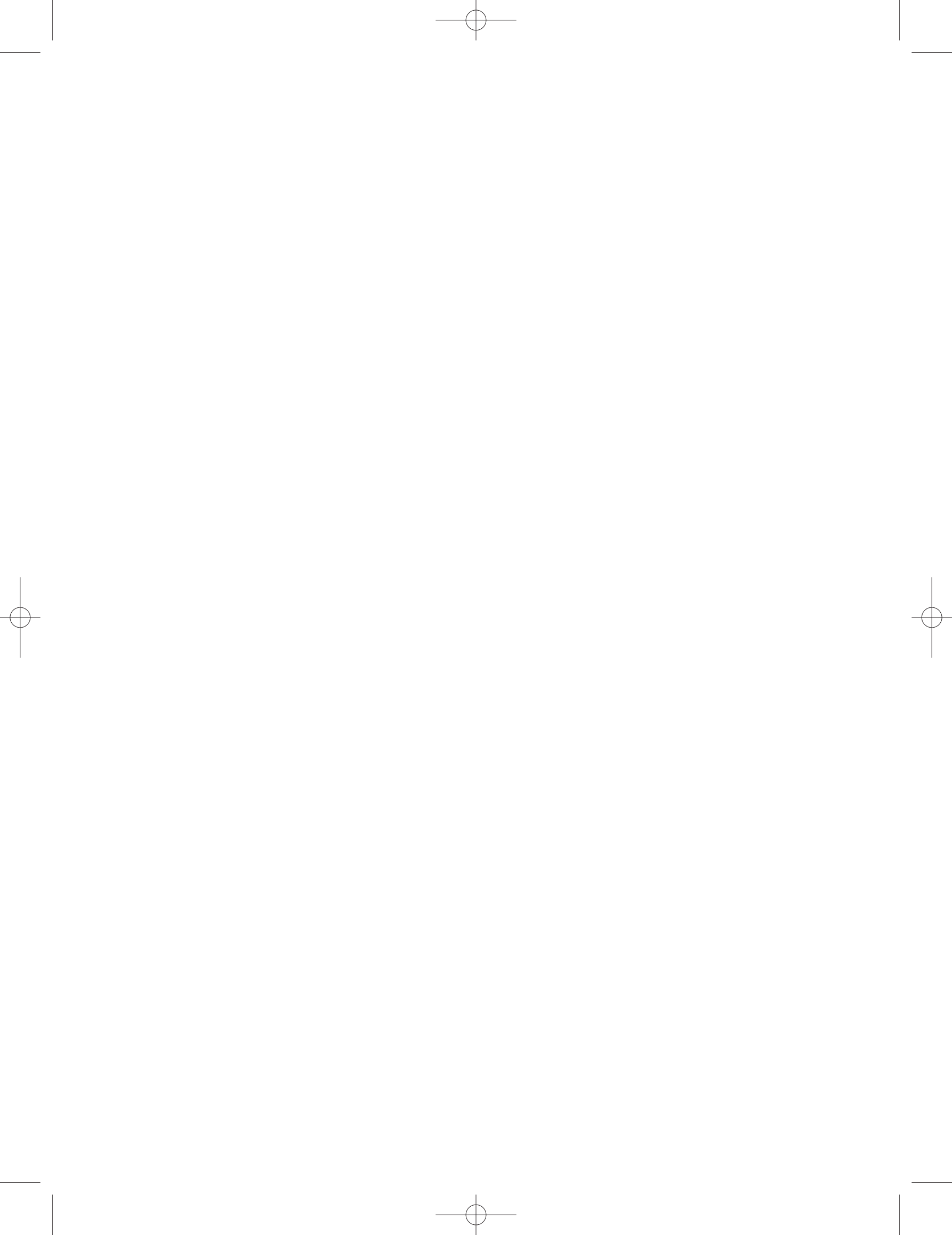
야간뇨 (Nocturia)의 병태생리를 분석하기 위한 배뇨일지의 활용법

김성철 (울산의대)

Gut microbiota as the key controllers of “healthy” aging

권세윤 (동국의대)







## COVID-19가 남성 생식기능 및 성기능에 미치는 영향

박 현 준

(부산대병원 비뇨의학과)

### COVID-19, Men's health와 관련된 의문들

- 남성의 감염 확률이 높다?
- 남성이 COVID-19에 더 취약하다?
- 테스토스테론이 COVID-19의 감염 기회를 높인다?
- 테스토스테론을 낮추면 COVID-19가 예방되나?
- COVID-19에 걸리면 테스토스테론이 낮아진다?
- 테스토스테론이 낮은 COVID-19가 중증으로 발전된다?
- 테스토스테론을 COVID-19환자에게 투여하면 도움이 된다?
- COVID-19가 불임을 일으킨다?
- COVID-19가 성관계로 전파된다?
- COVID-19가 발기부전을 일으킨다?

### COVID-19, Men's health와 관련된 의문들

- 남성의 감염 확률이 높다?
- 남성이 COVID-19에 더 취약하다?
- 테스토스테론이 COVID-19의 감염 기회를 높인다?
- 테스토스테론을 낮추면 COVID-19가 예방되나?
- COVID-19에 걸리면 테스토스테론이 낮아진다?
- 테스토스테론이 낮은 COVID-19가 중증으로 발전된다?
- 테스토스테론을 COVID-19환자에게 투여하면 도움이 된다?
- COVID-19가 불임을 일으킨다?
- COVID-19가 성관계로 전파된다?

남성의 감염 확률이 높다?  
남성이 COVID-19에 더 취약하다?  
테스토스테론이 COVID-19의 감염 기회를 높인다?

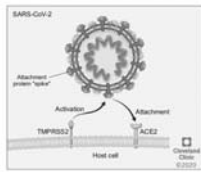


Fig. 1 Cellular entry mechanism. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection is mediated by the binding between viral spike proteins and angiotensin I converting enzyme 2 (ACE2) cellular receptors and the surface proteolytic cleavage and activation of spike proteins by the transmembrane protease serine 2 (TMPRSS2).

- **ACE2 receptors** are widely expressed in the lungs, cardiovascular system, gastrointestinal system, kidneys, neurological tissues, and the testes.
- SARS-CoV2 spike proteins are primed by **TMPRSS2**, which itself is **upregulated** by **testosterone**.
- Furthermore, the spike proteins of SARSCoV2 then bind to ACE2 receptors to enter host cells, and **ACE2 receptors** are also regulated by testosterone.

*“ It has been established that male mortality from **COVID-19** is **higher than that of women**, even when controlling for risk factors found more commonly in men such as hypertension, smoking, or cardiovascular disease. ”*

Testosterone in COVID-19: Friend or Foe?  
Niemann PJ, et al. Endocrine. 2021. PMID: 33492642

Relatively high incidence of complications from severe COVID-19 in males led investigators to study the relationship between androgens and infection early on in the pandemic.



## 테스토스테론을 낮추면 COVID-19가 예방되나?

9 J Clin Endocrinol. 2020 Aug 27;100(8):2441-2447. doi: 10.1210/clinem.aa9888. Epub 2020 Aug 9.  
**Androgen Deprivation Therapy in Men with Prostate Cancer Does Not Affect Risk of Infection with SARS-CoV-2**  
 Ellis A, Hodge S, Cantor G, et al. *Endocrinology*. 2020;170(10):3441-3447. doi: 10.1210/clinem.aa9888. Epub 2020 Aug 9.  
 PMID: 32877766

"ADT does not appear to be protective against SARS-CoV-2 infection"

**VS**

7 Ann Oncol. 2020 Aug 27;31(8):1040-1045. doi: 10.1093/annonc/aaq478. Epub 2020 May 6.  
**Androgen-deprivation therapies for prostate cancer and risk of infection by SARS-CoV-2: a population-based study (N = 4532)**

de Witte R, et al. *Ann Oncol*. 2020;31(8):1040-1045. doi: 10.1093/annonc/aaq478. Epub 2020 May 6.  
 PMID: 32387456

"Prostate cancer patients receiving ADT appear to be partially protected from SARS-CoV-2 infections."

## ADT가 COVID-19 증상 개선에 도움이 되나?

Ann Oncol. 2020 Dec 31;31(12):1419-1426. PMID: 32877766  
 Published online 2020 Jul 9. doi: 10.1016/j.annonc.2020.06.023  
**Does androgen deprivation therapy protect against severe complications from COVID-19?**  
 Y.G. Finkelstein, X. Zhang, B. Li, et al. *Ann Oncol*. 2020;31(12):1419-1426. doi: 10.1016/j.annonc.2020.06.023. Epub 2020 Jul 9.  
 PMID: 32877766

Clinical outcomes from COVID-19 in prostate cancer patients on ADT, compared with those not on ADT

Clinical outcomes	Unadjusted OR (95% CI)	P value	Adjusted OR <sup>a</sup> (95% CI)	P value
Death	0.38 (0.18-0.83)	0.010	0.37 (0.18-0.80)	0.010
Hospitalization	0.24 (0.08-0.73)	0.014	0.23 (0.08-0.70)	0.010
Supplemental O <sub>2</sub> utilization	0.27 (0.08-0.92)	0.031	0.26 (0.07-0.92)	0.036
Isolation	0.30 (0.08-1.14)	0.120	0.31 (0.09-1.02)	0.052

"ADT may limit severe complications from COVID-19, based on lower rates of hospitalization and supplemental oxygen requirements for COVID-19, compared with those infected patients not on ADT."



- COVID-19에 걸리면 테스토스테론이 낮아진다?
- 테스토스테론이 낮은 COVID-19가 중증으로 발전된다?
- 테스토스테론을 COVID-19환자에게 투여하면 도움이 된다?

- Interestingly, even though ADT was essentially found to be neither detrimental nor protective in COVID-19, lower testosterone levels are also associated with severe COVID-19.

J Sex Med. 2021 Feb;18(2):256-264. PMID: 33686645  
 Published online 2020 Nov 27. doi: 10.1016/j.jsxm.2020.11.007  
**SARS-CoV-2 Pneumonia Affects Male Reproductive Hormone Levels: A Prospective, Cohort Study**  
 Mustafa K, et al. *J Sex Med*. 2021;18(2):256-264. doi: 10.1016/j.jsxm.2020.11.007. Epub 2020 Nov 27.  
 PMID: 33686645

- COVID-19 is associated with decreased level of TT and increased level of LH and prolactin.
- More serious COVID-19 causes more reduction in TT levels and prolongs hospitalization period.

- Testosterone levels were significantly decreased in severe disease compared to those with milder cases of COVID-19.
- Low testosterone levels were also significantly associated with higher levels of inflammatory markers, including interleukin-6, C-reactive protein, interleukin 1 receptor antagonist, hepatocyte growth factor, and interferon  $\gamma$ -inducible protein 10.

*Dhinda S, Zhang N, McPhaul MJ, Wu Z, Ghoshal AK, Erlich EC, et al. Association of Circulating Sex Hormones With Inflammation and Disease Severity in Patients With COVID-19. JAMA Netw Open. 2021 May 25;4(5):e2111398.*

#### COVID-19에 감염된 경우 테스토스테론이 낮아지는 이유는?

- **Testicular compromise could be the underlying etiology of hypogonadism in severe COVID-19.**
- LH levels were elevated, suggesting a primary hypogonadism and testicular failure, instead of a secondary cause more likely to be influenced by a severe inflammatory state.
- Leydig cells, which produce testosterone, have high expressions of ACE2.
- It is possible that direct SARS-CoV-2 invasion with inactivation or destruction of Leydig cells leads to testicular hypofunction in severe disease.
- In fact, decreased Leydig cell populations have been described in post-mortem pathological evaluation of the testis in men who died from COVID-19.
- Taken together, the association of lower testosterone levels in severe COVID-19 appears to be due to the sequela of SARS-CoV-2 infection, and not because men were hypogonadal before infection.

- ① Unfortunately, as pre-infection testosterone levels are not available in the previously mentioned studies, it remains unclear if lower testosterone levels are a risk factor for more severe disease or if severe SARS-CoV-2 infection leads to hypogonadism.
- ② Testosterone : anti-inflammatory and immune-strengthening effects
- ③ Some experts have even postulated about the potential use of TRT in severe infection.

*Ory J, Lima TFN, Towse M, Frech FS, Best JC, Kava BR, et al. Understanding the Complex Relationship Between Androgens and SARS-CoV2. Urology. 2020 Oct 1;144:1-3.*

#### 테스토스테론을 COVID-19환자에게 투여하면 도움이 된다?

- Unfortunately, given the high rates of venous thromboembolic events (VTE) in severe SARS-CoV-2 infection, concerns have been raised that TRT could accentuate VTE.
- Fortunately, when investigating COVID-19 patients already on TRT compared to those who were not, Rambhatla et al. did not find an increased risk of VTE. (*J Sex Med* 2021 Jan;18(1):215-8).
- ✓ Results: There were no statistically significant differences between the 2 groups, and TRT was not a predictor of any of the endpoints on multivariate analysis.
- ✓ Conclusion: These results suggest that TRT is not associated with a worse clinical outcome in men diagnosed with COVID-19.

#### 테스토스테론을 COVID-19환자에게 투여하면 도움이 된다? 결론은 No.

- Despite the well described role of androgens in SARS-CoV-2 cell entry, the effects of baseline, testosterone levels on disease severity and any therapeutic roles remain unknown.
- Use of both TRT and ADT is limited by adverse effects, especially in those with severe COVID-19.



*"All things are poison, and nothing is without poison; only the dose makes a thing not a poison."*



## COVID-19 & 남성불임 관련 보고

- ① **Seven parameters of 2 acutely ill and 18 recovered men** (Fertil Steril. 2020 Aug;114(2):233–8)
  - ✓ Men with moderate infection had a statistically significant impairment in semen parameters compared to those with mild infection or within the control group, even though the values were within the normal WHO ranges.
- ② **A prospective cross-sectional analysis of 43 men recovered from SARS-CoV-2 infection** (Hum Reprod Oxf Engl. 2021 May 17;36(6):1520–9)
  - ✓ 11 men to have semen impairment, of these, 8 had azoospermia and 3 oligospermia (sperm concentration <15million/ml)
- ③ **30 men who recovered from SARS-CoV-2 infection and included a follow-up semen analysis from 5 men** (World J Mens Health. 2021 Jul;39(3):489–495).
  - ✓ Median total sperm number in the ejaculate was 12.5 million which was significantly lower than an age-matched control group of healthy, non-SARS-CoV-2 infected men
  - ✓ At a median of 3 months, the 5 men with follow-up semen analyses had an increase of median total sperm number to 18 million.

## COVID-19 & 남성 불임 요약

- COVID-19 infection can negatively impact spermatogenesis, at least temporarily.
- Although the long-term effects of SARS-CoV-2 infection on semen quality are not yet known, after infection and normalization of semen parameters, which may take up to 3 months for spermatogenesis recovery, the sperm is likely safe enough for cryopreservation and/or use for assisted reproductive techniques (IVF).
- Since long-term sperm quality is not yet known in men who have recovered from COVID-19, those who wish to conceive should consider undergoing a fertility evaluation to assess sperm quality.

Natural pregnancy	Assisted reproduction	Cryopreservation
<p>The impact of SARS-CoV-2 on pregnancy appears to be less severe than other coronaviruses.</p> <p>Preterm delivery and low fetal birth weight are among the most common implications of SARS-CoV-2.</p>	<p>ART during the SARS-CoV-2 pandemic may be conducted after incorporating risk assessment and mitigation strategies and when measures to maximize the safety of patients and staff have been employed.</p>	<p>The SARS-CoV-2 may present a major risk of cross-contamination during cryopreservation</p>

## COVID-19가 성관계로 전파된다?

- Detection of SARS-CoV-2 virus in semen samples from men with active disease or recovering may indicate the possibility of sexual transmission.



# JAMA Network Open

View Article

JAMA Network Open. 2020 May 30;3(5):e200620.  
Published online 2020 May 7. doi: 10.1001/jamanetworkopen.2020.6202

PMCID: PMC7259562  
PMID: 32217523

## Clinical Characteristics and Results of Semen Tests Among Men With Coronavirus Disease 2019

Diwanji L, PhD<sup>1,2</sup>; Shetty JR, MD<sup>1,2</sup>; Fawcett SR, PhD<sup>1</sup>; Hargrett-Bean, MD<sup>1,3</sup>; and Shetty DS, MD<sup>2,3</sup>

- SARS-CoV-2 viral particles in 6 out of 38 men
- 6 patients (15.8%) positive for SARS-CoV-2, including 4 of 15 patients (26.7%) at the acute stage of infection and 2 of 23 patients (8.7%) recovering phase.

**A Systematic Review on the Investigation of SARS-CoV-2 in Semen**

Li et al. was the only study that evaluated viral presence during acute infection, notably among many severely infected men.

Patient ID	Gender	Country of Origin	Age (years)	Onset Period	Presence of Symptoms	Age of the Closest Contact (years)	Exact Date of Onset
1 to 6	Males	Germany	Documented	38	6/20	—	—
			Documented	30	6/20	—	—
			Documented	35	6/20	—	—
7 to 10	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
11 to 15	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
16 to 20	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
21 to 25	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
26 to 30	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
31 to 35	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
36 to 40	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
41 to 45	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
46 to 50	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
51 to 55	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
56 to 60	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
61 to 65	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
66 to 70	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
71 to 75	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
			Documented	35	6/20	—	—
76 to 80	Males	Germany	Documented	38	6/20	—	—
			Documented	35	6/20	—	—
81 to 85	Males	Germany	Documented	38	6/20	—	—
86 to 90	Males	Germany	Documented	38	6/20	—	—
91 to 95	Males	Germany	Documented	38	6/20	—	—
96 to 100	Males	Germany	Documented	38	6/20	—	—
101 to 105	Males	Germany	Documented	38	6/20	—	—
106 to 110	Males	Germany	Documented	38	6/20	—	—
111 to 115	Males	Germany	Documented	38	6/20	—	—
116 to 120	Males	Germany	Documented	38	6/20	—	—
121 to 125	Males	Germany	Documented	38	6/20	—	—
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176 to 180	Males	Germany	Documented	38	6/20	—	—
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191 to 195	Males	Germany	Documented	38	6/20	—	—
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266 to 270	Males	Germany	Documented	38	6/20	—	—
271 to 275	Males	Germany	Documented	38	6/20	—	—
276 to 280	Males	Germany	Documented	38	6/20	—	—
281 to 285	Males	Germany	Documented	38	6/20	—	—
286 to 290	Males	Germany	Documented	38	6/20	—	—
291 to 295	Males	Germany	Documented	38	6/20	—	—
296 to 300	Males	Germany	Documented	38	6/20	—	—
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316 to 320	Males	Germany	Documented	38	6/20	—	—
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336 to 340	Males	Germany	Documented	38	6/20	—	—
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376 to 380	Males	Germany	Documented	38	6/20	—	—
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461 to 465	Males	Germany	Documented	38	6/20	—	—
466 to 470	Males	Germany	Documented	38	6/20	—	—
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476 to 480	Males	Germany	Documented	38	6/20	—	—
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576 to 580	Males	Germany	Documented	38	6/20	—	—
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591 to 595	Males	Germany	Documented	38	6/20	—	—
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671 to 675	Males	Germany	Documented	38	6/20	—	—
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701 to 705	Males	Germany	Documented	38	6/20	—	—
706 to 710	Males	Germany	Documented	38	6/20	—	—
711 to 715	Males	Germany	Documented	38	6/20	—	—
716 to 720	Males	Germany	Documented	38	6/20	—	—
721 to 725	Males	Germany	Documented	38	6/20	—	—
726 to 730	Males	Germany	Documented	38	6/20	—	—
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736 to 740	Males	Germany	Documented	38	6/20	—	—
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756 to 760	Males	Germany	Documented	38	6/20	—	—
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776 to 780	Males	Germany	Documented	38	6/20	—	—
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796 to 800	Males	Germany	Documented	38	6/20	—	—
801 to 805	Males	Germany	Documented	38	6/20	—	—
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816 to 820	Males	Germany	Documented	38	6/20	—	—
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846 to 850	Males	Germany	Documented	38	6/20	—	—
851 to 855	Males	Germany	Documented	38	6/20	—	—

COVID-19가 성관계로 전파된다? no

- **Low rates of SARS-CoV-2 within seminal fluid** → andrology technicians are not likely to be at risk to contract COVID-19 while performing semen analysis; however, universal precautions should still be used.
- **There has not been any reported evidence of strictly sexual transmission** ← seminal presence of SARS-CoV-2 is only during severe, acute infection and likely resolves with resolution of the illness. (무증상 감염자의 성관계?)
- **Risk of sexual transmission** from men who have **recovered** from infection is negligible.

## 야간뇨 (nocturia)의 병태생리를 분석하기 위한 배뇨일지의 활용법

Seong Cheol Kim, M.D., Ph.D.

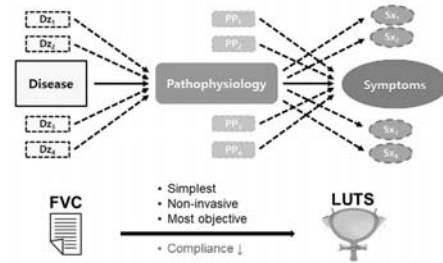
(Department of Urology, Ulsan University Hospital)

### Nocturia is...

1. BPH
2. Storage problem
3. Sx d/t nocturnal polyuria
4. Sx d/t multiple causes

Wolke JP. J Urol. 2006

### Target of medication?



### Compliance

#### Non-completers (N=26)

Wasn't aware of diary	54%
Didn't think it applied to their problem	25%
Too busy	12%
At work-day	12%
Other	35%

Pauls RN. Int Urogynecol J. 2011

#### 왜 적어와야 하는지 설명하면? (N= 129)

(%)	설명 (+)	설명 (-)	p-value
Response rate	94.3	11.4†	82.9
Complete response rate	86.4	75.6	0.130

특히 누구에게?  
젊은 사람, 고학력자

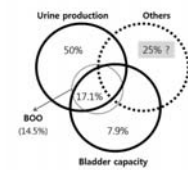
Kim SC. Neurourol Urolynj. 2020

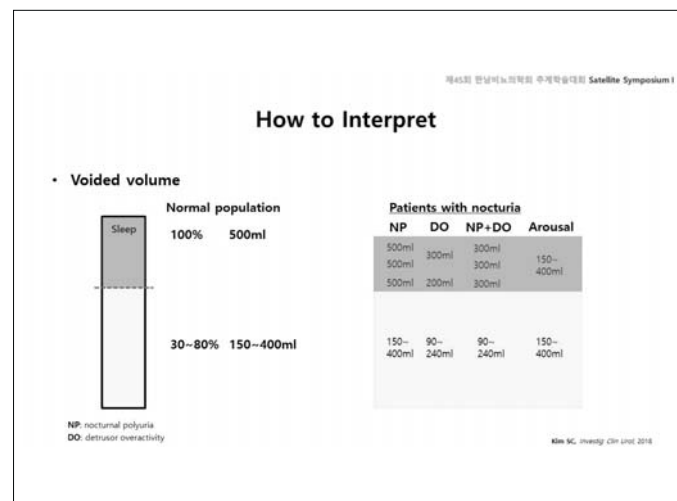
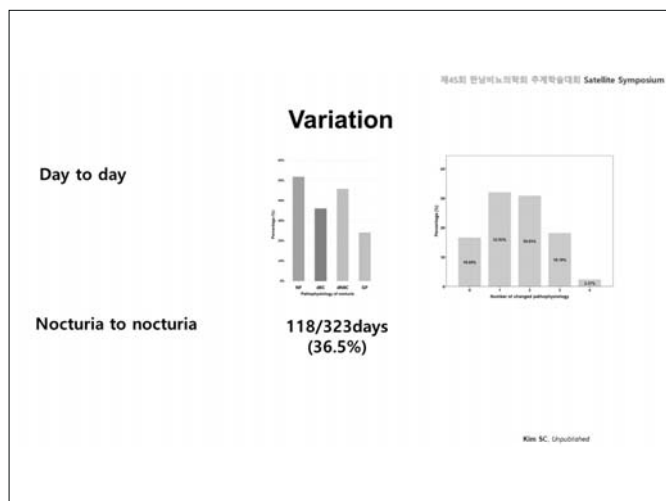
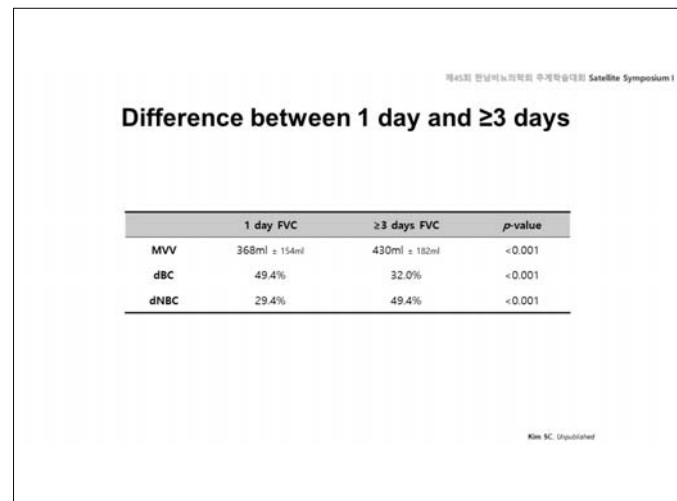
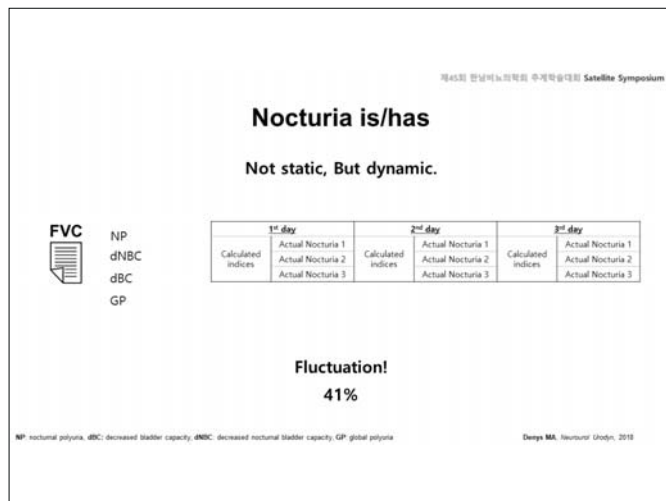
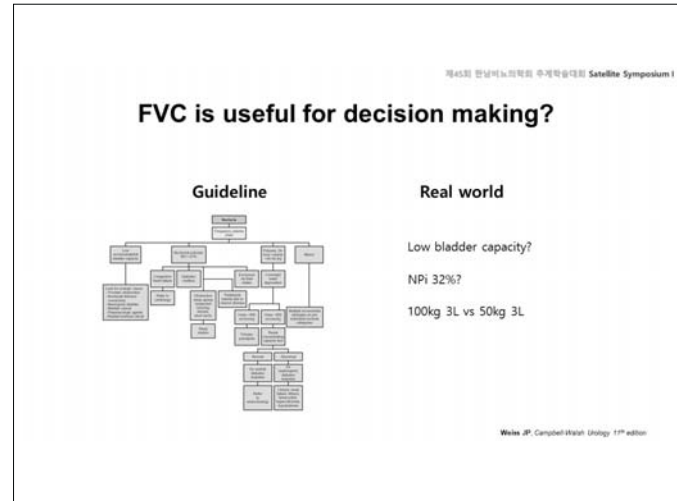
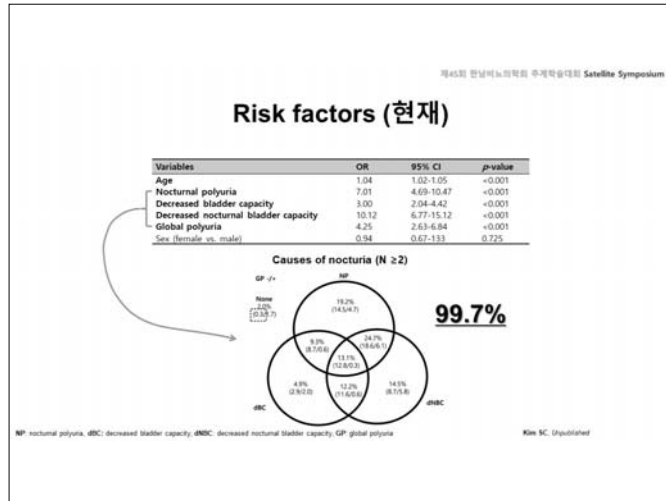
### Risk factors (과거)

	NP (+) 67.1%	NP (-) 32.9%	p-value
Age	59.2 ± 12.3	52.1 ± 12.9	< 0.01
Sex (M/F)	50 (75.8%)	16 (24.2%)	< 0.05
DO	52 (60.5%)	34 (39.5%)	0.84
BOO	25% 14.5%	12 (24.0%)	0.08
IDC	18 (17.6%)	4 (8.0%)	0.08
	17 (16.7%)	6 (12.0%)	0.43

NP: nocturnal polyuria, DO: detrusor overactivity, BOO: bladder outlet obstruction, IDC: impaired detrusor contractility

Kim ET. Korean J Urol. 2001







제45회 한남비뇨의학회 추계학술대회 Satellite Symposium I

Take Home Message

Nocturia is not static, but dynamic.

Read the flow.

Identify the cause at that time.

Make the decision.

Earn fame.

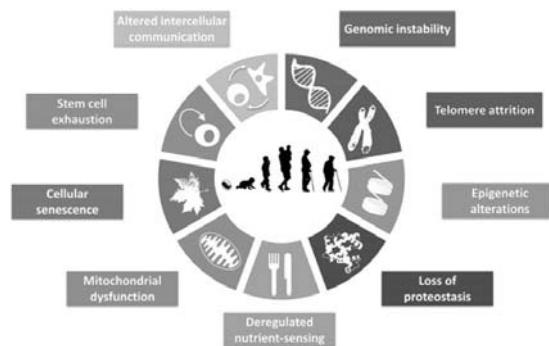


## Gut microbiota as the key controllers of "healthy" Aging

Se Yun Kwon MD. PhD.

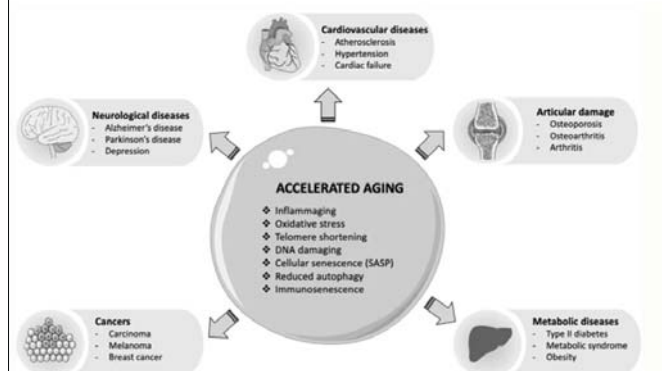
(Department of Urology, Dongguk University College of Medicine, Gyeongju, Republic of Korea)

Aging is a highly complex process affecting a wide array of physiological, genomic, metabolic and immunological functions



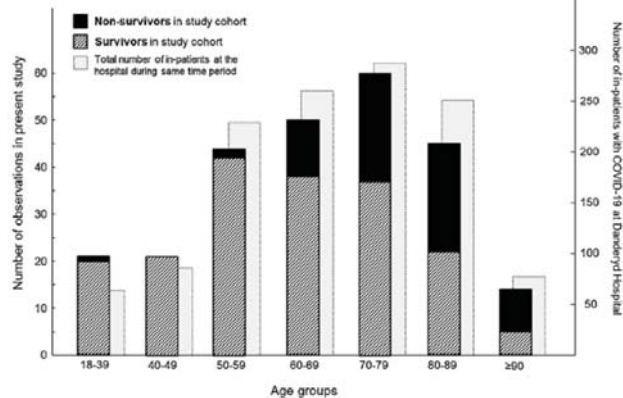
Cell. 2013 June 6; 153(6): 1194–1217

Multiple mechanisms of accelerated aging are similarly found in age-related diseases

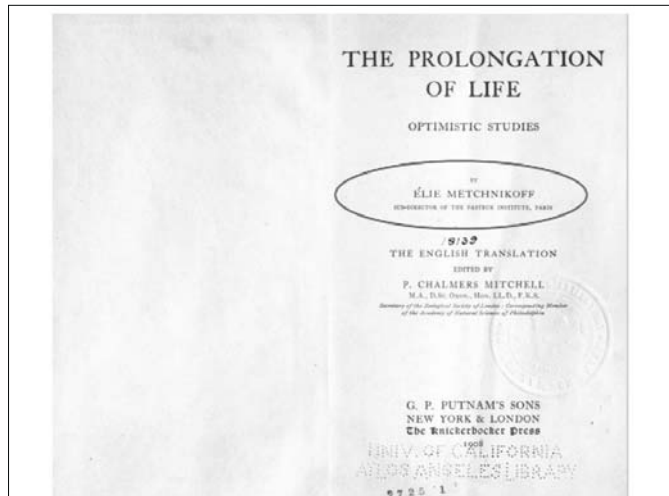


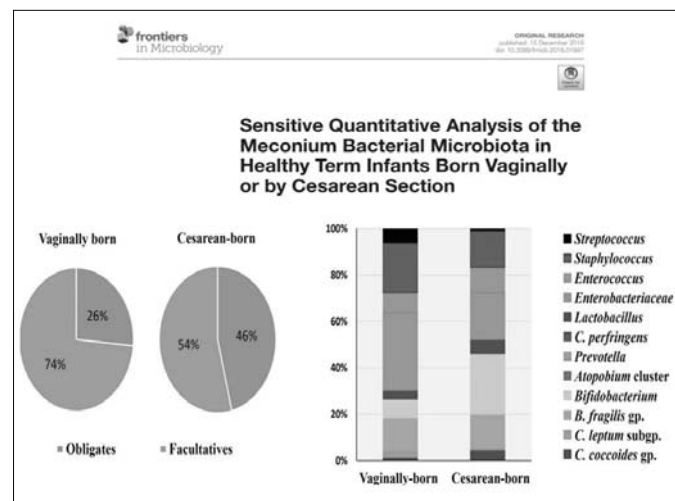
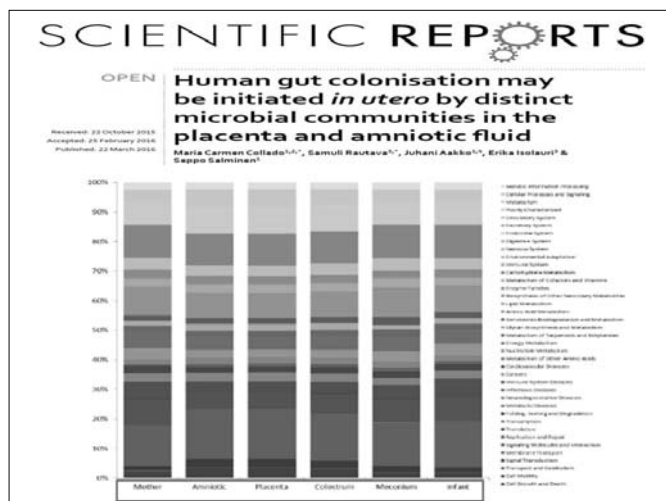
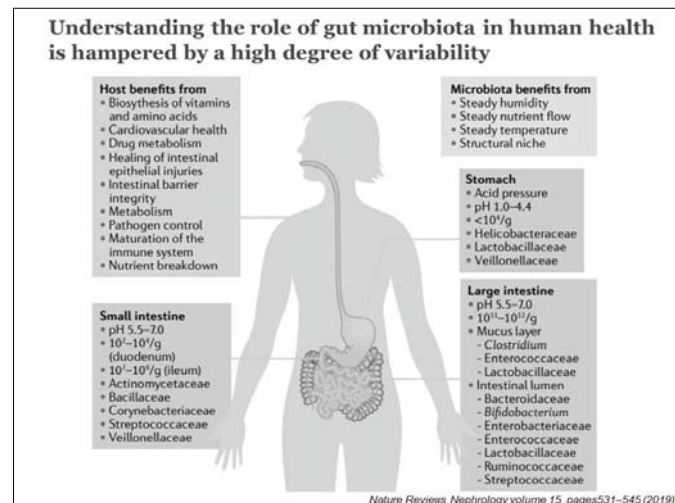
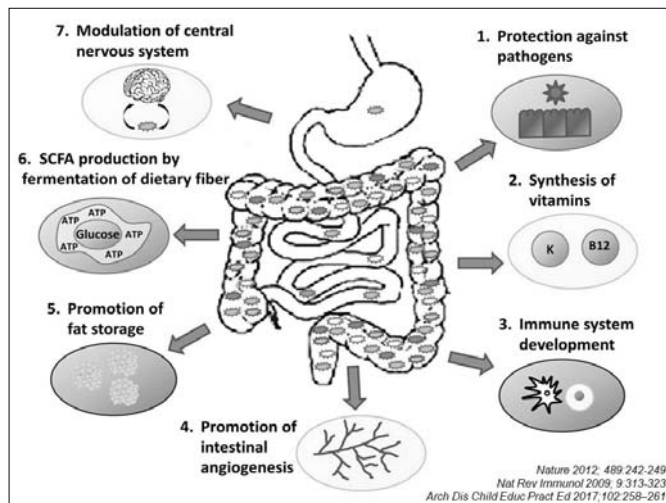
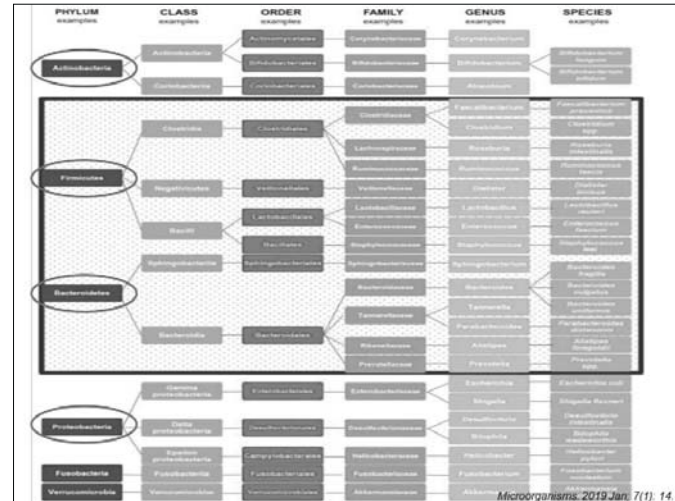
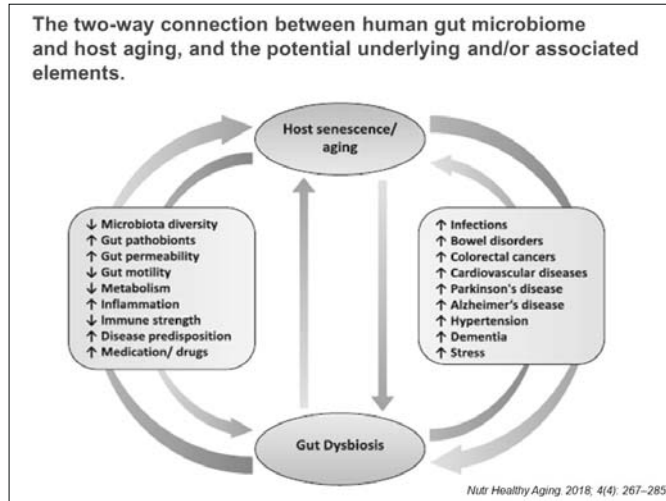
Seminars in Immunopathology (2020) 42:545–557

Age distribution of inpatients with COVID-19



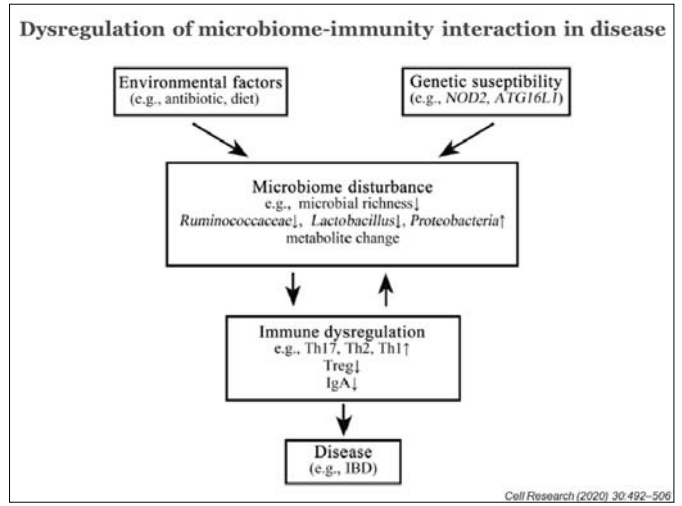
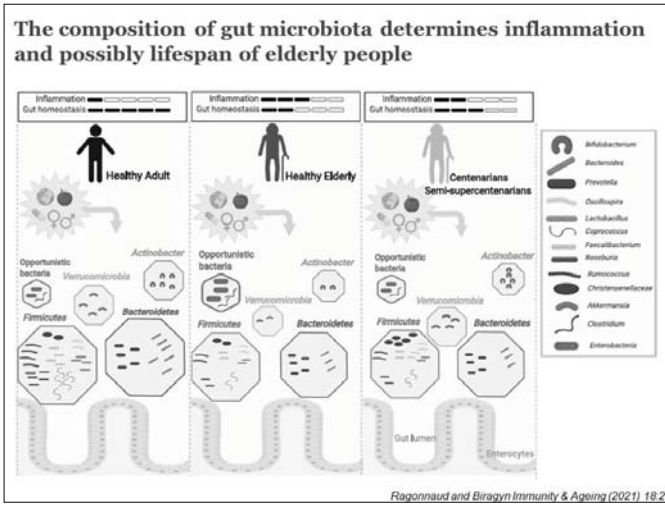
International Journal of Infectious Diseases 102 (2021) 415–421











### CONCLUSION

동국대학교 경주병원

- Despite significant interindividual and lifestyle differences, **the composition of the gut microbiota of elderly humans markedly differs** from that of **young and middle-aged adults**.
- **In elderly**, the composition of the gut microbiota shows **signs of dysbiosis**, such as a marked **decrease in diversity** of its population due to the **accumulation of proinflammatory commensals** and **reduction of beneficial microbes**.
- The **decrease due to aging of beneficial microbes**, particularly supporters of **mucin production** and **producers of SCFAs**, appears to be essential in triggering a chain of **inflammatory events**, such as the impairment of intestinal barrier integrity, increase of gut leakage, endotoxemia, subsequent inflammaging and aging associated morbidities.



# 2021 제45회 한남비뇨의학회 추계학술대회



## International Session

성경탁 (동아의대), 서일영 (원광의대)

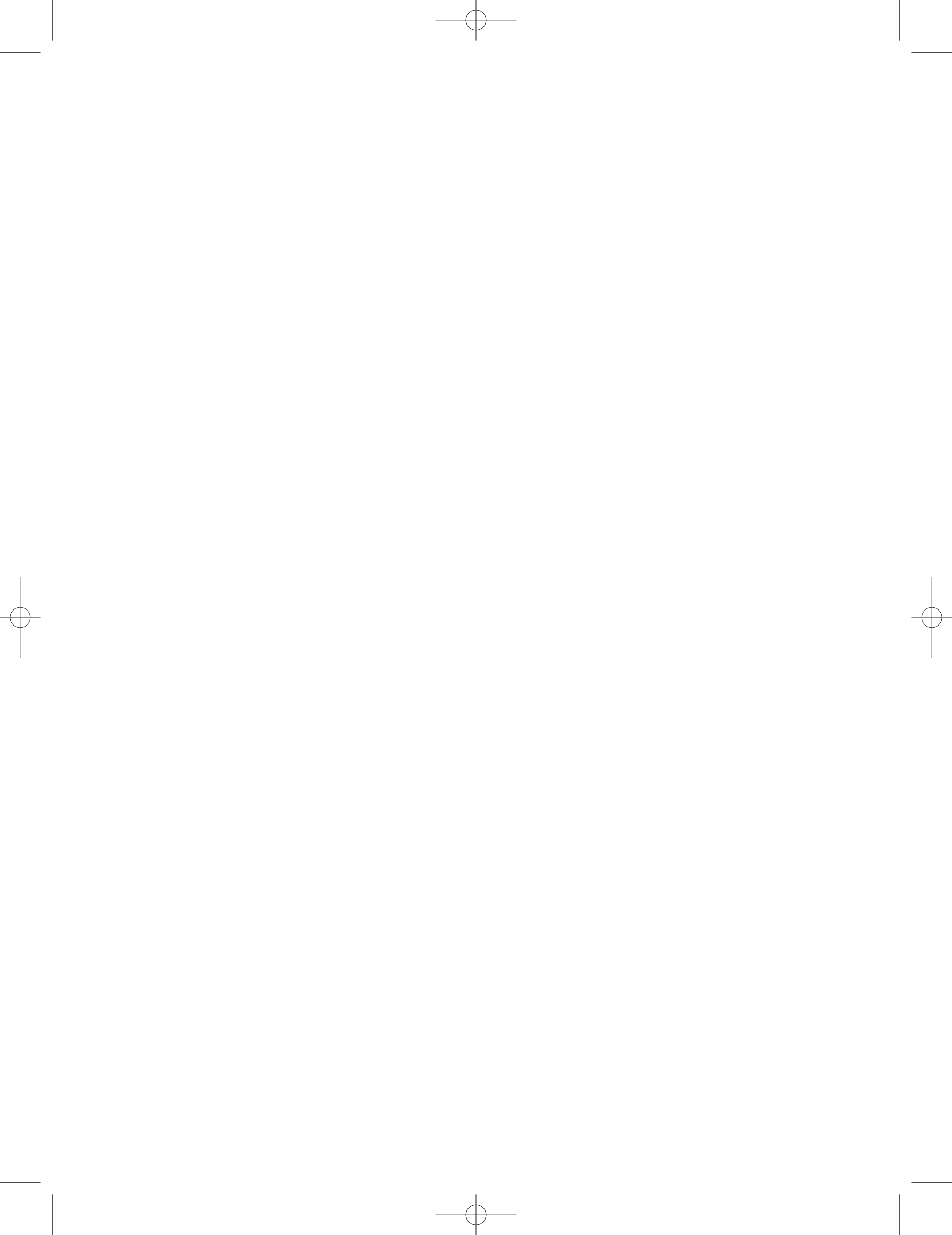
Urethral stricture reconstruction

Jun Jae park (Singapore)

Robotic partial nephrectomy at Cho Ray Hospital

Thanh-Tuan NGUYEN (Vietnam)





# Urethral stricture reconstruction

Jun Jae park  
(Singapore)

## ROBOT-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY AT CHO RAY HOSPITAL

Thai Minh Sam, Chau Quy Thuan, Ngo Xuan Thai, Tran Trong Tri, Thai Kinh Luan, Quach Do La,  
Dinh Le Quy Van, Pham Duc Minh, Nguyen Ngoc Ha, Nguyen Hoai Phan, Le Huu Thuan, Duong  
Nguyen Xuong, Le Nho Tinh, Nguyen Thanh Tuan  
(Vietnam)

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**Objective:** To evaluate the initial results of robot-assisted partial nephrectomy in treatment of kidney tumor.

**Materials and methods:** Data were collected prospectively on 41 cases of robot-assisted laparoscopic partial nephrectomy from October 2017 to January 2021 at Urology Department, Cho Ray hospital. Patient demographics, radiology findings, surgery results, peri-operative complications, hospital stay, pathological results and follow-up results were recorded.

**Results:** There was 41 cases, the ratio of male: female was 2.15:1, the mean age was 53. All of cases were local stage without metastasis. Early complications were low grade according to the Clavien classification, no mortality and no conversion to open, one case was needed intraoperative transfusion. Mean operative time was 265 minutes. The mean estimated blood loss was 78 ml.

**Conclusion:** Robot-assisted laparoscopic partial nephrectomy is feasible with the advantages of minimally invasive intervention.

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**Key word:** renal tumor, partial nephrectomy, robot-assisted laparoscopic surgery.



# DAY 2(토)

대구 EXCO, 3층 323 ~ 325호



# 2021 제45회 한남비뇨의학회 추계학술대회



State of the Art Lecture:  
Application of robotic surgery in non-oncologic diseases (endourology)

좌장: 전상현 (울산의대), 송필현 (영남의대)

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Robotic stone surgery

정원호 (계명대의대)

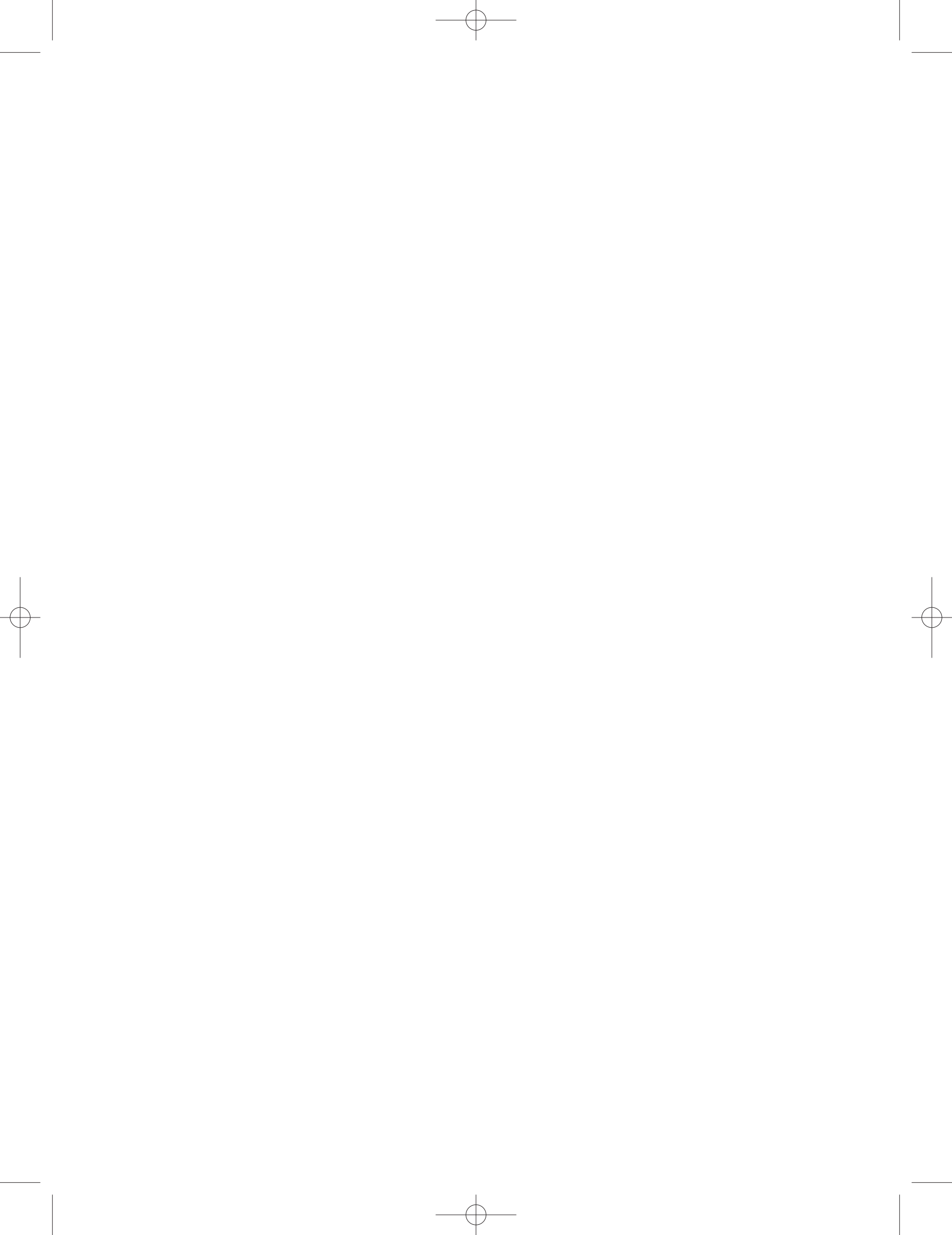
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Robotic reconstructive surgery (e.g. ureteroneocystostomy)

김정호 (인제의대)

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## Robotic stone surgery

정원호  
(계명대의대)

### Robotic stone surgery

	Reference	Inclusion	Study design	Patients
Robot-assisted pyelolithotomy	Atug et al. (2005)	Pyeloplasty	Retrospective	8
	Badani et al. (2006)	Staghorn stone	Prospective	13
	Mufarrij et al. (2008)	Pyeloplasty	Retrospective	13
	Lee et al. (2007)	Staghorn stone	Retrospective	5
	Ghani et al. (2013)	Staghorn stone	Retrospective	3
	Swearingen et al. (2016)	Staghorn stone	Retrospective	27
	King et al. (2014)	Staghorn stone	Prospective	7
Robot-assisted ureterolithotomy	Dogra et al. (2013)	> 2cm lower ureter stone	Retrospective	16

- No comparative study – LU, PCNL, URS, and SWL

Arab J Urol. 2017;16:357-64.

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### Robotic platform - Cost problem

	Mini	Max
A 병원	3,000,000	17,510,000
B 병원	7,140,000	12,000,000
C 병원	3,000,000	25,000,000
D 병원	3,000,000	17,600,000
E 병원	6,000,000	20,000,000
F 병원	4,000,000	15,000,000
G 병원	7,000,000	15,000,000
계명대학교 동산병원	8,000,000	13,000,000

Keimyung University Dongsan Medical Center

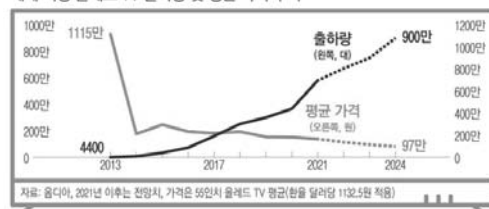
### Price

HOME > 뉴스 > 의료&뉴스

갈수록 가격 낮아지는 테슬라, 모델 S 가격 3~4% 또 인하. 올해 두 번째

최태원 기자 | 승인 2020.10.14 12:57 | 댓글 0

세계 시장 올레드 TV 출하량 및 평균 가격 추이



자료: 올디아, 2021년 이후는 전망치, 가격은 55인치 올레드 TV 평균(한을 달러당 1132.5원 적용)

Keimyung University Dongsan Medical Center

### Conclusions

- selected cases
  - Anatomic abnormalities with large or complex stones
  - Requiring concomitant reconstruction
  - SWL, ureteroscopy and PNL fail or unlikely to be successful
- large ureter stone >20mm
- Robotic platform – still expensive, but ?

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## Robotic urologic reconstructive surgery

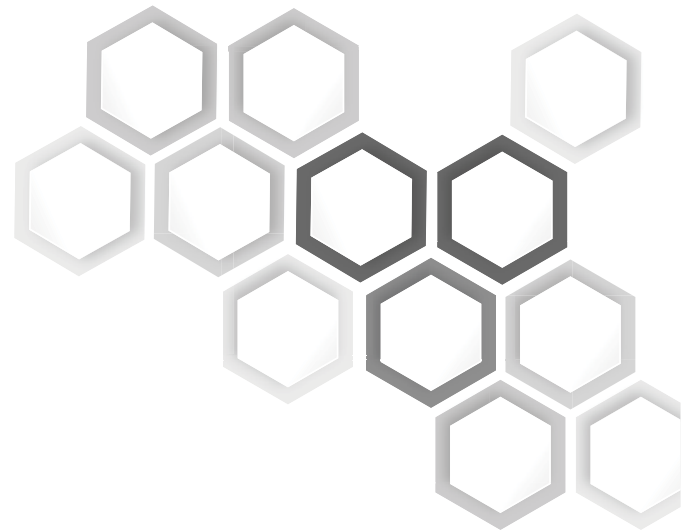
Jeongho Kim

(Department of Urology, College of Medicine, Haeundae Paik Hospital, Inje University, Busan, Korea)

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Recently, robotic surgeons have described techniques in urologic reconstruction. The use of robotic technology to assist in complex laparoscopic procedures in minimal invasive urological surgery has been steadily increasing. The robot system is optimally suited for performing complex reconstructive procedures anywhere in the abdominal cavity. The increased degrees of freedom using EndoWrist technology, the improved depth perception with three-dimensional vision, and the ergonomic console position in a long-standing and time-consuming operation are all likely to facilitate the operation, and this may translate into potential postoperative benefits. During the past 10 years, robotic-assisted reconstructive surgery in urology has developed from 'experimental surgery' to an alternative to the accepted 'standard of care' at several robotic centers worldwide. Robotic-assisted reconstructive urological surgery is an expanding field, but the number of published studies is still limited. However, overall outcomes seem to be similar to outcomes from the gold standard treatment, often with less morbidity. Although long-term data are obviously essential in assessing the extended feasibility of such a technique, it seems that the dissemination of robotics into many aspects of reconstructive urology has only begun.

# 2021 제45회 한남비뇨의학회 추계학술대회



## Debate Session (Treatment of Huge BPH: debate): Voiding dysfunction/ Incontinence Session

좌장: 김대경 (을지의대), 유은상 (경북의대)

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Holmium laser enucleation techniques

김범수 (경북의대)

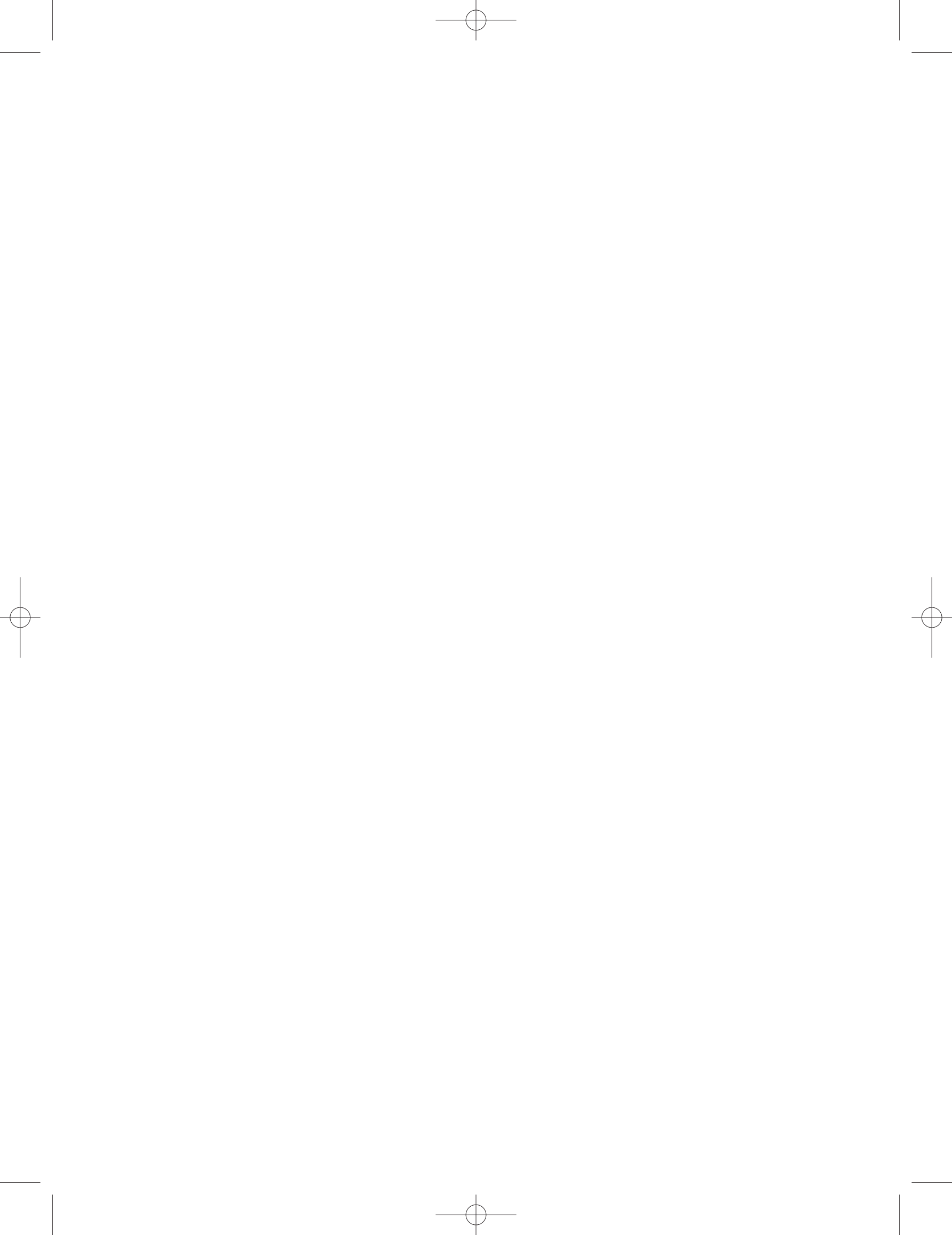
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Robotic surgery (Robotic Simple Prostatectomy, Aquablation)

김병훈 (계명의대)

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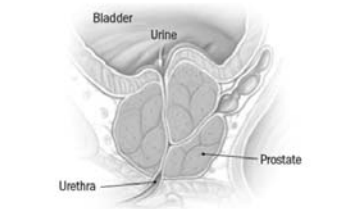


## Treatment of Huge BPH: HoLEP technique

Bum Soo Kim

(Department of Urology, School of Medicine, Kyungpook National University)

**KNU**




Bladder  
Urine  
Urethra  
Prostate

TURP?

Prostatectomy?

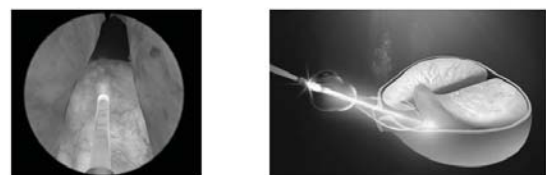
Endoscopic enucleation?

Minimal invasive procedure?




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**KNU**



### Why HoLEP?



**KNU**

**KNU**

Original Article - New Technology/Lasers in Urology

Korean J Urol 2015;56(3):19-26.  
http://dx.doi.org/10.4111/kju.2015.56.3.218  
pISSN 2005-6737 • eISSN 2005-6745

### Efficacy and safety of holmium laser enucleation of the prostate for extremely large prostatic adenoma in patients with benign prostatic hyperplasia

Myong Kim, Songzhe Piao, Hahn-Ey Lee, Sung Han Kim<sup>1</sup>, Seung-June Oh  
Department of Urology, Seoul National University Hospital, Seoul, Department of Urology, National Cancer Center, Goyang, Korea

Table 3. Comparison of the surgical outcome parameters

Variable	Group A (n=426)			Group B (n=70)			Group C (n=6)		
	Preop.	6 Months	p-value*	Preop.	6 Months	p-value*	Preop.	6 Months	p-value*
IPSS									
Total score	17.9±7.8	9.7±7.9	<0.001*	18.8±8.7	10.1±7.6	<0.001*	13.2±3.6	3.3±2.2	0.002*
Voiding symptom score	10.8±5.3	4.4±5.3	<0.001*	10.9±6.1	4.7±5.5	<0.001*	6.8±3.1	0.5±0.5	0.004*
Storage symptom score	7.1±3.5	5.4±3.6	<0.001*	8.0±3.7	5.4±3.2	0.001*	6.3±1.8	2.8±1.7	0.011*
Quality of life score	4.0±1.3	2.3±1.6	<0.001*	4.4±1.1	2.5±1.6	<0.001*	3.2±1.2	0.8±1.0	0.022*
Uroflowmetry									
Qmax (mL/s)	9.2±4.5	20.5±10.7	<0.001*	8.4±3.9	24.5±10.9	<0.001*	9.5±3.0	20.7±6.1	0.023*
PVR (mL)	64.6±83.6	14.4±37.3	<0.001*	91.1±104.3	12.0±24.6	<0.001*	116.7±134.0	71.0±80.3	0.426

Values are presented as mean±standard deviation.  
Group A, total prostate volume (TPV) <100 mL; group B, 100 mL ≤ TPV <200 mL; group C, TPV ≥200 mL; Preop., preoperatively; IPSS, International Prostate Symptom Score; Qmax, maximum flow rate; PVR, postvoid residual.

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UJ  
ISSN 0391-5603

Urologia 2017; 84 (3): 169-173  
DOI: 10.5301/uj.5000232

ORIGINAL RESEARCH ARTICLE

### Holmium laser enucleation of the prostate (HoLEP) for small, large and giant prostatic hyperplasia: tips and tricks

Petr V. Glybochko, Leonid M. Rapoport, Mikhail E. Enikeev, Dmitry V. Enikeev  
Research Institute of Urology and Reproductive Health, I.M. Sechenov First Moscow State Medical University, Moscow - Russia

TABLE II - Intraoperative findings

	Group 1 (n = 278)	Group 2 (n = 169)	Group 3 (n = 12)	p (1-3)	p (2-3)
Enucleation time (min)	56.5 ± 10.7	96.4 ± 24.9	120.9 ± 35	<0.001*	0.03*
Morcellation time (min)	27.5 ± 7.3	43.3 ± 11.2	65.3 ± 13.2	<0.001*	0.03*
Weight of an enucleated tissue (g)	59.4 ± 11.3	119.0 ± 23.1	206.6 ± 22.2	<0.001*	<0.001*
Enucleation efficacy (g/min)	1.05	1.23	1.70	<0.001*	0.02*
Morcellation efficacy (g/min)	2.16	2.74	3.16	<0.001*	0.02*

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TABLE III - Postoperative findings						
	Group 1 (n = 278)	Group 2 (n = 169)	Group 3 (n = 12)			
Catheterization period (hours)	24 ± 0.8	24 ± 1.1	25.2 ± 2.4			
Hospitalization period (days)	2.7 ± 0.9	2.7 ± 1.7	3.3 ± 1.6			
Postoperative bleeding	3 (1.1%)	2 (1.2%)	0 (0)			
Urinary incontinence	20 (7.2%)	15 (9.4%)	3 (16.7%)			

TABLE IV - Long-term outcomes						
	Before operation	1 month	3 months	6 months	12 months	18 months
<b>IPSS</b>						
Group 1 (<100 cm <sup>3</sup> )	18.7 ± 5.5	5.7 ± 1.5	6.1 ± 1.8	6.5 ± 2.0	6.4 ± 1.5	6.3 ± 1.7
Group 2 (100-200 cm <sup>3</sup> )	19.7 ± 3.3	6.7 ± 2.0	6.6 ± 2.7	7.0 ± 1.1	6.8 ± 2.1	6.8 ± 2.07
Group 3 (>200 cm <sup>3</sup> )	19.5 ± 4.5	5.5 ± 1.0	5.7 ± 1.1	5.5 ± 1.2	5.6 ± 1.7	5.5 ± 1.5
<b>QoL</b>						
Group 1 (<100 cm <sup>3</sup> )	4.1 ± 0.5	2.1 ± 0.5	2.0 ± 0.7	2.1 ± 0.6	2.1 ± 0.7	2.0 ± 0.9
Group 2 (100-200 cm <sup>3</sup> )	4.2 ± 0.7	1.8 ± 1.1	1.8 ± 0.7	1.8 ± 0.7	2.0 ± 1.0	2.0 ± 1.4
Group 3 (>200 cm <sup>3</sup> )	4.1 ± 0.3	1.7 ± 0.9	1.7 ± 0.5	1.7 ± 0.4	1.9 ± 0.4	1.9 ± 0.7
<b>Qmax (ml/s)</b>						
Group 1 (<100 cm <sup>3</sup> )	6.2 ± 1.5	18.3 ± 4.5	18.4 ± 3.9	19.3 ± 3.6	20.3 ± 3.5	19.9 ± 3.9
Group 2 (100-200 cm <sup>3</sup> )	5.9 ± 0.7	22.1 ± 3.2	20.2 ± 3.1	20.1 ± 3.6	19.9 ± 3.4	19.6 ± 3.6
Group 3 (>200 cm <sup>3</sup> )	4.7 ± 0.9	21.3 ± 1.7	23.3 ± 1.5	23.9 ± 1.9	24.1 ± 2.2	25.0 ± 1.8
<b>PVR (ml)</b>						
Group 1 (<100 cm <sup>3</sup> )	54.2 ± 30.5	20.0 ± 5.5	21.1 ± 6.5	18.0 ± 7.1	18.3 ± 7.5	19.3 ± 5.5
Group 2 (100-200 cm <sup>3</sup> )	70.9 ± 20.1	19.1 ± 9.5	19.0 ± 8.7	16.6 ± 8.5	16.8 ± 8.7	15.8 ± 8.1
Group 3 (>200 cm <sup>3</sup> )	92.3 ± 10.9	14.0 ± 10.1	16.1 ± 8.8	16.7 ± 8.6	16.6 ± 8.5	16.1 ± 6.5

## Why not HoLEP?

### HoLEP—a steep learning curve but better for patients

A new prospective trial has shown that holmium laser enucleation of the prostate (HoLEP) is associated with a lower risk of ... than the men who underwent TURP. Also, the amount of material removed from the prostate was considerably ...

of experience in treating BPH surgically, we consider HoLEP the most promising technique to replace TURP as the gold-standard of care," concludes Wang.

Mina Razzak

**Original article** Chen, Y-B et al. A prospective, randomized clinical trial comparing plasmakinetic resection of the prostate with holmium laser enucleation of the prostate: based on a 2-year follow-up. *J Urol*. 189, 217-222 (2013). **Further reading** van H, S. & Gill, P. J. In 2013, holmium laser enucleation of the prostate (HoLEP) may be the new 'gold standard'. *Curr Opin Urol*. 23, 427-432 (2012).

### Review Article

## Assessing the Learning Curve of Holmium Laser Enucleation of Prostate (HoLEP). A Systematic Review

Spyridon Kampantais, Panagiotis Dimopoulos, Ali Tasleem, Peter Acher, Karen Gordon, and Anthony Young

We systematically assessed the learning curve of Holmium laser enucleation of the prostate using the available literature to identify, as our primary outcome, the average number of cases required to reach competency. A computerized search of PubMed and Scopus for articles published from inception through to January 2018 was performed including 24 studies with a total of 5173 patients. Even though different outcome measures require varying case-loads to reach a plateau, Holmium laser enucleation of prostate has an acceptable learning curve with a proposed figure approximating 25-50 cases, with a structured mentorship programme aiding for faster progress. *UROLOGY* 120: 9-22, 2018. © 2018 Elsevier Inc.

## Surgical technique

## Summary

- HoLEP is effective and safe procedure even in the huge BPH.
- With an appropriate mentorship and overcoming learning-curve, stable and promising outcomes can be expected using HOLEP for the patients with huge BPH.

## Robotic surgery (Robotic Simple Prostatectomy, Aquablation)

Kim Byung-Hoon

(Department of Urology, Keimyung University School of Medicine, Daegu, Korea)

### Surgical treatment of BPH

- Transurethral Resection of the Prostate (TURP)
- Simple Prostatectomy (Open, laparoscopic, or Robotic assisted prostatectomy : RASP)
- Transurethral Incision of the Prostate (TUIP)
- Laser Enucleation (HoLEP & ThuLEP)
- Transurethral Vaporization of the Prostate (TUVAP)
- Photoselective Vaporization of the Prostate (PVP)
- Prostatic Urethral Lift (PUL)
- Transurethral Microwave Therapy (TUMT)
- Water Vapor Thermal Therapy (WVTT)
- Transurethral Needle Ablation (TUNA)
- Robotic Waterjet Treatment (RWT) : Aquablation (AQUABEAM)
- Prostate Artery Embolization (PAE)



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Keimyung University Daegu Medical Center

### Aquablation (AQUABEAM)

Aquablation Therapy: The first and only image guided, real-time robotic therapy for BPH

Robotic Assisted Therapy  
Image Guided Therapy  
Real-time Monitoring



BPH Surgery Reimagined  
AQUABEAM  
Powered by PROCEPT Technologies

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Keimyung University Daegu Medical Center

### Aquablation (AQUABEAM)

#### Water I (RCT - Aquablation vs TURP)

- 181 men (30-80 ml)
- Total operation time was similar (33 vs 36 min)
- The resection time was substantially shorter and independent of prostate size (4 vs 27 min,  $p < 0.001$ )
- At 6 months, 3 years, both technique had identical and substantial improvements in IPSS, IPSS-QoL, Qmax, post-void residual urine volume
- PSA reduction rate was similar
- Anejaculation rate (10% vs 36%,  $P = 0.0003$ )
- Retreatment rate (4.3 % vs 1.5 %,  $P = 0.4219$ ) > Meta-analysis: more re-treatment compared to TURP

WATER: A Double-Blind, Randomized, Controlled Trial of Aquablation™ vs Transurethral Resection of the Prostate in Benign Prostatic Hyperplasia

Peter Gillies,\* Neil Barber, Mohamed Bidair, Paul Anderson,\* Mark Sutton, Tew Aho, Eugene Krametsosky, Andrew Thomas, Barrett Cowan, Ronald P. Kaufman, Jr., Andrew Trainer, Andrew Arthur, Gopal Bellani, Mark Plante, Mihir Desai,\* Leo Doumales, Alvin E. Te,\* Mark DeGuerther\* and Claus Ruchhorn\*



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2018 J Urol, 2020 Can J Urol

### Aquablation (AQUABEAM)

#### Water II Study (Single arm)

- 101 men (80-150 ml)
- Total operation time : 37 min
- The ablation time: 8 min
- mean hospitalization time 1.6 days -> catheter removing time : 4 days (0.7-30 days)
- IPSS : 23.2 -> 6.2
- Qmax improve : +12.5 ml/s
- PVR reduce : -171 ml
- Bleeding complications 9.9 %, Peri-operative transfusions : 5.9 %
- Return to OR for fulguration : 5.0 %
- Mean Hb drop 2.9 g/dL

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Keimyung University Daegu Medical Center

2019, 2020 BJU Int

## Aquablation (AQUABEAM) : AUA, EAU guideline

**AUA** : Robotic waterjet treatment (RWT) may be offered as a treatment option to patients with LUTS/BPH provided prostate volume 30-80cc. (Conditional Recommendation; Evidence Level: Grade C)

**EAU** : It appears to be as effective as TURP, but is associated with concerns (hemostasis-Oxfo level of evidence 1b) (for 30-80 ml, as an alternative to TURP - Weak recommendation)

## Robotic-Assisted Simple Prostatectomy (RASP)

## Robotic-Assisted Simple Prostatectomy (RASP)

Table 2 RASP technical modifications.

Reference	Technique highlight
Sotelo et al., 2008 [9]	First RASP description; transperitoneal; horizontal cystostomy.
Yuh et al., 2008 [23]	Introduction of retropubic RASP (transcapsular).
John et al., 2009 [24]	Extraperitoneal approach; balloon dissection; vertical cystostomy.
Fareed et al., 2012 [30]	Early reports on SP RASP with DaVinci 5 <sup>th</sup> .
Coelho et al., 2012 [31]	Capsule approximation, posterior reconstruction, urethral anastomosis.
Clavijo et al., 2013 [32]	Intrafascial technique; puboprostatic attachments preservation.
Elasmra et al., 2014 [33]	Use of tenaculum by assistant surgeon in a 2nd console.
Leslie et al., 2014 [34]	Transperitoneal RASP, vertical cystostomy, stay sutures.
Stolzemburg et al., 2018 [35]	Extraperitoneal approach, 5- and 7-o'clock hemostatic stitches.
Castillo et al., 2016 [36]	180° posterior urethro-vesical anastomosis.
Falavotti et al., 2017 [36]	Internal iliac artery clamping.
Simone et al., 2019 [37]	Urethral-sparing RASP; use of NIFI (indocyanine green).
Cacciamani et al., 2018 [25]	360° vesico-urethral anastomosis; no posterior reconstruction.
Wang et al., 2018 [27]	Urethral-sparing RASP; ejaculation preserving.
Moschovas et al., 2020 [28]	Modified RASP; intrafascial; total excision of prostate tissue.
Kaouk et al., 2020 [29]	First SP RASP series with DaVinci SP <sup>TM</sup> .

NIFI, near-infrared fluorescence imaging; RASP, robot-assisted simple prostatectomy; SP, single-port.

## Robotic-Assisted Simple Prostatectomy (RASP)

Table 2 RASP technical modifications.

Reference	Technique highlight
Sotelo et al., 2008 [9]	First RASP description; transperitoneal; horizontal cystostomy.
Yuh et al., 2008 [23]	Introduction of retropubic RASP (transcapsular).

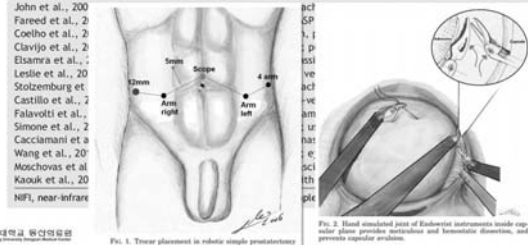


Fig. 1. Trocar placement in robotic simple prostatectomy

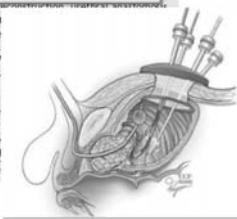
Fig. 2. Hand-manipulated part of Endorectomet instruments inside vaginal plane provides orientation and tenaculum placement, and provides regular avulsion.

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Table 2 RASP technical modifications.

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Fareed et al., 2012 [30]	Early reports on SP RASP with DaVinci 5 <sup>th</sup> .
Coelho et al., 2012 [31]	Capsule approximation; posterior reconstruction.
Clavijo et al., 2013 [32]	Intrafascial technique; puboprostatic attachments preservation.
Elasmra et al., 2014 [33]	Use of tenaculum by assistant surgeon.
Leslie et al., 2014 [34]	Transperitoneal RASP, vertical cystostomy, stay sutures.
Stolzemburg et al., 2018 [35]	Extraperitoneal approach, 5- and 7-o'clock hemostatic stitches.
Castillo et al., 2016 [36]	180° posterior urethro-vesical anastomosis.
Falavotti et al., 2017 [36]	Internal iliac artery clamping.
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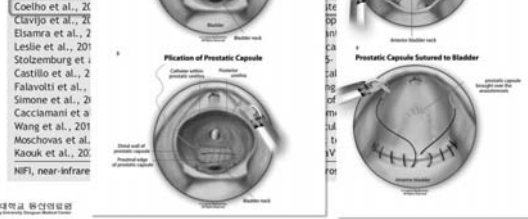
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## Robotic-Assisted Simple Prostatectomy (RASP)

Table 2 RASP technical modifications.

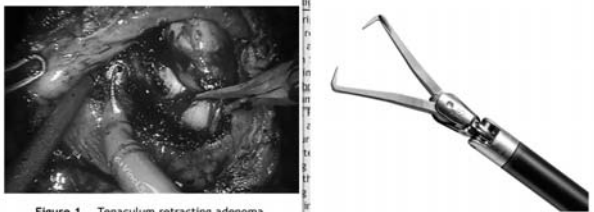


Figure 1 Tenaculum retracting adenoma.

NFI, near-infrared fluorescence imaging; RASP, robot-assisted simple prostatectomy; SP, single-port.

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## Robotic-Assisted Simple Prostatectomy (RASP)



Fig. 2 Vertical cystostomy at the dome of the bladder providing transvesical access to the adenoma.

Moschovas et al., 2020 [28]  
Kaouk et al., 2020 [29]

Modified RASP  
First SP RASP

NFI, near-infrared fluorescence imaging; RASP, robot-assisted simple prostatectomy; SP, single-port.

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## Robotic-Assisted Simple Prostatectomy (RASP)

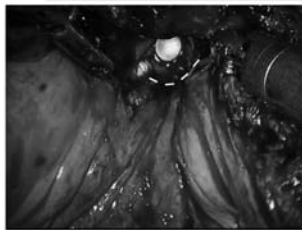


Fig. 3 A double-needle barbed suture was used to create a posterior urethrovesical anastomosis using the Van Velthoven technique. Being careful not to include the urethral orifice, the posterior bladder neck and urethra were sown between Hour 7 and Hour 9 to create a halfway urethrovesical anastomosis (broken line).

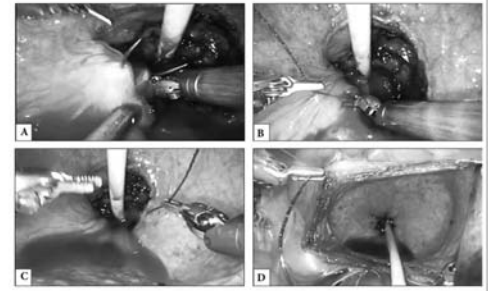
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Right  
approach; transperitoneal; horizontal cystostomy.  
retropubic RASP (transcapsular).  
approach; balloon dissection; vertical cystostomy.  
SP RASP with DaVinci SP™.  
anastomosis, posterior reconstruction, urethral anastomosis.  
technique; puboprostatic attachments preservation.  
in by assistant surgeon in a 2nd console.  
RASP, vertical cystostomy, stay sutures.  
approach. 5- and 7-o'clock hemostatic stitches.  
retro-vesical anastomosis.  
very clamping.  
RASP; use of NFI (indocyanine green).  
anal anastomosis; no posterior reconstruction.  
RASP; ejaculation preserving.  
intrafascial; total excision of prostate tissue.  
ties with DaVinci SP™.

First SP RASP

NFI, near-infrared fluorescence imaging; RASP, robot-assisted simple prostatectomy; SP, single-port.

Fig. 3 360° circumferential reconstruction.



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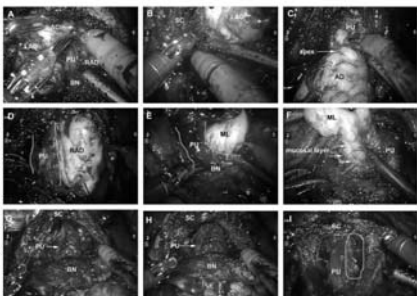


Figure 2 Dissection of the adenoma. (A, B, C and D) Dissection of the lateral side of the prostate. (E and F) Dissection of the median lobe. (G and H) Bladder tilting test. (I) Appearance after running suture of the opened urethra (dotted line coil). AC anterior commissure; AD, adenoma; BN, bladder neck; LAD, left adenoma; ML, median lobe; PU, prostate; urethra; RAD right adenoma; SC, surgical capsule. (Color version available online.)

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## Robotic-Assisted Simple Prostatectomy (RASP)

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Simone et al., 2019 [17]

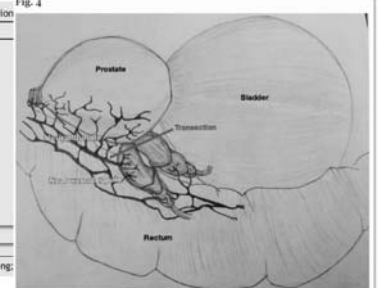
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Wang et al., 2018 [27]

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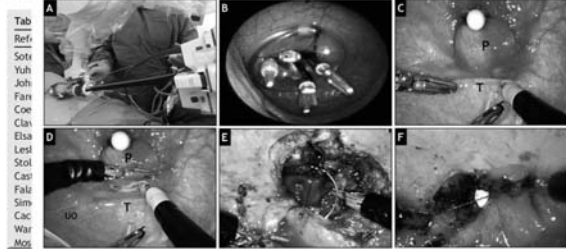
NFI, near-infrared fluorescence imaging; RASP, robot-assisted simple prostatectomy; SP, single-port.



Anatomy

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## Robotic-Assisted Simple Prostatectomy (RASP)



**Figure 1.** Docking and step-by-step of the simple prostatectomy. (A) The SP robot was docked. Robotic instruments were inserted through the cannula into the bladder. (B) Cystoscopic view of the SP instruments deployed transvesically. (C, D) The enucleation begins with an incision on the bladder mucosa. (E, F) Prostate fossa is then covered by advancement of the bladder mucosa. (Color version available online.)

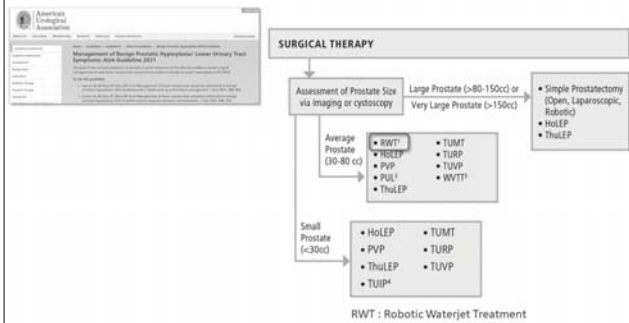
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## RASP: AUA, EAU guideline

**AUA :** Open, laparoscopic, or robotic assisted prostatectomy should be considered as treatment options by clinicians, depending on their expertise with these techniques, only in patients with large to very large prostates. (Moderate Recommendation; Evidence Level: Grade C)

**EAU :** Minimal invasive simple prostatectomy is feasible in men with prostate sizes > 80 mL needing surgical treatment; however, RCTs are needed. (LE 1a)

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## RASP VS Laser enucleation

**Minimally invasive simple prostatectomy in the era of laser enucleation for high-volume prostates: A systematic review and meta-analysis**  
Javadineh A, Chahed, Julien Sarkis, Elie El Helou, Elie Hanna, Georges Akle Tawfik and Albert Samraoui  
Department of Urology, Hôpital Des Francs Hospital, Beirut, Lebanon

Table 1. Summary of preoperative parameters.

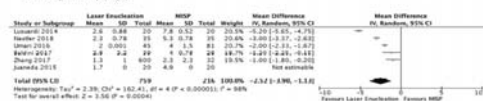
Patients	Prostate volume, mL, mean (SD)	PSA, mean (SD)	Qmax, mL/s, mean (SD)	PVR, mL, mean (SD)	PSA level, ng/mL, mean (SD)
Balbir et al. [10]	39 LSP 28 P <0.001	83.9 (179.0) 130.5 (107.1) 0.607 0.607	21.1 (8.37) 19.8 (13.5) 7.5 (4.7) 0.762	8.2 (5.2) 137.1 (18.5) 198.4 (87.5) 0.675	7.2 (4.8) 8.4 (7.3) 0.675
Joannidis et al. [16]	20 LSP 20 P =	136.5 127.5 0.81 0.81	21 23.5 6.7 (2.6) 6.7 (2.6)	8.1 8.9 142.5 (89.6) 142.5 (89.6)	8.9 8.9 7.5 (3.3) 7.5 (3.3)
Loi et al. [15]	20 LSP 20 P =	96.1 (55.9) 94.0 (22.4) 0.81 0.81	28.4 (4.95) 27.7 (4.96) 6.7 (2.6) 6.7 (2.6)	8.7 (2.6) 7.8 (2.27) 142.5 (89.6) 142.5 (89.6)	8.07 (3.7) 7.5 (3.3) 7.5 (3.3) 7.5 (3.3)
Neel et al. [17]	35 ThulEP 35 P =	95.2 (37.1) 95.2 (37.1) 0.41 0.41	20.4 (3.9) 20.4 (3.9) 8.8 (5.3) 8.8 (5.3)	8.8 (5.3) 8.8 (5.3) 107.8 (88.8) 107.8 (88.8)	8.1 (6.3) 8.1 (6.3) 9.7 (6.6) 9.7 (6.6)
Umar et al. [17]	81 RASP 81 P =	104.4 (59.6) 104.4 (59.6) 0.06 0.06	24.2 (6.0) 24.2 (6.0) 20 (7) 20 (7)	8.5 (5.2) 8.5 (5.2) 0.2 0.2	8.1 (6.3) 8.1 (6.3) 0.2 0.2
Zhang et al. [1]	600 LSP 32 P =	110.5 (34.6) 110.5 (34.6) 111.81 111.81	19.06 19.06 22.4 (5.9) 22.4 (5.9)	8.2 (5.9) 8.2 (5.9) 0.2 0.2	8.2 (5.9) 8.2 (5.9) 0.2 0.2

\*Median values presented in Neel et al. and Umar et al. were converted to mean  $\pm$  SD (Sun Q, Wan B, Liu L, et al. Optimally estimating the sample mean from the sample size, median, mid-range, and/or mid-quartile range. Stat Methods Med Res. 2018;23:1785-805).

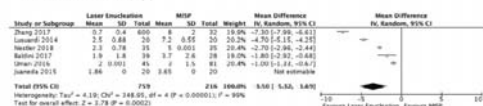
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## RASP VS Laser enucleation

### A. Length of stay (days)



### B. Catheterisation time (days)



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## RASP VS Laser enucleation

### C. Operative time (min)



### D. Prostatic tissue removed during surgery (g)

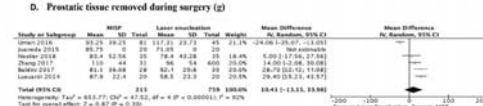


Figure 2. Forest plots comparing perioperative parameters. Average length of stay, catheterisation time and operative time were all in favour of laser enucleation, while volume of prostatic tissue resected was comparable between both groups.

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## RASP VS Laser enucleation

		Patients, n	PSA level, ng/mL, mean (SD)	IPSS, mean (SD)	Qmax, mL/s, mean (SD)	PVR, mL, mean (SD)
Preoperative	HoLEP	39	2.9 (2.7)	11.3 (7.5)	17.1 (5.8)	58.3 (60.8)
	LSP	28	2.8 (2.3)	8.4 (1.7)	21.8 (19.6)	20 (132.3)
	P		0.024	0.69	0.25	0.29
Postoperative	HoLEP	20	—	4.8	24.75	—
	LSP	20	—	7.65	34.61	—
	P			0.01	0.39	
Postoperative	HoLEP	20	—	4.3 (1.4)	20.8 (2.4)	34.2 (9.3)
	LSP	20	—	4.3 (1.4)	20.25 (2.7)	36.3 (11.4)
	P			0.92	0.3	0.2
Total	HoLEP	45	1.18 (1.13)	6.2 (5.9)	—	—
	LSP	81	1.17 (2.86)	5.12 (5.6)	—	—
	P		0.9	0.8	—	—

Figure 3. Follow-up at 3 months. Forest plot comparing IPSS at 3 months after surgery indicates no statistical difference between both groups. Meta-analysis of remaining outcomes showed comparable postoperative Qmax, IPSS difference = -0.7 mL/s (95% CI: -0.96, 0.50). PSA level (mean difference 0.17 ng/mL, 95% CI: -0.20, 0.53) and PVR (mean difference = 3.71 mL, 95% CI: -16.16, 23.57). \*Median values presented in forest plot at all were converted to mean ± SD (see Table 4, Fig. 1, Table 1). \*Randomly estimating the sample mean from the sample size, median, and range, and/or mid-quartile range. Stat Methods Med Res. 2018;27:1191-1955.

## RASP VS Laser enucleation

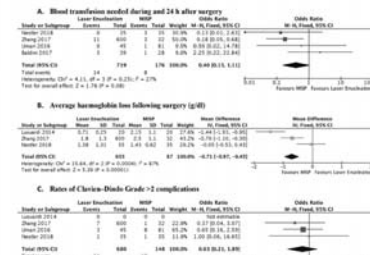


Figure 4. Forest plots comparing surgical complications. Blood loss was statistically higher in the RASP group, but did not translate to a higher transfusion rate. Both surgeries had comparable Clavien-Dindo Grade ≥2 complications.

## RASP VS Laser enucleation

Urinary Incontinence : (3%–9% after OP)

: 2% after TURP

4.9%–12.5% after HoLEP <- most of which recovered within one year

- DM, longer OP and enucleation time, surgeon's experience, larger prostate size, higher blood loss are some factors associated with SUI after HoLEP.

J Urol. 2008;179(5):587-590. J Endourol. 2004;18(2):183-8. J Urol. 2003;170(5):1847-50.

- 8.9% (4/45) patients reported transient UI following HoLEP
- 1.2% (1/81) complained of transient incontinence following RASP.

J Urol. 2017;197:1106-1114

- 25% (8/39) patients who underwent HoLEP reported postoperative pollakiuria and urinary urgency, 7.1% (2/28) in the LSP group.

Curr Urol. 2017;10:81-86.

## Conclusion

- The Aquablation may be offered as a treatment option to patients with LUTS/BPH provided prostate volume 30-80cc.
- For patients with LUTS who need surgery with prostate glands >80cc, RASP is a good alternative MIS, especially when laser systems or surgical skills are unavailable





# 2021 제45회 한남비뇨의학회 추계학술대회



## Andrology Session

좌장: 문경현 (울산의대), 김태호 (동아의대)

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Effects of testosterone replacement therapy on male lower urinary tract symptoms

감성철 (경상의대)

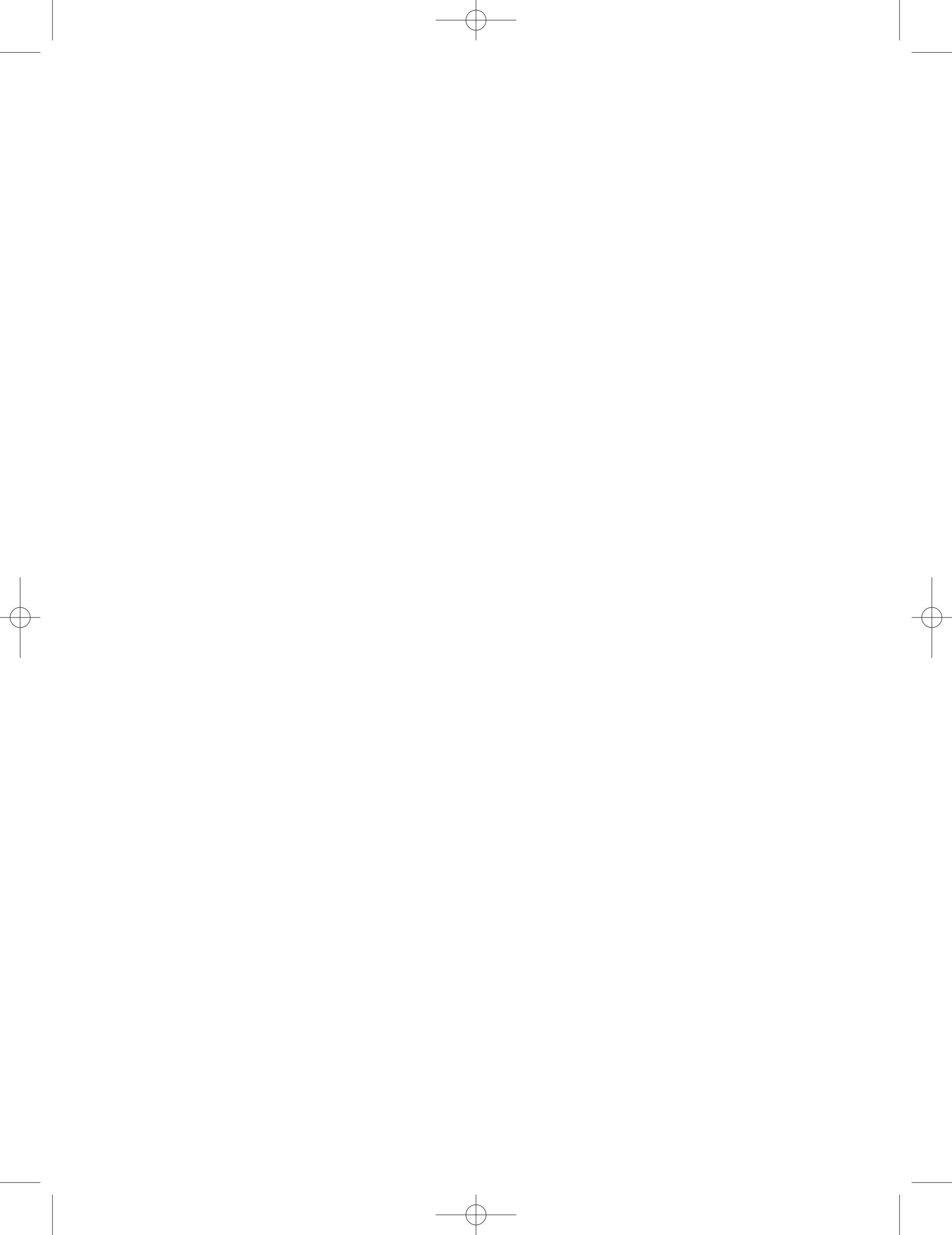
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Orgasmic Dysfunction after Radical Prostatectomy

고동훈 (건양의대)

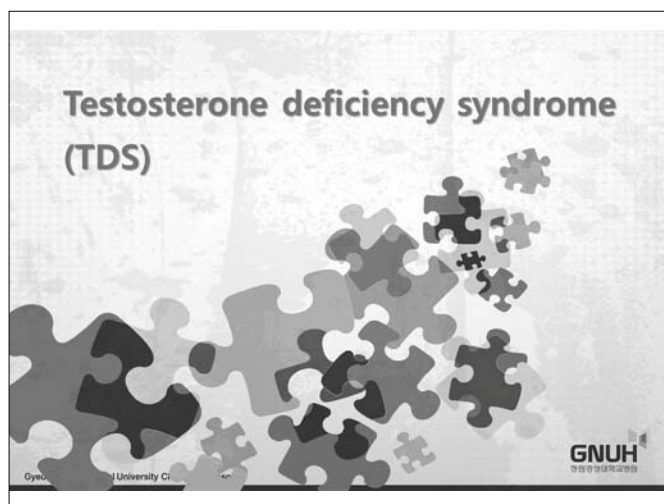
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# Effect of Testosterone Treatment on male lower urinary tract symptoms

감성철  
(경상의대)



### Definition

**Table 2. Evolution of nomenclature and definition.**

Expert opinion	Title	Year of Release and Update
Expert opinion	Andropause, Male climacteric, Male menopause Androgen decline in the aging male (ADAM) Partial androgen decline in the aging male (PADAM)	Before official guideline
ISSAM	Late onset hypogonadism (LOH)	2002, 2005, 2008
ISSAM	Testosterone deficiency syndrome (TDS)	2008, 2015
ISSAM	Hypogonadism or TDs in adult men	2015
ISSM	Testosterone deficiency syndrome (TDS)	2015
AUA	Testosterone deficiency syndrome (TDS)	2018
Endocrine Society	Androgen deficiency syndrome	2006, 2010, 2018

ISSAM: International Society for the Study of the Aging Male; ISSM: International Society for Sexual Medicine; AUA: American Urological Association.

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Hyun Jun Park et al. J. Clin. Med. 2019, 8, 410

### Testosterone

**Table 4. Cutoff values of testosterone for laboratory diagnosis.**

Cutoff Values	Year of Release and Update
Expert opinion	Total T (TT) or free T below the lower limits of normal
Expert opinion	Before Official Guideline
ISSAM	TT < 231 ng/dL (8 nmol/L) TT: 231–346 ng/dL (8–12 nmol/L) or free T < 52 pg/mL
ISSAM	TT < 230 ng/dL (8 nmol/L) TT: 230–350 ng/dL (8–12 nmol/L) or free T < 52 pg/mL, SHBG
ISSAM	TT < 350 ng/dL (12 nmol/L) or free T < 65 pg/mL
ISSAM	TT < 300 ng/dL or free T < 5 ng/dL
Endocrine Society	TT < 280–300 ng/dL or free T < 5–9 ng/dL
Endocrine Society	TT < 300 ng/dL or free T < 5 ng/dL
ISSM	TT < 350 ng/dL (12 nmol/L)
ISSM	ICSM 2015
AUA	TT < 300 ng/dL
AUA	2018

ISSAM: International Society for the Study of the Aging Male; ISSM: International Society for Sexual Medicine; ICSM: International Consultation for Sexual Medicine; AUA: American Urological Association.

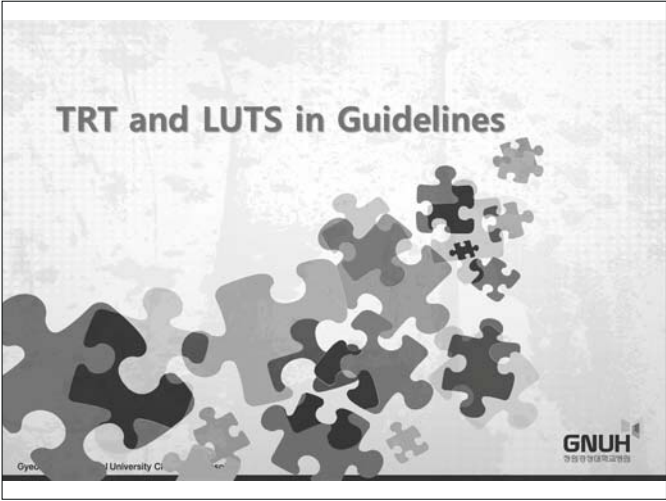
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### TRT in EAU guideline

**Table 3. Specific symptoms associated with LOH**

	Sexual symptoms	Physical symptoms	Psychological symptoms
More specific	Reduced libido Erectile dysfunction Decreased spontaneous/nocturnal erections	Decreased vigorous activity Difficulty walking >1 km Decreased bending	Low mood/mood depression Decreased motivation Fatigue
Less specific	Reduced frequency of sexual intercourse Reduced frequency of masturbation Delayed ejaculation	Hot flashes Decreased energy Decreased physical strength/function/activity	Concentration or memory difficulties Sleep disturbances

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<https://uroweb.org/guideline/sexual-and-reproductive-health/>



### Guidelines

**Table 1.** Evolution of guidelines for diagnosis and treatment of testosterone deficiency syndrome (TDS).

	Title	Year of Release and Update
Expert opinion	Clinical practice guidelines for screening and monitoring male patients receiving testosterone supplementation therapy.	1996
ISSAM	Investigation, treatment and monitoring of late-onset hypogonadism in males. Official recommendations of ISSAM.	2002, 2005, 2008, 2015
Endocrine Society	Testosterone therapy in men with hypogonadism.	2006, 2010, 2018
ISSM	Diagnosis and treatment of testosterone deficiency: Recommendations from the fourth international consultation for sexual medicine (ICSM 2015).	2015
AUA	Evaluation and management of testosterone deficiency.	2018

ISSAM: International Society for the Study of the Aging Male; ISSM: International Society for Sexual Medicine; ICSM: International Consultation for Sexual Medicine; AUA: American Urological Association.

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### AUA

17. Clinicians should inform patients of the absence of evidence linking testosterone therapy to the development of prostate cancer. (Strong Recommendation; Evidence Level: Grade B)

18. Patients with testosterone deficiency and a history of prostate cancer should be informed that there is inadequate evidence to quantify the risk-benefit ratio of testosterone therapy. (Expert Opinion)

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### EAU

Absolute contraindications are untreated breast cancer and prostate cancer.

Acute cardiovascular events as well as uncontrolled or poorly controlled congestive heart failure and severe lower urinary tract symptoms (LUTS) [International Prostate Symptom Score (IPSS) score > 19] represent other contraindications, as there is insufficient information on the long-term effects of testosterone therapy in these patients.

**Table 3. Main indications for testosterone treatment**

Delayed puberty (constitutional or congenital forms (44), Kallman's syndrome)
Klinefelter syndrome with hypogonadism
Sexual dysfunction and low testosterone, not responding to PDE5i
Low bone mass in hypogonadism
Adult men with low testosterone and consistent and preferably multiple signs and symptoms of hypogonadism following unsuccessful treatment of obesity and comorbidities (listed in Table 5).
Hypogonadism

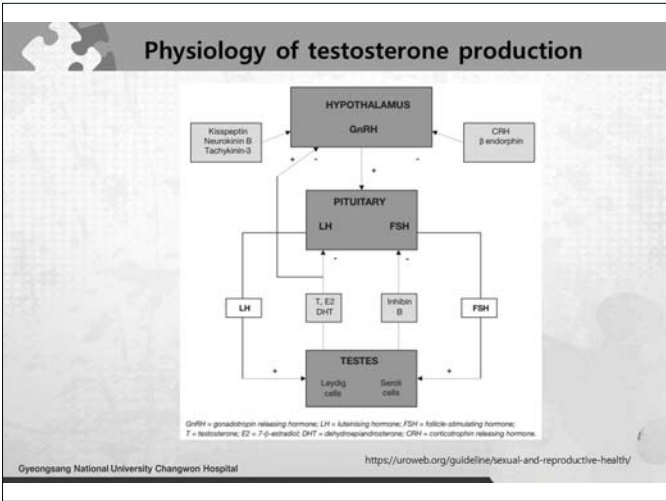
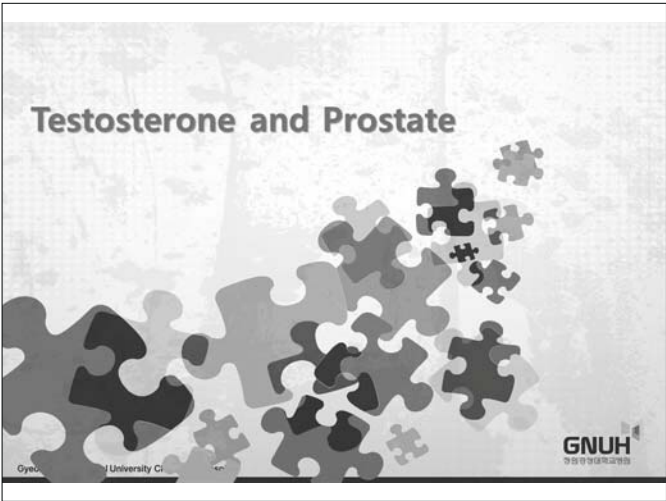
**Table 4. Contraindications against testosterone treatment**

Locally advanced or metastatic prostate cancer
Main breast cancer
Men with an active desire to have children
Hemoglobin < 0.54%
Severe chronic cardiac failure (New York Heart Association Class IV)

**Table 5. Main contraindications of testosterone therapy**

<b>Absolute contraindications</b>	Locally advanced or metastatic prostate cancer (PCa) Main breast cancer Men with an active desire to have children Hemoglobin < 0.54%
<b>Relative contraindication</b>	Uncontrolled or poorly controlled congestive heart failure IPSS score > 19 Baseline hemoglobin < 0.54% Familial history of venous thromboembolism

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<https://uroweb.org/guideline/sexual-and-reproductive-health/>



### Testosterone and reproductive system

TRT may exacerbate LUTS because androgens play an integral role in the development and growth of the prostate epithelium.

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### TRT concern in LUTS

Based on the assumption that prostate growth is dependent on the presence of androgens, historically testosterone therapy historically has raised some concerns regarding the possibility of aggravating LUTS in patients affected by benign prostatic hyperplasia (BPH) associated with prostate enlargement.

<https://uroweb.org/guideline/sexual-and-reproductive-health/>

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### TRT concern in LUTS

Clinical Trial > Prostate. 1993;23(2):99-106. doi: 10.1002/pros.2990230203.

#### Effect of long-term oral testosterone undecanoate treatment on prostate volume and serum prostate-specific antigen concentration in eugonadal middle-aged men

S Holmång <sup>1</sup>, P Mårin, G Lindstedt, H Hedelin

Affiliations & expand  
PMID: 7690956 DOI: 10.1002/pros.2990230203

**Abstract**  
Testosterone undecanoate (160 mg/day) or placebo was given orally in a double-blind fashion for 8 months to 23 middle-aged men without urinary tract symptoms. Testosterone was found to increase the mean prostate volume by 12% ( $P < .012$ ). The treatment suppressed the serum concentrations of sex-hormone-binding globulin and follicle stimulating hormone. The observed decrease in the mean serum concentration of luteinizing hormone was not statistically significant. The serum concentrations of prostate-specific antigen did not change as measured by two different well-validated immunometric assays. No changes in micturition habits or urine flow charts were reported.

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### Potential mechanisms: TDS and LUTS

Pre-clinical and clinical data have indicated that low rather than high androgen levels may decrease bladder capacity, alter tissue histology and decrease the ratio of smooth muscle to connective tissue, thus impairing urinary dynamics.

Tranah AM et al. W J Urol 2018;36:199-222  
<https://uroweb.org/guideline/sexual-and-reproductive-health/>

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### Potential mechanisms : TDS and LUTS

Possible interactions between the testosterone deficiency and development of LUTS.

Int NeuroUrol J. 2021 Mar;25(1):12-22.

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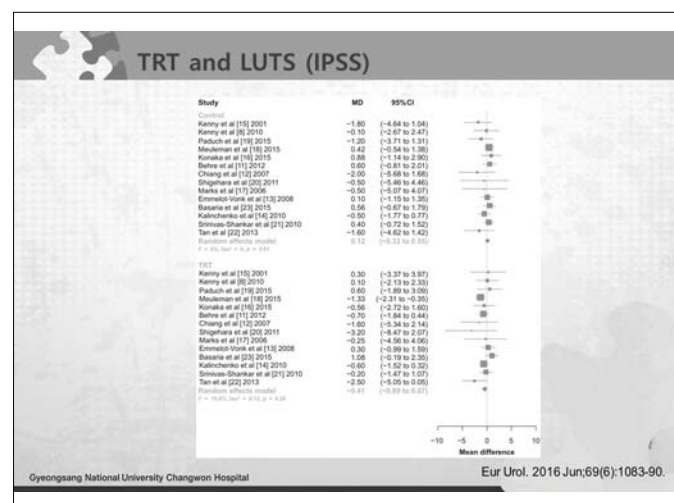
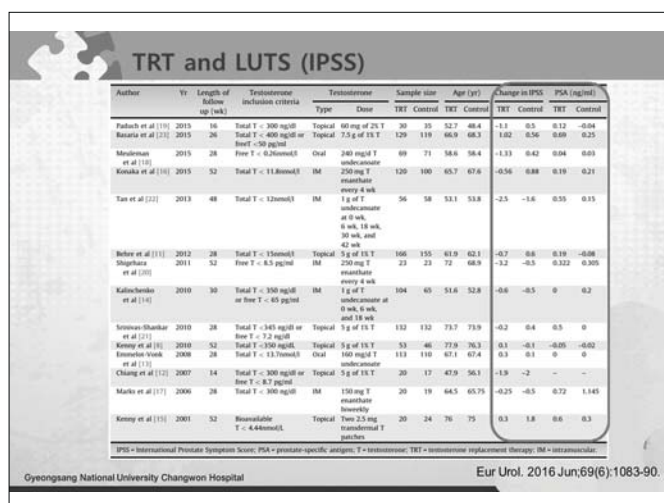
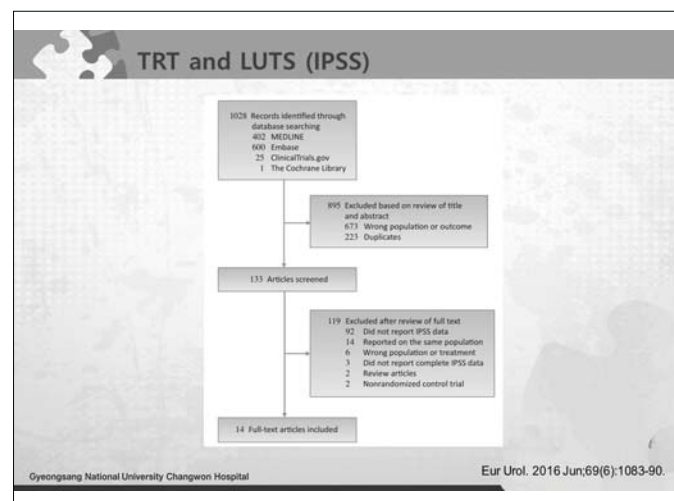
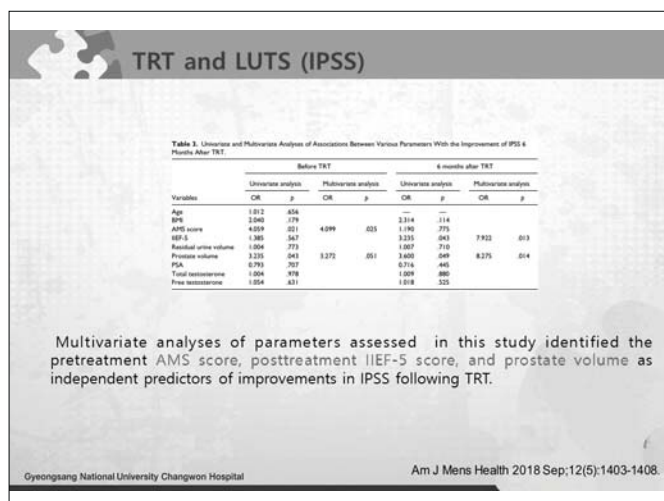
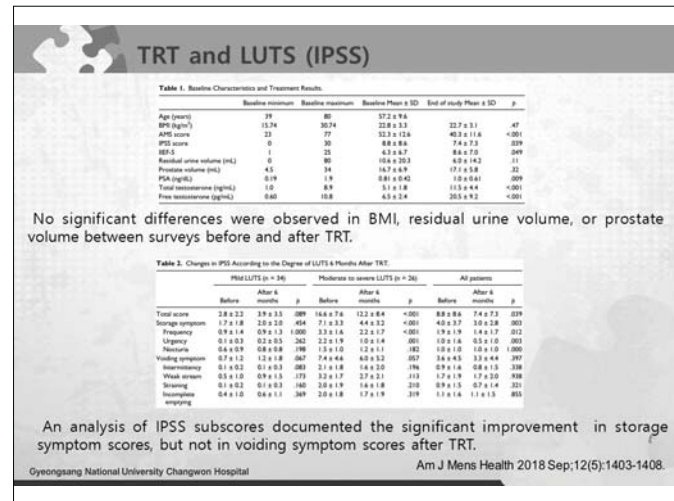
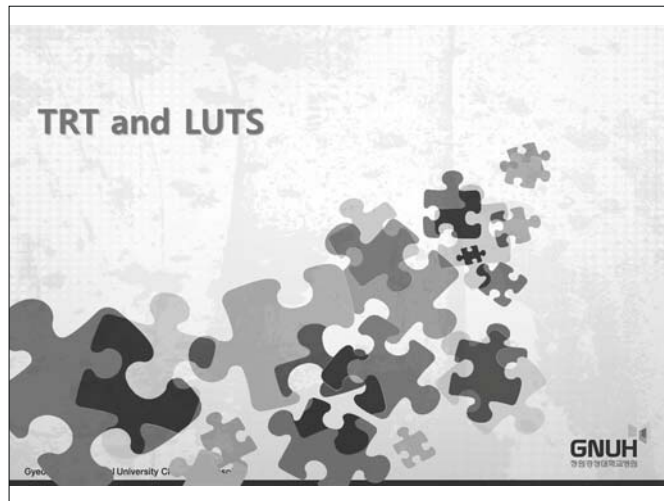
### Potential mechanisms : nocturia

Study (year)	Country	Number	Population	Age (yr) <sup>a</sup>	Result
Liao (2011)	Taiwan	509	Health screening	58 (40~79)	Nocturia showed a negative correlation with serum testosterone levels.
Kim (2014)	Korea	2,180	Clinic visitors	58.3 (40~86)	Nocturia and nocturnal urine output were associated with lower testosterone levels.
Kim (2012)	Korea	924	BPH	69.7	Testosterone was significantly lower in patients with 4 or more episodes of nocturia.
Liu (2016)	Taiwan	632	Type 2 DM	No nocturia: 58 Nocturia: 65	Patients with lower testosterone levels had a higher prevalence of nocturia (6.5%) and severe nocturia (13%).
Wu (2017)	China	158	Post-TURP	72.1 ± 8.7	Nocturia was frequently prevalent in patients with lower testosterone levels.
Kim (2014)	Korea	62	LOH patients with nocturia	68.4	Nocturia treatment by desmopressin increased testosterone levels.
Jeh (2017)	Korea	433	Health screening No BPH patients	47.1 ± 7.4	Testosterone played an opposing role in the etiology of nocturia.

World J Mens Health. 2017 Apr;35(1):14-21.

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T therapy improves LUTS in men with TD and Met S			
Study	Notes of study	Major finding	Comment
Kalishchenko et al. (2006) [140]	A randomized, non-blinded, controlled clinical trial in 10 men who were treated with T gel 150 mg daily for 3 mo and 20 treated with 50 T gel 150 mg for 3 mo.	T therapy was associated with improved IPSS score and AUA score, along with decreased QOL scores.	The findings suggest a role for T therapy in men with low and/or LUTS. However, this study had a small sample size of 30 patients without placebo control.
Kaplanis et al. (2006) [141]	A study of 22 men (10-75 years old) with low T treated T therapy with testosterone 150-160 mg gel daily for 3 mo.	Mean prostate (volume) capacity and compliance increased significantly (p<0.05) and AUA, IPSS, and QOL significantly decreased from baseline (p<0.05).	T therapy may improve LUTS-related function by increasing bladder capacity and compliance and decreasing prostate size.
Arora et al. (2010) [142]	An observational study comparing 40 patients with TD were treated with T treatment (50-100 mg daily for 3 months).	A significant improvement in T levels, AUA score, and IPSS at 3 months. However, no difference in these scores was seen in each domain of the IPSS, with the most improvement in the voiding domain.	T therapy appeared to improve LUTS and more specifically voiding dysfunction of patients with TD.
Freemantle et al. (2014) [143]	Long-term observational study of older hypogonadal men with LUTS and Met S. Twenty of these men (mean age 72 years old) were treated with T replacement every 12 weeks for 48 months and there was a control group of 20 men.	In this study T therapy did not affect prostate volume, PSA, or LUTS. Furthermore, T therapy did not impact subjective measures of LUTS as demonstrated by the statistically significant IPSS.	The authors conclude that T therapy may be a safe and effective treatment for hypogonadal men with LUTS and no change in prostate volume.
Shighian et al. (2010) [144]	Patients (n=44) with nocturia were subdivided into two groups. The T therapy group received 50 T testosterone 200 mg every 4 weeks for 3 months. Metastasis included IPSS and AUA.	The T therapy group demonstrated significant improvement in nocturia (IPSS specifically question 7 and AUA).	T therapy improves LUTS as measured by the IPSS and AUA.
Freemantle et al. (2014) [143]	An observational study of 100 men with TD who had been treated with T for up to 10 years were treated for 10 years of Met S and LUTS.	Mean IPSS decreased significantly from 8.0 (SD 4.0) at baseline to 7.0 (SD 4.0) at 10 years. The mean AUA decreased significantly from 22.0 (SD 10.0) at baseline to 18.0 (SD 10.0) at 10 years.	T therapy improves nocturia function and LUTS.
Nayak et al. (2014) [145]	Men with TD (n=20) (mean age 50.3 years) received T replacement in 10-week treatment every 12 weeks or placebo treatment every 12 weeks or no treatment. These three groups were compared for both subjective and objective measures of LUTS, as well as Met S components.	T therapy was associated with improvement in IPSS, AUA, and QOL. There was no significant difference in the rate of improvement of LUTS between the three groups.	T therapy improves IPSS, AUA, and QOL. There was no significant difference in the rate of improvement of LUTS between the three groups.
Haidler et al. (2010) [146]	An observational study of 100 men with mean age 65.0 (SD 7.1) (range 51-80) treated with T (150 mg daily) for 12 weeks. The mean age of the men was 65.0 (SD 7.1) (range 51-80) treated with T (150 mg daily) for 12 weeks. The mean age of the men was 65.0 (SD 7.1) (range 51-80) treated with T (150 mg daily) for 12 weeks.	There was a significant improvement in IPSS and AUA score (p<0.001) associated with T therapy. Additionally, there was a decrease in AUA and IPSS score throughout follow-up in untreated men.	T therapy improves LUTS as measured by the IPSS and AUA.

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T therapy improves LUTS			
Study	Design (No. of patients)	Type of therapy	Follow up (mo)
Markus et al. [23]	RCT, double-blind (44)	Testosterone enanthate 150 mg IM vs. placebo	8
Haider et al. [89]	Prospective uncontrolled (122)	Testosterone undecanoate IM	24
Seydel et al. [33]	Prospective uncontrolled (14)	Patch	36
Karatzis et al. [92]	Prospective uncontrolled (25)	Tenigel	12
Shighian et al. [47]	RCT, untreated, nonplacebo control (46)	Testosterone enanthate IM	12
Wang et al. [11]	RCT, nonplacebo controlled (122)	Testosterone enanthate IM	36
Kenny et al. [14]	RCT, double-blind, placebo controlled (82)	Testosterone gel 1% vs. placebo	12
Kalishchenko et al. [93]	Prospective, open-label (30)	Testosterone gel 50 mg or testosterone undecanoate IM	6.5
Ko et al. [94]	Care series (240)	IM Testosterone undecanoate	6
Basaria et al. [25]	RCT, double-blind, controlled placebo (240)	Testosterone gel 1% 7.5 g	6.5
Meldrum et al. [24]	RCT, double-blind, placebo controlled (140)	Testosterone undecanoate oral	7
Behre et al. [22]	RCT, double-blind, placebo controlled (321)	Testosterone gel 1% 5 g	7

Int Neurourol J. 2021 Mar;25(1):12-22.

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Take Home message	
<p>The present review showed no evidence to support warnings that TRT worsens LUTS in men with TDS.</p> <p>TRT is already used worldwide as a treatment for TDS, and much evidence is still emerging regarding this treatment.</p> <p>Furthermore, TRT may also improve nocturia in men with TDS.</p> <p>Therefore, it is enough to warn patients that LUTS may worsen after TRT.</p> <p>However, further high-quality evidence is needed to inform clinicians using TRT to treat men with both TDS and severe LUTS.</p>	
Gyeongsang National University Changwon Hospital	



## Orgasmic Dysfunction after Radical Prostatectomy

고 동 훈  
(건양의대)

근치적 전립선 절제수술은 국소 전립선암 치료에 gold standard 이다. 많은 술기의 발전으로 수술 후 functional outcome에 있어 좋은 결과를 얻지만, 여전히 일부 불편한 부분이 있는 것이 사실이다. Erectile dysfunction 과 urinary incontinence 에 대해서는 전립선 절제수술과 관련하여 잘 알려진 불편감이며 결과를 개선하기 위한 다양한 접근을 하고 있다. 하지만, 그 이외에도 sexual function 과 관련된 부작용으로 impairments in sexual desire, orgasmic dysfunction, penile morphology after surgery 등이 있다. 이중 Orgasmic dysfunction 은 간과할 수 없는 부작용으로 생각되며 그 증상으로 orgasm-associated incontinence (climaturia), orgasm-associated pain, modification of orgasmic sensation 이 있다.

근치적 전립선 절제수술 후 발생하는 orgasmic dysfunction 중 climaturia의 유병률에 관하여 정확한 결과는 알려져 있지 않으나 다양한 연구에서 그 유병률을 20% 에서 93%까지 보고하고 있다. 뿐만 아니라 일부 연구에서는 수술 방법이나, 수술 후 기간에 따라 유병률이 다를 수 있다고 보고하고 있다. 근치적 전립선 절제수술 후 발생하는 Orgasm-associated pain은 19% 정도에서 보고되고 있으며 대부분 성기 부위에서 시작되는 referred pain으로 알려져 있다. 수술 후 발생하는 orgasm sense 의 impairment 나 anorgasmia 는 33% 에서 77%까지 보고 하고 있다.

수술 후 발생하는 orgasmic dysfunction 과 관련하여, 나이, 수술 중 신경보존술식의 유무, 로봇수술의 유무 등이 의미 있을 것으로 생각되나 추후 더욱 연구가 필요할 것으로 생각된다.

치료에 대해서는 urinary incontinence 나 erectile dysfunction 과 같은 다른 전립선 수술 후 발생하는 부작용에 비하여 연구하기 쉽지 않은 것이 실정이다. 일부 보존적인 치료에 대한 연구만 보고되고 있으며, 그 방법으로 sexual activity 전 소변을 보거나, condom 을 사용하는 것, pelvic floor muscle training 뿐만 아니라 AUS, urethral sling 등에 대하여 연구하고 있으나 제한적인 부분이 크다. Orgasm associated pain 에 대한 치료는 tamsulosin 제제가 도움이 되는 것으로 보고되고 있으나 그 결과에 있어서도 한계가 있다.

근치적 전립선 절제수술 후 발생할 수 있는 orgasmic dysfunction 에 대해서 유병률이나 그 기전에 대하여 더 이해하고 수술 전이나 수술 후 발생할 수 있는 sexual function 의 변화에 대해서 환자에게 적극적이며 자세한 설명이 필요할 것으로 생각된다.



# 2021 제45회 한남비뇨의학회 추계학술대회

Debate Session (which do you prefer Between Adjuvant and  
Early-Salvage Postprostatectomy Radiotherapy for Prostate Cancer  
With Adverse Pathological Features?): oncology

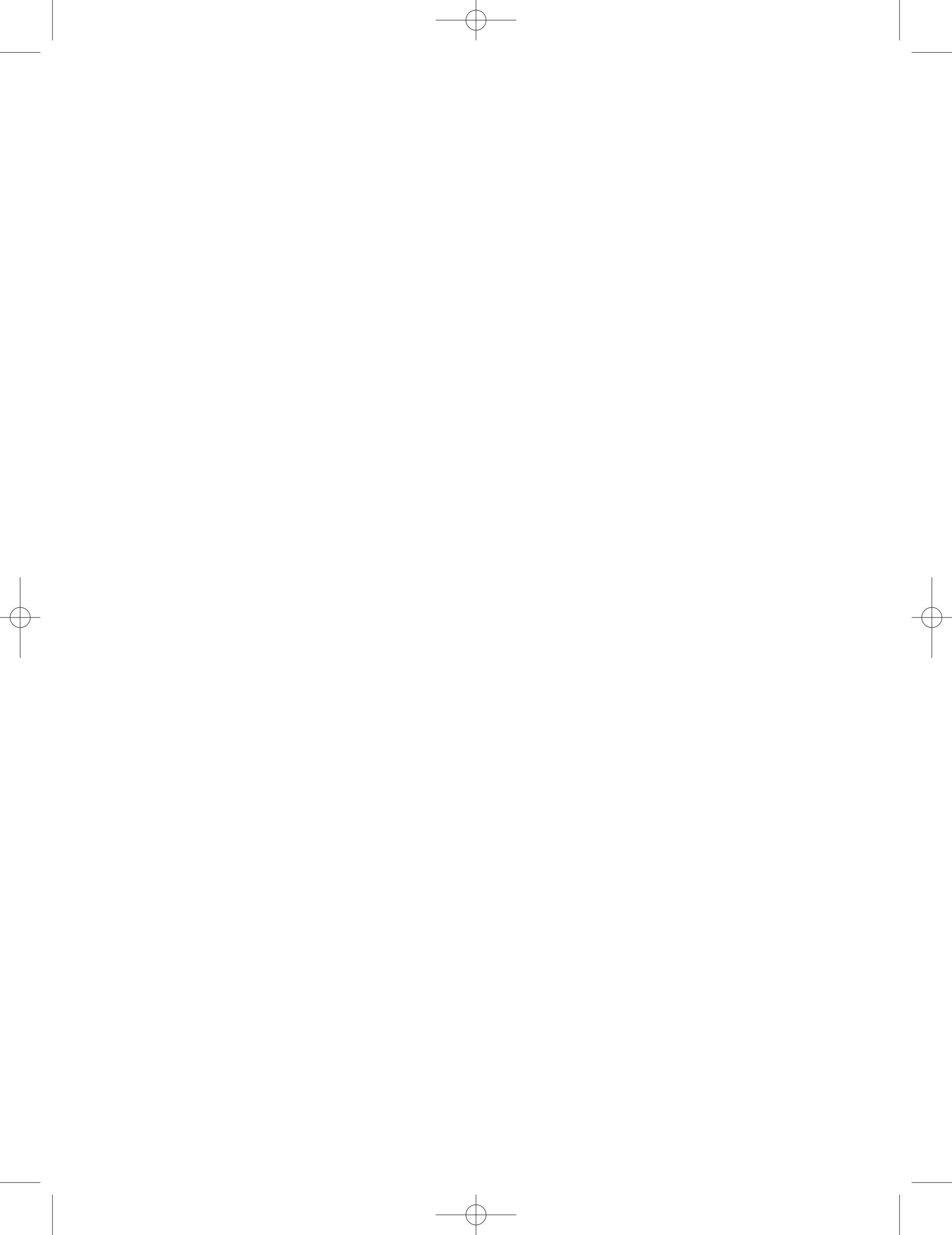
좌장: 박승철 (원광의대), 김태환 (경북의대)

adjuvant RT

김완석 (인제의대)

early -salvage RT

김태남 (부산의대)



## Which do you prefer Between Adjuvant and Early-Salvage Postprostatectomy Radiotherapy for Prostate Cancer With Adverse Pathologic Features? Adjuvant RT

김완석  
(이화의대)

기존의 전향적 임상연구(SWOG 8794, EORTC 22911, ARO 96-02, FinnProstate group trial)에서 adjuvant RT(ART)는 high risk prostate cancer 환자(positive surgical margin, pathologic T stage 3, Gleason score 8-10)에서 late salvage RT(SRT)나 치료를 하지 않는 군에 비하여 재발의 위험도를 낮추는 것으로 보고되어 왔다. 따라서 EAU 가이드라인에서는 수술 후 배뇨 증상이 회복 되는대로 6개월이내 ART나 SRT를 추천하고 있다. 그러나 최근의 연구에 의하면 현실적으로는 방사선 치료의 부작용 등 여러 요소로 인하여 실제로 risk가 높은 환자들에게도 ART는 많이 시행되고 있지 않고 있다. 그래서 현재까지 적절한 방사선 치료의 시기와 역할에 대하여 많은 논란이 있어왔다.

최근에 방사선치료의 시기에 대한 전향적 임상연구들의 결과가 발표되어 연구자들의 관심이 집중되고있다. 그렇지만 연구 결과 결론적으로 ART는 progression-free survival에 있어서 SRT보다 나은 결과를 보이지 못했다. 그렇다면 이러한 결론을 현실의 임상 상황에 어떻게 적용해야 할 지 고찰해보도록 하겠다.

ARTISTIC meta-analysis 에서 2153명의 환자를 대상으로 PSA progression-free survival에서 ART가 국소성 혹은 국소 진행성 전립선암의 치료에서 SRT에 비하여 나은 결과를 보여주지 못하였다. RADICALS-RT는 1396명의 환자를 대상으로 시행한 전향적 무작위 임상연구이며, 4.9년 추적관찰에서 ART 군의 85%, SRT군의 88%에서 biochemical progression-free survival(HR 1.10, 95% CI 0.81-1.49; p=0.56)을 보여주었다. 따라서 저자들은 PSA 추적관찰 후 SRT를 수술 후 케어의 표준으로 삼아야 한다고 주장하고 있다. RAVES study에서 extraprostatic extension, seminal vesicle invasion, positive surgical margin 등 adverse feature를 보이는 환자 군에서 SRT는 ART에 비하여 열등하지 않은 결과를 보여 주었으며, GETUG-AFU 17 연구는 SRT와 ART의 progression free survival을 분석하였으며 대부분의 환자에서 short-term ADT를 시행하였고 마찬가지로 결과를 보여주고 있다.

그렇지만 이 연구들로 결론을 내기에는 여러가지 고려 요소가 있다. 첫번째, RADICALS-RT 환자군에는 일반적 임상 환경에서는 추가적인 치료가 필요하지 않은 저위험군의 환자가 포함되었으며, 병리 결과에서 임파선 전이가 있는 환자가 제외 대상에 포함되었음을 주목하여야 한다. 두번째, immortal time bias로 인하여 고위험군에서 biochemical progression-free survival에 대한 ART의 이점이 부각되지 않을 수 있다. 세번째, 남성호르몬 박탈 요법은 전립선암의 진행을 늦출 수 있으며, RADICALS-RT와 GETUG-AFU

17 연구에서 SRT가 적게 시행되었고, 남성호르몬 박탈 병행 요법이 RADICALS-RT 연구의 일부에서 사용되었지만, GETUG-AFU 17 연구의 대부분에서 시행된 것이 progression-free survival의 차이를 보이는 원인이 될 수 있다.

그럼에도 불구하고 지금껏 발표된 연구들은 충분히 결론을 내는데 도움을 줄 수 있는 데이터로 참고 할 수 있을 것이다. 그렇지만 Gleason 8-10 이나 pT3b 이상의 환자들이 기존의 연구에서 20%미만을 차지하고 있음을 고려할 때 보다 이러한 정보들이 실제 임상에서 사용되기까지 아직은 많은 부분이 미완성임을 알 수 있다. 또한 RADICALS-RT 연구의 metastasis-free survival을 확인할 때까지 아직은 기다려야 할 연구 결과가 있다는 것을 명심해야 할 것이다.

# Early-Salvage Post-prostatectomy Radiotherapy for Prostate Cancer With Adverse Pathological Features

Tae Nam Kim

(부산의대)

## Definition (1)

- Adjuvant RT (ART) is the administration of RT post-RP to patients at a higher risk of recurrence because of adverse pathological features prior to evidence of disease recurrence (i.e., with an undetectable PSA).
- Salvage RT (SRT) is the administration of RT in the patient with PSA recurrence after surgery but no evidence of distant metastatic disease.

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## Definition (2)

- A doubling of the development of distant metastasis when PSA at SRT was above 0.5 ng/ml (hazard ratio 1.89,  $P < 0.001$ ).
- Stephenson et al concluded that a PSA  $< 0.5$  ng/ml resulted in the best long-term responses.
- This was confirmed by the studies of Tendulkar et al. and Abugharib et al.

J Clin Oncol 2016;34(32):3864-3871.  
J Clin Oncol 2007;25(15):2035-2041.  
J Clin Oncol 2016;34:3648-3654.  
J Urol 2017;197(3):662-668.

## Definition (3)

### Very Early Salvage Radiotherapy Improves Distant Metastasis-Free Survival

**Materials and Methods:** We performed a multi-institutional retrospective study of 657 men who underwent salvage radiotherapy between 1986 and 2013. Two comparisons were made to determine the optimal definition of early salvage radiotherapy, including 1) the time from radical prostatectomy to salvage radiotherapy (less than 9, 9 to 21, 22 to 47 or greater than 48 months) and 2) the level of detectable pre-salvage radiotherapy prostate specific antigen (0.01 to 0.2, greater than 0.2 to 0.5 or greater than 0.5 ng/ml). Outcomes included freedom from salvage androgen deprivation therapy, and biochemical relapse-free, distant metastases-free and prostate cancer specific survival.

**Results:** Median followup was 9.8 years. Time from radical prostatectomy to salvage radiotherapy did not correlate with 10-year biochemical relapse-free survival rates ( $R^2 = 0.18$ ). Increasing pre-salvage radiotherapy prostate specific antigen strongly correlated with biochemical relapse-free survival ( $R^2 = 0.91$ ). Increasing detectable pre-salvage radiotherapy prostate specific antigen (0.01 to 0.2, greater than 0.2 to 0.5 and greater than 0.5 ng/ml) predicted worse 10-year biochemical relapse-free survival (62%, 44% and 27%), freedom from salvage androgen deprivation therapy (77%, 66% and 49%), distant metastases-free survival (86%, 79% and 66%, each  $p < 0.001$ ) and prostate cancer specific survival (93%, 89% and 80%, respectively,  $p = 0.001$ ).

J Urol 2017;197(3):662-668.

## Definition (4)

### Contemporary Update of a Multi-Institutional Predictive Nomogram for Salvage Radiotherapy After Radical Prostatectomy

#### Results

Overall, 2,460 patients with a median follow-up of 5 years were included; 599 patients (24%) had a Gleason score (GS)  $\leq 6$ , 1,387 (56%) had a GS of 7, 244 (10%) had a GS of 8, and 230 (9%) had a GS of 9 to 10. There were 1,370 patients (56%) with extraprostatic extension (EPE), 452 (18%) with seminal vesicle invasion (SVI), 1,434 (58%) with positive surgical margins, and 390 (16%) who received ADT (median, 6 months). The median pre-SRT PSA was 0.5 ng/mL (interquartile range, 0.3 to 1.1). The 5-yr FFBF rate was 56% overall, 71% for those with a pre-SRT PSA level of 0.01 to 0.2 ng/mL ( $n = 441$ ), 63% for those with a PSA of 0.21 to 0.50 ng/mL ( $n = 822$ ), 54% for those with a PSA of 0.51 to 1.0 ng/mL ( $n = 533$ ), 43% for those with a PSA of 1.01 to 2.0 ng/mL ( $n = 341$ ), and 37% for those with a PSA  $> 2.0$  ng/mL ( $n = 323$ );  $P < .001$ . On multivariable analysis, pre-SRT PSA, GS, EPE, SVI, surgical margins, ADT use, and SRT dose were associated with FFBF. Pre-SRT PSA, GS, SVI, surgical margins, and ADT use were associated with DM, whereas EPE and SRT dose were not. The nomogram concordance indices were 0.68 (FFBF) and 0.74 (DM).

#### Conclusion

Early SRT at low PSA levels after RP is associated with improved FFBF and DM rates. Contemporary nomograms can estimate individual patient outcomes after SRT in the modern era.

J Clin Oncol 2016;34:3648-3654.

### Major point of criticism for ART (1)

- About 50% of patients randomized to the observational arm in the 3 randomised trials remained free of biochemical recurrence at 5 years of follow-up.
- ART to these patients would have led to overtreatment and the accompanying side-effects.

*J Urol* 2009;181(3):956-962.  
*Lancet* 2005;366(9485):572-578.  
*Eur Urol* 2014;66(2):243-250.

### Major point of criticism for ART (2)

- The choice for SRT might prevent overtreatment of patients and guard them from potential side-effects, such as urinary leakage, development urethral strictures, haematuria and several bowel symptoms.

*Int J Radiat Oncol Biol Phys* 2006;65(1):78-83.  
*Eur Urol* 2014;65(3):546-551.  
*Eur Urol* 2019;76(5):586-595.

- Additionally, a longer interval between surgery and radiotherapy allows for better recovery of urinary incontinence.

*Clin Transl Radiat Oncol* 2018;11:26-32.

### The concept of salvage radiotherapy

- SRT remains the clearest choice and best chance for long-term freedom from progression in men with PSA recurrence after radical prostatectomy.
- Despite PSA failure after salvage radiation, the men in their cohort had a median overall survival of 13.6 years.

Ying et al. *Am J Clin Oncol* 2017;40:612-20

### Salvage radiotherapy after radical prostatectomy(1)

- Early SRT provides the possibility of cure.
- Comparing 856 SRT patients with 1,801 non-SRT  
-> 75% reduced risk of systemic progression with SRT
- 5-year BCR-free survival rates of 88% in SRT patients with PSA levels exceeding 0.1-0.2 ng/mL

- Boorjian, S.A., et al. *J Urol*, 2009. 182: 2708.

- Kneebone, A., et al. *Int J Radiat Oncol Biol Phys*, 2019. 105: S37.  
Parker, C., et al. *Ann Oncol*, 2019. 30: suppl. 5.

### Salvage radiotherapy after radical prostatectomy(2)

- The PSA level at BCR was shown to be prognostic.
- Treated before the PSA level rises to > 0.5 ng/mL
  - Undetectable PSA level in > 60% of patients.
  - ~80% chance of being progression-free 5 years later
- SRT was associated with a 3-fold increase in PCa-specific survival relative to those who received no salvage treatment ( $p < 0.001$ ).

Boorjian, S.A., et al. *J Urol*, 2009. 182: 2708.

Pfister, D., et al. *Eur Urol*, 2014. 65: 1034.

### Salvage radiotherapy after radical prostatectomy(3)

- SRT has been shown to be effective mainly in patients with a short PSA-DT (< 1 year).
- "Wait and see" strategy remains a viable option.
  - PSA-DT of more than 12 months
  - Time to BCR > 3 years
  - < pT3a or ISUP grade < 2/3

Van den Broeck, T., et al. *Eur Urol*, 2019. 75: 967.

Van den Broeck, T., et al. *Eur Urol*, 2019. 75: 967.  
Boorjian, S.A., et al. *Eur Urol*, 2011. 59: 893.



### Salvage radiotherapy after radical prostatectomy(4)

- SRT recommendation according to the progression risk.
1. SRT plus two years of ADT  
-> Men at high risk (e.g. PSA > 0.7 ng/mL and GS > 8)
  2. SRT plus 6 months of ADT  
-> those at lower risk (e.g. PSA < 0.7 ng/mL and GS < 8)
  3. SRT alone  
-> low-risk profile (PSA < 0.5 ng/mL and GS < 8)

Shipley, W., et al. N Engl J Med, 2017, 376: 417.  
Carrie, C., et al. Lancet Oncol, 2019, 20: 1740.

### SRT versus ART (1)

- Clinicians raised the pertinent question whether early SRT could not achieve the same results as ART.
- Therefore, efforts to define better the patients who would probably benefit from ART were undertaken.

### SRT versus ART (2)

Lancet 2012; 380: 2018-27

#### Postoperative radiotherapy after radical prostatectomy for high-risk prostate cancer: long-term results of a randomised controlled trial (EORTC trial 22911)

**Methods** This randomised, phase 3, controlled trial recruited patients aged 75 years or younger with untreated cT0-3 prostate cancer (WHO performance status 0 or 1) from 37 institutions across Europe. Eligible patients were randomly assigned centrally (1:1) to postoperative irradiation (60 Gy of conventional irradiation to the surgical bed for 6 weeks) or to a wait-and-see policy until biochemical progression (increase in prostate-specific antigen >0.2 µg/L confirmed twice at least 2 weeks apart). We analysed the primary endpoint, biochemical progression-free survival, by intention to treat (two-sided test for difference at  $\alpha=0.05$ , adjusted for one interim analysis) and did exploratory analyses of heterogeneity of effect. This trial is registered with ClinicalTrials.gov, number NCT00002511.

**Findings** 1005 patients were randomly assigned to a wait-and-see policy (n=503) or postoperative irradiation (n=502) and were followed up for a median of 10.6 years (range 2 months to 16.6 years). Postoperative irradiation significantly improved biochemical progression-free survival compared with the wait-and-see policy (198 [39.4%] of 502 patients in postoperative irradiation group vs 311 [61.8%] of 503 patients in wait-and-see group had biochemical or clinical progression or died; HR 0.49 [95% CI 0.41-0.59];  $p<0.0001$ ). Late adverse effects (any type of any grade) were more frequent in the postoperative irradiation group than in the wait-and-see group (10 year cumulative incidence 70.8% [66.6-75.0] vs 59.7% [55.3-64.1];  $p=0.001$ ).

**Interpretation** Results at median follow-up of 10.6 years show that conventional postoperative irradiation significantly improves biochemical progression-free survival and local control compared with a wait-and-see policy, supporting results at 5 year follow-up; however, improvements in clinical progression-free survival were not maintained. Exploratory analyses suggest that postoperative irradiation might improve clinical progression-free survival in patients younger than 70 years and in those with positive surgical margins, but could have a detrimental effect in patients aged 70 years or older.

### SRT versus ART (3)

Lancet 2012; 380: 2018-27

- ART significantly improved clinical progression-free survival in patients with pT2-3 R1 prostate cancer compared with the wait-and-see policy (HR 0.69,  $p=0.008$ ), but not in those with pT3 R0 cancer (HR 1.06,  $p=0.45$ ).
- These results suggest that ART should not be recommended in the case of negative surgical margins.

### SRT versus ART (4)

Lancet 2012; 380: 2018-27

- For clinical progression-free survival, ART seems to be detrimental for patients 70 years or older compared with the wait-and-see policy (HR 1.78,  $p=0.0115$ )
- Excess mortality was seen in patients aged 70 years or older who had received ART compared with those aged 70 years or older who were on the wait-and-see policy, 42.6% (40/94) vs 19.6% (20/102); HR 2.94,  $p<0.0001$ ).

### SRT versus ART (5)

- ART vs. early SRT (PSA <0.5 ng/mL) comprised 510 pT3N0 R0/R1 patients.
- Metastasis free survival: (92% vs. 91%,  $p = 0.9$ )
- Overall survival: (89% vs. 92%,  $p = 0.9$ )

Fossati, N., et al. Eur Urol, 2017, 71: 886

- Buscarillo et al. reported no difference in MFS or OS among two groups of 149 propensity-matched PCa patients with adverse pathologic features

Pract Radiat Oncol. Mar-Apr 2017;7(2):e125-e133.

### Early results of ongoing trials (1)

#### RADICALS

- Multi-arm randomised phase III trial
- Immediate radiotherapy vs. early SRT /c or /s ADT
- No difference in BCR-free survival at 5 years F/U
- The primary end point (distant metastases-free survival at 10 years) has not yet been met.

Parker G, et al. NCT00541047. ESMO 2019 Congress 2019.

### Early results of ongoing trials (2)

#### RAVES

- Randomised phase III non-inferiority trial
- ART vs. SRT
- BCR-free survival as the primary end point
- No difference in BCR-free survival rates  
: 86% in ART arm vs. 88% in SRT arm
- SRT spares 50% of the patients from pelvic radiotherapy

Kneebone A, et al. Int J Radiat Oncol 2019;105(1):S37eS38.

### Early results of ongoing trials (3)

#### GETUG-AFU-17

- Randomised trial
- ART plus ADT vs. SRT plus ADT
- Event-free survival as the primary end point
- Similar outcomes for event-free survival

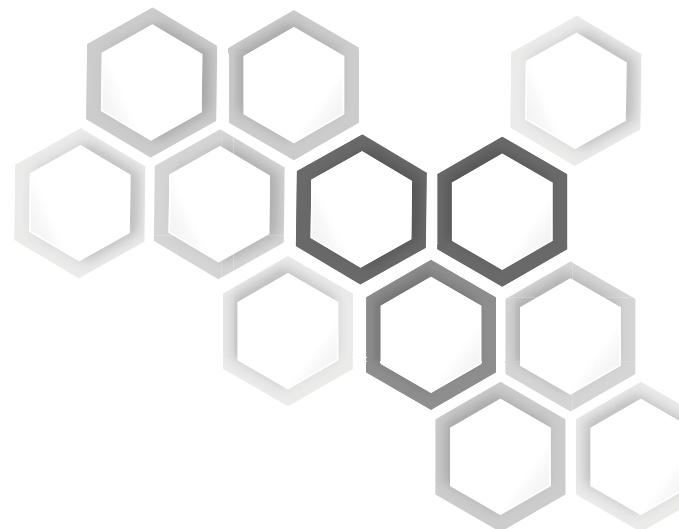
Vale C.L., et al. Ann Oncol, 2019. 30: v883.

### Taking home message

- Early SRT does not impair PCa control but clearly helps reducing over-treatment.
- ART should not be recommended in the case of negative surgical margins.
- ART seems to be detrimental for patients 70 years or older.



# 2021 제45회 한남비뇨의학회 추계학술대회



연구지원사업 선정연구 보고

김태호 (동아의대)

연구보고

고영휘 (영남의대)

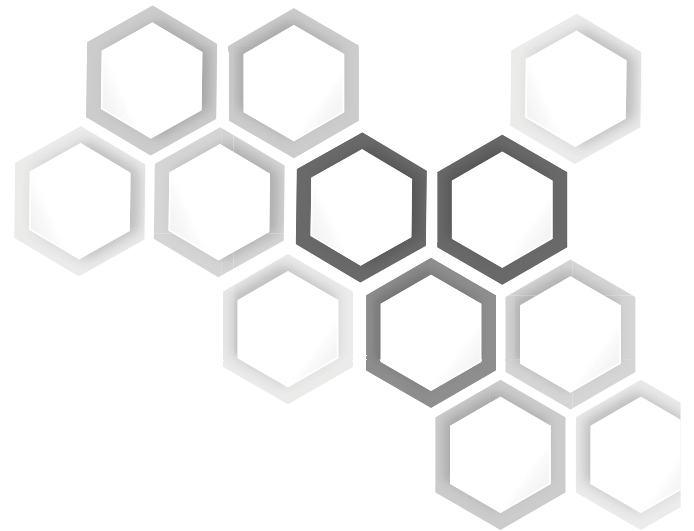
연구보고

김범수 (경북의대)





# 2021 제45회 한남비뇨의학회 추계학술대회



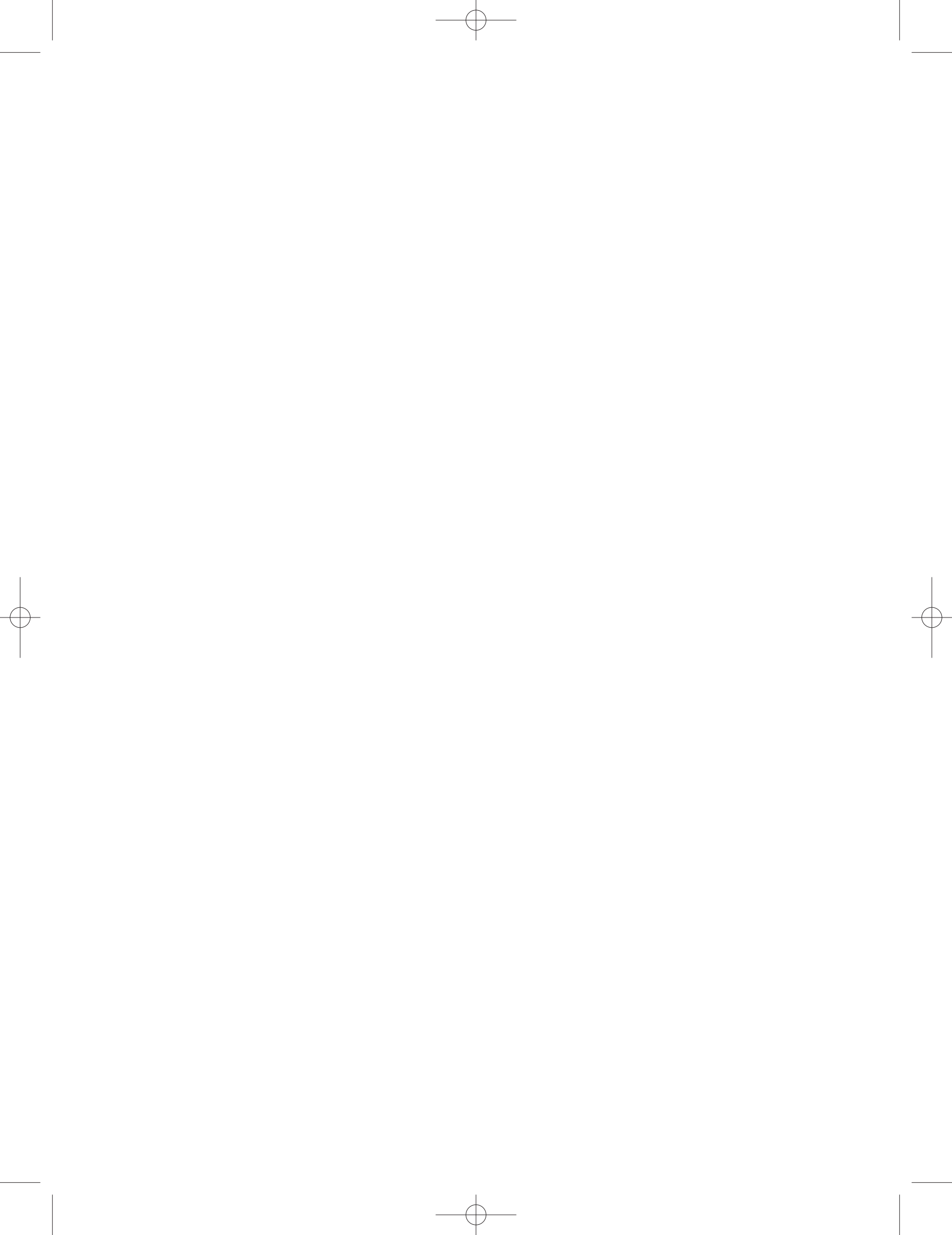
문화행사

노준화 (광주기독병원)

대구음식인문학 - 대구에서 뭐무꼬?

이춘호 기자 (영남일보)





## 대구음식인문학 - 대구에서 뭐무꼬?

이 춘 호 기자  
(영남일보)

대구에서 뭐무꼬



1601년



食

民主主義



食主主義



<양반의 밥먹는 법도>

- 삼고례(三告禮): 헛기침 세 번
- 삼시각: 지구 자전축
- 초승밥>사자밥>까치밥

Now

大邱十味TOUR

1 따로국밥 2 동인동찜갈비  
3 납작만두 4 뭉티기 5 무침회  
6 복불고기 7 야키우동  
8 막창곱창 9메기매운탕  
10 국수

대구의 별미

- 북성로돼지불고기우동
- 평화시장 닭똥집튀김
- 우록의 염소고기
- 현풍과 고령장의 소구레국밥
- 빵지순례빵-마약방/반월당고로케/근대단  
팔빵-멜론빵
- 베이커리커피숍-헤이마/오폭드푸아/별을  
헤다/남산제빵소

## 대구의 랜드마크 메뉴 “따로국밥”

육개장의 별칭  
소고기국이 대구를 만났을 때

육개장=따로국밥 →  
大邱湯=大口湯=代狗湯

- 대구는 전국에서 가장 다양한 소고기국을 갖고 있다. 이렇게 맵고 얼큰한 소고기국은 전국으로도 그 사례를 찾을 수 없다.
- 대구는 한국 보신탄 1번지. 이 전통이 훗날 육개장으로 발전하고, 대구식 육개장인 ‘대구탕’이 일제강점기 서울로 수출된다.
- 대구식 육개장은 6.25강점기 장터국밥과 융복합되면서 대구만의 ‘따로국밥’이 된다.

- 대구의 따로국밥 3인방
- 따로국밥(국일 교동 대구 한우장 한일)
- 대구식 육개장(옛집, 병글병글, 진골목)
- 장터국밥(온천골, 지산골 등)
- 사골선지해장국(대덕식당 미풍해장국)
- 서울식 육개장(조선육개장)

## 국일따로국밥





대덕식당 사골선지해장국



온천골가마솥장터국밥







조선육개장



경주 최부자 최가밥상



현풍 할매곰탕/서울하동관 ;나주 하안집



박소선현풍할매곰탕



현풍장 소구레국밥촌



십이리할매



고성동 진국닭개장



갱시기 밥시기 김치밥국 갱죽



제주 대표잔치음식 '몸국'



2탄

대구의 국수  
& 납작만두

- 대구는 팔도 냉면의 총집결지인가
- 부산밀면
- 진주냉면
- 강원도 막국수
- 인천 쫄면
- 어탕국수
- 팔칼국수
- 안동건진국수

- 전국 최고령 국수공장 대구 풍국면



누름국수(1)



- 대구 3대 할매칼국수
- 동곡 할매
- 경주 할매
- 명덕 할매

동곡 할매칼국수



- 전국에서 가장 착한표
- 칼국수가 대구에 있다는 데?



서문시장 국수난장





서문시장 국수시장골목



대명동 단포식당 냉교면



제주 고기국수



부산 밀면



납작만두(2)



납작만두(1)



- 대구 5대 납작만두
- 1 미성당 2 교동시장버전 3 남문시장 버전
- 4 서문시장 허들순할매 삼각만두 5 앞새만두



피가 가장 얇은 교동납작만두



서문시장 허들순 삼각만두



서문시장 앞새만두



## 대구는 커피와 빵의 고장

- 가장 많은 바리스타를 배출하고
- 로컬발 전국구 커피 브랜드 다량 보유
- 전국 최고 스타벅스 매장(수성못점) 존재
- 창베카(창고형베이커피커피숍) 발원지
- 70-80년대 대한민국 최고 빵집(뉴델 뉴욕 런던제과)
- 군납 단팔빵 시대를 연 '수형당'

- 커피명가
- 다빈치
- 시애틀 잠 못 이루는 밤
- 핸드커피
- 모캄보
- 로스팅로보
- 브릿지
- 엘모

## 핸즈 포르테



## 70년대식 사이펀커피-김광석길 김영카페



## 삼송빵집의 마약빵





북성로 공구빵



막창



메기매운탕



무침회(1)



무침회(2)

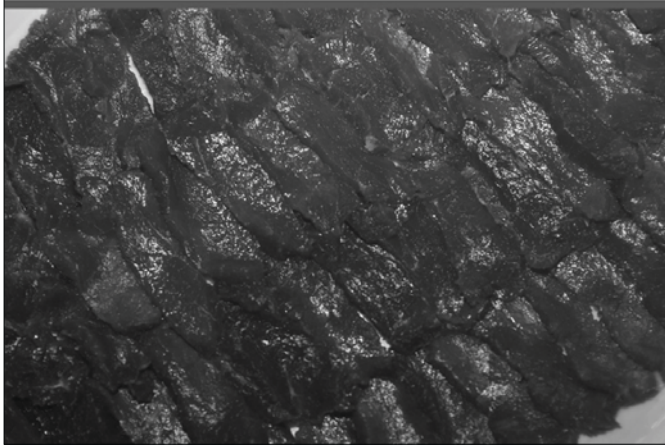


생고기(1)





생고기(2)



야끼우동(1)



야끼우동(2)



찜갈비(1)



찜갈비(2)



복어불고기



## 북성로돼지불고기



## 평화시장 닭똥집튀김



## 대구 징기즈칸



- 대구는 닭의 고장
- 대구는 프라이드치킨의 고장
- 치맥페스티벌
- 옛날통닭 돌풍

대구식

## 비빔밥 이야기

## 개정비빔밥



달성군 사찰비빔밥



진주 제일식당 진주비빔밥



• 경상도 한정식 한상

• 그리고 전라도 남도한정식 한상

경주 요석궁 밥상



전남 강진 한정식



경주 요석궁 밥상



**S**MILE! ^^  
**LIFE IS TOO  
SHORT**



# 2021 제45회 한남비뇨의학회 추계학술대회



Debate Session (Is combination antibiotic therapy superior to monotherapy for adult patients with pyelonephritis related to urinary tract obstruction?)

좌장: 허정식 (제주의대), 정승일 (전남의대)

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initial antibiotics: monotherapy

양희조 (순천향의대)

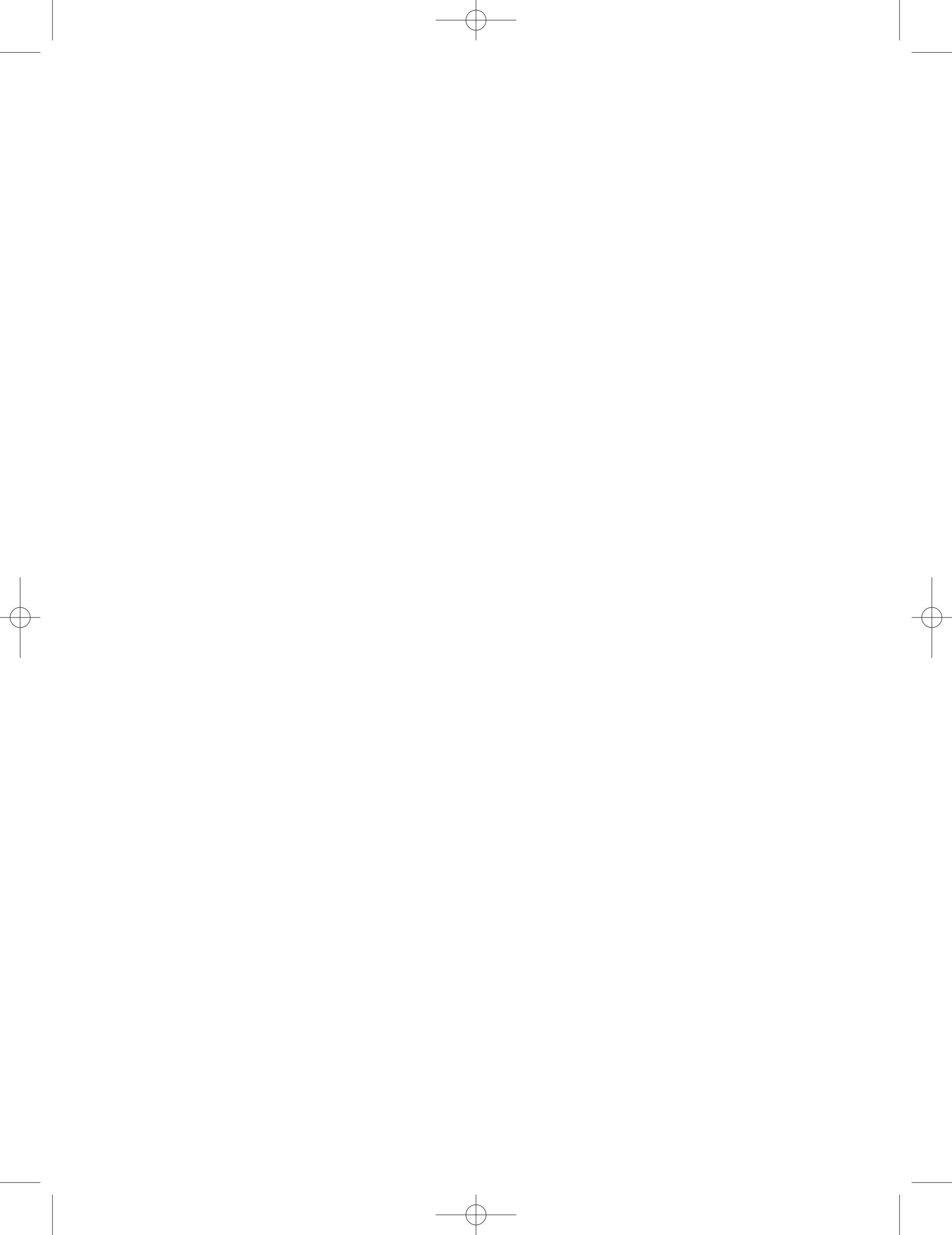
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initial antibiotics: combination

임동훈 (조선의대)

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# Is Combination Antibiotic Therapy Superior to Monotherapy for Empirical Treatment? (maybe) No!

Yang HeeJo

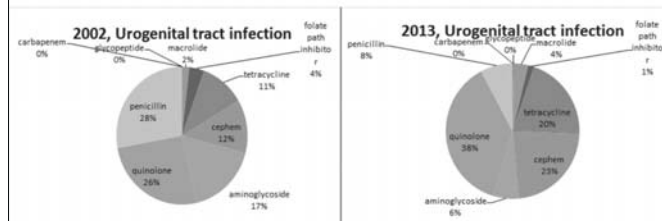
(Soonchunhyang University, Cheonan Hospital, Dept. of Urology)

## Introduction

- In patients with acute obstructive pyelonephritis, an **urgent initial empirical therapy** should be prescribed immediately, therefore it is always done before causative agent and their susceptibility are detected
- We faced a **dilemma** about the **choice of effective drug** and simultaneous option that ensures adequate urine passage

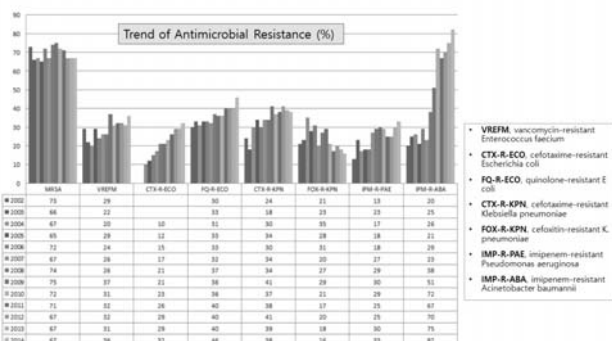
Joshi, N. K. (2015). "Harwood-Nuss' Clinical Practice of Emergency Medicine." *Annals of Emergency Medicine* 65(5): 623.

Comparison of major antimicrobial classes, prescribed according to UTI in 2002 and 2013



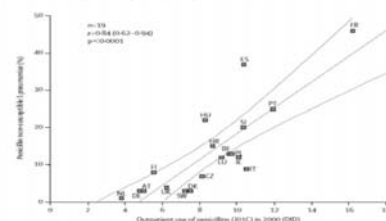
국내 항균제 사용 실태 및 주요 병원균의 항균제 내성에 관한 연구 2016

Trend of Antimicrobial Resistance (%)



국내 항균제 사용 실태 및 주요 병원균의 항균제 내성에 관한 연구 2016

Correlation between penicillin use and prevalence of penicillin non-susceptible *Streptococcus pneumoniae* from ESAC data



• AT, Austria; BE, Belgium; HR, Croatia; CZ, Czech Republic; DK, Denmark; FL, Finland; FR, France; DE, Germany; HU, Hungary; IE, Ireland; IT, Italy; LU, Luxembourg; NL, The Netherlands; PL, Poland; PT, Portugal; SI, Slovenia; ES, Spain; UK, England only.

국내 항균제 사용 실태 및 주요 병원균의 항균제 내성에 관한 연구 2016

## Complicated UTIs are very heterogenous entities

- **Anatomic, structural or functional alterations of the urinary tract**, which significantly impede the urodynamic properties (e.g., stents, urine transport disturbances, instrumentation of the urinary tract, stones, tumors and neurologic disorders)
- **Impaired renal function** by parenchymal diseases or pre-, intra- and postrenal nephropathies (e.g., acute, chronic renal insufficiencies and heart insufficiency)
- **Accompanying diseases** that impair the patient's immune status (e.g., diabetes mellitus, liver insufficiency, immunosuppression, AIDS and hypothermia)

Expert Rev Anti Infect Ther. 2004;2(6):923-931

## Risk Factors for Complicated Acute Pyelonephritis

Age	Male sex
Infants	Anatomic abnormalities
Elderly (> 60 years of age)	Prostatic obstruction
Anatomic/functional abnormality	Obstruction
Polycystic kidney disease	Foreign body
Horseshoe kidney	Calculi
Double ureter	Bladder neck obstruction
Ureteroceles	Posterior urethral valve
Vesicoureteral reflux	Benign prostatic hypertrophy
Urinary, ureteric, or nephrostomy catheters	Neurogenic bladder
Foreign body	Pregnancy
Calculus	Miscellaneous
Diabetes mellitus	Inappropriate antibiotics
Sickle cell disease	Resistant organisms
Transplantation	Instrumentation
Malignancy	
Chemoradiation	
HIV infections	
Corticosteroid use	

Ann Fam Physician. 2005;71(5):933-942

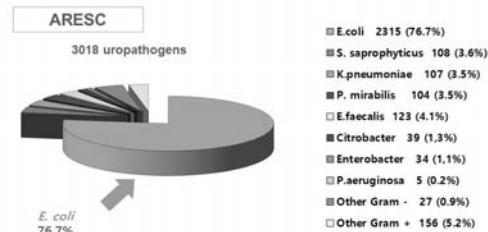
## We should to consider...

- Appropriate urinary diversion
- Resistant and multi-resistant pathogens should be taken into account
- Other reasons for treatment failure
  - persistent complicating factors
  - other infections
  - noninfectious sources
- **Regional variations in resistance**

Expert Rev Anti Infect Ther. 2004;2(6):923-931

### About Pathogens

## Uropathogens in uncomplicated cystitis



ARESC: Antimicrobial Resistance Survey on Cystitis in Europe and Brazil

Eur Urol. 2008;54:1164-75

### About Pathogens



Optimization of the antibiotic policy in the Netherlands: SWAB guidelines for antimicrobial therapy of urinary tract infections in adults

Isolates of uropathogens found in first urine cultures (non-catheter) from adult, in-hospital, non-ICU patients in 2018.

Causative micro-organism	Number of isolates
<i>Escherichia coli</i>	20222 (46,6%)
<i>Enterococcus faecalis</i>	4640 (10,7%)
<i>Klebsiella pneumoniae</i>	3956 (9,1%)
<i>Proteus species</i>	3309 (7,6%)
<i>Pseudomonas aeruginosa</i>	2214 (5,1%)
<i>Staphylococcus aureus</i>	1084 (2,5%)
other gram-negative rods*	4908 (11,3%)
other gram-positive cocci**	3075 (7,1%)

Update 2020 SWAB Guidelines Urinary Tract Infections

### About Pathogens

## Obstructive pyelonephritis as a result of urolithiasis in Japan: Diagnosis, treatment and prognosis

Ryoichi Hamasuna,<sup>1,2</sup> Satoshi Takahashi,<sup>2,3</sup> Hiroshi Nagae,<sup>3,7</sup> Tatsuhiko Kubo,<sup>4,5</sup> Shingo Yamamoto,<sup>5,7</sup> Soichi Arakawa<sup>6,7</sup> and Tetsuro Matsumoto<sup>3,7</sup>

Table 1. Bacteria or fungi isolated from patients with obstructive pyelonephritis in this study

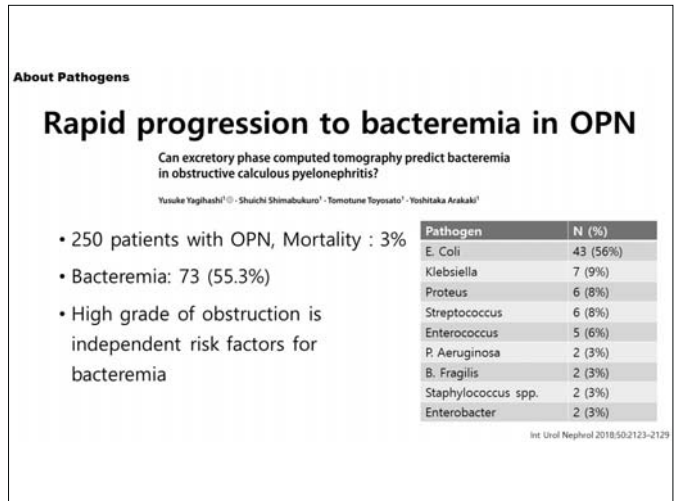
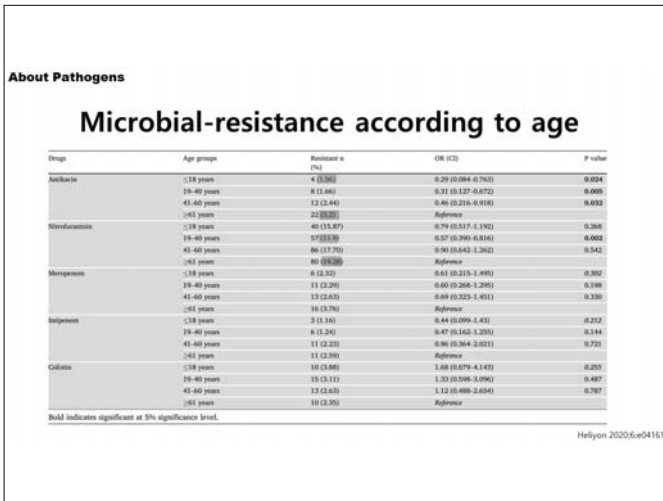
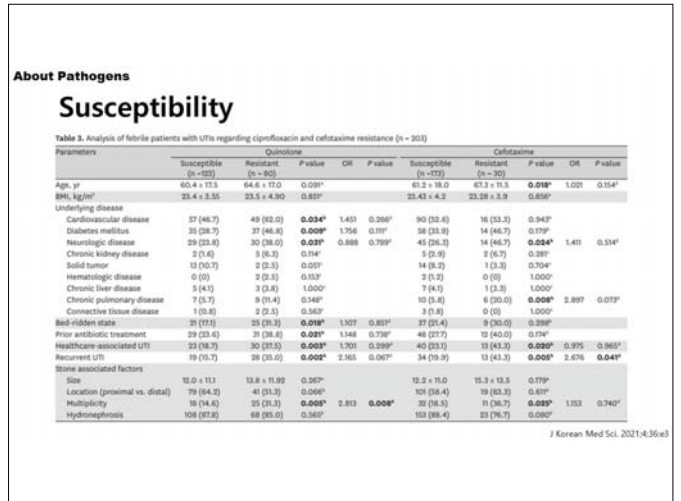
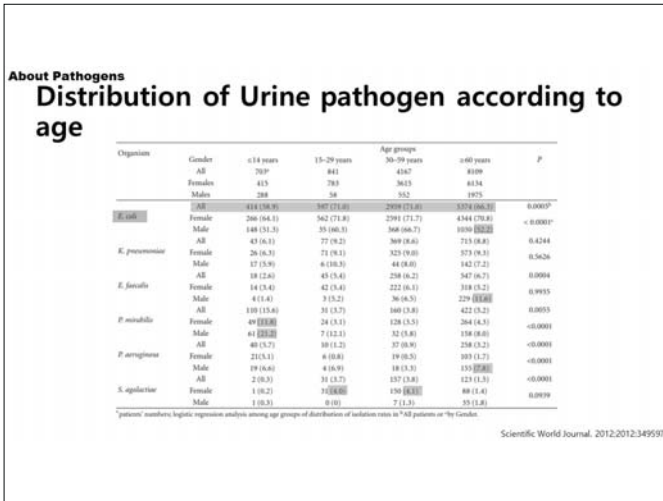
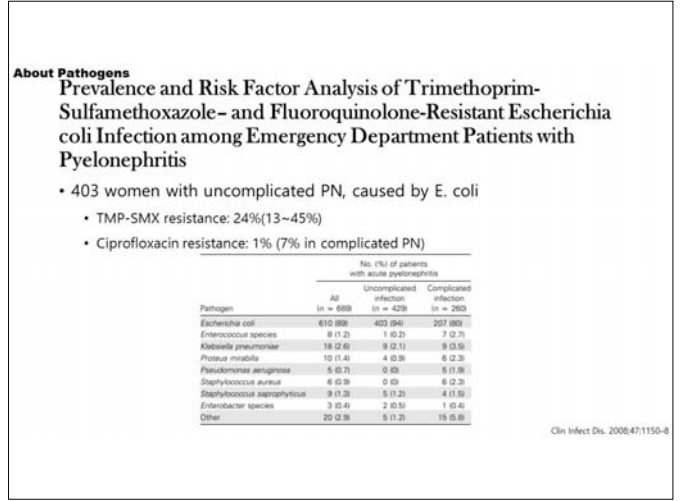
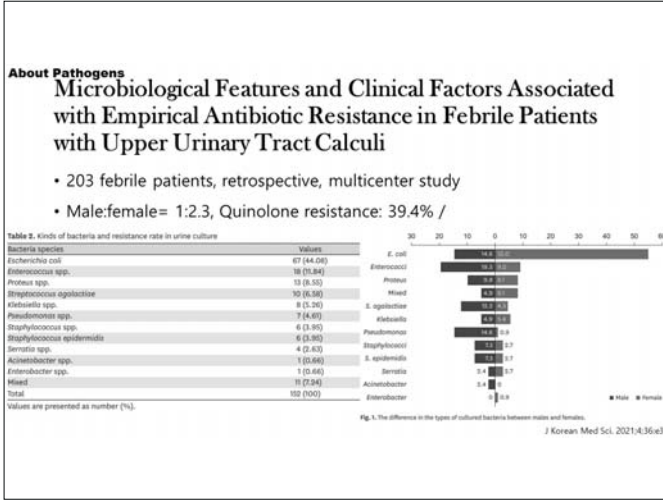
Bacterial species	No. isolates from cultures of all specimens	No. isolates from blood cultures
Gram-negative rods	409	69
<i>Escherichia coli</i>	51	7
<i>Klebsiella pneumoniae</i>	8	0
<i>Klebsiella sp.</i>	60	14
<i>Proteus mirabilis</i>	5	0
<i>Proteus sp.</i>	40	8
<i>Pseudomonas aeruginosa</i>	2	1
<i>Pseudomonas sp.</i>	7	2
<i>Citrobacter koseri</i>	7	2
<i>Citrobacter freundii</i>	4	7
<i>Citrobacter sp.</i>	7	1
<i>Enterobacter cloacae</i>	6	2
<i>Enterobacter aerogenes</i>	3	0
<i>Enterobacter sp.</i>	6	0
<i>Serratia marcescens</i>	4	0
<i>Providencia stuartii</i>	2	0
<i>Providencia rettgeri</i>	4	0
<i>Morganella morganii</i>	14	3
Other Gram-negative rods	14	3

- 1363 patients from 208 hospital
  - median age 68 years, male to female = 1:2.2
- Mortality: 2.3%

Gram-positive cocci	No. isolates from cultures of all specimens	No. isolates from blood cultures
<i>Enterococcus faecalis</i>	47	8
<i>Enterococcus faecium</i>	3	0
<i>Enterococcus sp.</i>	9	0
<i>Staphylococcus aureus</i>	22	7
Cocci-gram-negative Staphylococcus	32	7
<i>Staphylococcus agalactiae</i>	16	0
<i>Staphylococcus sp.</i>	17	0
Acinetobacter	2	2
<i>Acinetobacter fragilis</i>	2	2
<i>Fusobacterium sp.</i>	2	2
Other anaerobes	6	1
Fungi	2	1
<i>Candida albicans</i>	7	1
Other fungus	7	1
Total	537	133

Int J Urol. 2015;22:294-300





## UROLOGY 2021;00:1–10

Int J Urol. 2015;22:294-300

## UROLOGY 2021;00:1–10

## Antimicrob Resist Infect Control. 2017;6:124

## 요로감염 발생률 사용지침, 2018

## 요로감염 발생률 사용지침, 2018

## Debate Session (Is combination antibiotic therapy superior to monotherapy for adult patients with pyelonephritis related to urinary tract obstruction?)

**Optimal empirical antibiotics: About Guidelines**

### Empiric Antimicrobial Therapy for Complicated APN

Severity of Infection	Empiric Antibiotic	Treatment
Mild	Oral fluoroquinolones (ciprofloxacin IR, ER or levofloxacin)	Avoid in patients with risk factors for resistance, such as recent exposure to fluoroquinolone class; Avoid when local resistance patterns indicate high level resistance; Do not administer with divalent/trivalent cations, as efficacy will be reduced; Dose adjustment required in renal dysfunction
Moderate	Oral fluoroquinolones (ciprofloxacin IR, ER or levofloxacin)  Cefazolin, ceftriaxone, cefotaxime Ampicillin + gentamicin	Avoid in patients with risk factors for resistance, such as recent exposure to fluoroquinolone class; Avoid when local resistance patterns indicate high level resistance; Dose adjustment required in renal dysfunction  Dose adjustment required in renal dysfunction for cefazolin and cefotaxime only Avoid use of combination in renal dysfunction or elderly; Dose adjustment required in renal dysfunction
Severe	Intravenous fluoroquinolones (ciprofloxacin or levofloxacin) Ceftriaxone or ceftazidime + intravenous fluoroquinolones Ampicillin + gentamicin Piperacillin-tazobactam Imipenem Meropenem Doripenem	Use when expected resistance to fluoroquinolones is very low; otherwise <b>do not use as empiric monotherapy</b> ; Dose adjustment required in renal dysfunction Dose adjustment required in renal dysfunction for ceftazidime and fluoroquinolones only  Avoid use of combination in renal dysfunction or elderly; Dose adjustment required in renal dysfunction Dose adjustment required in renal dysfunction Use with risk factors for resistant organisms such as AmpC $\beta$ -lactamases and ESBL-producing organisms Consider de-escalation when culture and sensitivity results available; Dose adjustment required in renal dysfunction

Postgrad Med. 2010;122(6):7-15963-970

**Optimal empirical antibiotics: About Guidelines**

### Antibiotics recommended for the treatment of sepsis

Most frequent pathogens/species	Initial, empirical antimicrobial therapy	Therapy duration
<i>E. coli</i>	Cephalosporin (group 3a/b)	3-5 days after defervescence or control/elimination of complicating factor
Other enterobacteria	Fluoroquinolone†	
After urological interventions or if multi-resistant pathogens are suspected	Anti-pseudomonas active acylaminopenicillin/BLI	
<i>Pseudomonas spp.</i>	Cephalosporin (group 3b)	
<i>Proteus spp.</i>	Carbapenem	
<i>Serratia spp.</i>	$\pm$ Aminoglycoside	
<i>Enterobacter spp.</i>	$\pm$ Fluoroquinolone	

†Only in regions where fluoroquinolone resistance is below 10% and if not used in the past 6 months. Adapted from Grabe et al.<sup>1</sup>

Int J Urol. 2013;20:963-970

**Empirical Use of Ciprofloxacin for Acute Uncomplicated Pyelonephritis Caused by *Escherichia coli* in Communities Where the Prevalence of Fluoroquinolone Resistance Is High**

Jae Hyun Joo,<sup>1</sup> Kyungsook Kim,<sup>2,3</sup> Wonsung Doo Han,<sup>4</sup> Sang Hoon Song,<sup>2,3</sup> Kyungsook Kim,<sup>2,3</sup> Joong Eun Moon, Won Beom Park,<sup>5</sup> Eun Suk Kim,<sup>2,3</sup> Sang Won Park,<sup>6</sup> Nam Joong Kim,<sup>6</sup> Myungdon Oh,<sup>7</sup> and Hong Bin Kim<sup>2,3</sup>

- 255 women with uncomplicated PN
- Treated with ciprofloxacin

**TABLE 2 Clinical and microbiologic cure rates**

Variable	Successful no. (%) of patients with	Ciprofloxacin-resistant E. coli	OR (95% CI) <sup>a</sup>	P value
First follow-up (0-7 days after initial treatment)				
Clinical cure	180/214 (84.1)	30/34 (88.2)	2.014 (0.866-4.685)	0.135
Microbiologic cure	183/198 (92.4)	17/38 (44.7)	17.38 (7.328-39.811)	0.000
Second follow-up (14-21 days after completion of treatment)				
Clinical cure	206/209 (98.6)	37/39 (94.9)	3.712 (0.408-33.979)	0.177
Microbiologic cure	45/53 (84.9)	17/24 (70.8)	1.853 (0.487-7.055)	0.372

<sup>a</sup>OR, odds ratio; CI, confidence interval.

FIG 1 Patient enrollment and follow-up assessment.

Antimicrob Agents Chemother. 2012 Jun; 56(6): 3043-3044

**Optimal empirical antibiotics: About Guidelines**

**SWAB** Stichting Werkgroep Antibioticbeleid

Optimization of the antibiotic policy in the Netherlands: SWAB guidelines for antimicrobial therapy of urinary tract infections in adults

- Amoxicillin, co-amoxiclav, TMP and TMP-SMX are not suitable for the empirical treatment of UTI with systemic symptoms.
- The combination of a 2nd generation cephalosporin + aminoglycoside, a 3rd generation cephalosporin or amoxicillin + aminoglycoside (IV) can be recommended as empirical treatment of UTI with systemic symptoms.
- Empirical treatment should be continued until the susceptibility of the pathogen is determined.
- New antibiotic agents such as ceftazidime-avibactam, ceftolozane-tazobactam and fosfomycin for injection are currently not recommended in the empirical treatment of UTI with systemic symptoms.

Update 2020 SWAB Guidelines Urinary Tract Infections

**Optimal empirical antibiotics: About Guidelines**

### Resistance percentage in 2018 of first isolates of urine cultures (non-catheter) from hospitalized adult patients in unselected hospital departments excluding ICU and urology

	<i>Escherichia coli</i>				<i>Klebsiella pneumoniae</i>				<i>Proteus</i> species			
	total	% S	% I	% R	total	% S	% I	% R	total	% S	% I	% R
amoxicillin / ampicillin	18442	55.7	1.1	43.2	3571	0.2	0.1	99.7	2080	67.8	2.4	29.8
amoxicillin / clavulanic acid	18442	64.0	1.7	34.3	3569	74.8	2.0	23.3	2979	87.1	2.8	10.1
cefuroxime	18175	86.9	0.2	13.0	3541	83.3	0.1	16.6	2927	92.2	0.0	7.8
cefotaxime*	16610	93.4	0.2	6.4	3174	89.4	0.4	10.2	2654	97.5	0.1	2.4
ciprofloxacin	18441	84.7	2.1	13.2	3571	84.5	3.4	12.0	2989	89.6	0.8	9.6
cotrimoxazole	18435	77.3	0.1	22.6	3570	84.5	0.3	15.2	2987	72.3	0.5	27.2
gentamicine	17386	95.1	0.5	4.4	3356	95.6	0.0	4.4	2895	91.1	1.5	7.5

\*Ceftazidime/avibactam

Update 2020 SWAB Guidelines Urinary Tract Infections

**Preventing sepsis development in complicated urinary tract infections**

Nicola Petrosillo<sup>a</sup>, Guido Granata<sup>a</sup>, Breida Boyle<sup>b</sup>, Maeve M. Doyle<sup>c,d</sup>, Biagio Pinchera<sup>a</sup> and Fabrizio Taglietti<sup>a</sup>

**Table 2. Empirical antimicrobial treatment for complicated urinary tract infections (cUTI)†.**

Risk factors for multidrug resistance	Antimicrobial treatment
No risk factors for MDR organisms	a. 2nd or 3rd generation cephalosporin or the combination of amoxicillin and gentamicin. b. Piperacillin/tazobactam in patient with severe cUTI
Risk factors for ESBL-producing bacteria	Consider fluoroquinolones if history of an anaphylactic reaction to $\beta$ -lactam antimicrobials a. Carbapenem (Meropenem in prolonged infusion, loading dose 1 g over 30 min; 1 g every 8 h over 2 h) b. Amikacin or meropenem plus either vancomycin or ampicillin in case of septic shock. c. Ceftazidime/tazobactam 1500 mg every 8 h IV
Risk factors for carbapenem-resistance (previous UTI by carbapenem-resistant organism, high incidence of carbapenem resistance in the facility)	Ceftazidime/avibactam $\pm$ fosfomycin $\pm$ gentamicin or amikacin

Expert Rev Anti Infect Ther. 2020;18(1):147-61

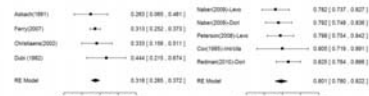
**Optimal empirical antibiotics: Monotherapy**

## Systematic Review and Meta-Analysis of Antimicrobial Treatment Effect Estimation in Complicated Urinary Tract Infection

Krishan P. Singh,<sup>a</sup> Gang Li,<sup>a</sup> Fanny S. Mitzran-Gold,<sup>b</sup> Milena Kurtinecz,<sup>c</sup> Jeffrey Wetherington,<sup>c</sup> John F. Tomayko,<sup>a</sup> Linda M. Mundy<sup>a</sup>  
Glasnost@Kline, Collegeville, Pennsylvania, USA<sup>a</sup>; Glasnost@Kline, Research Triangle Park, North Carolina, USA<sup>b</sup>

GlaxoSmithKline, Collegeville, Pennsylvania, USA<sup>1</sup>; GlaxoSmithKline, Research Triangle Park, North Carolina, USA

Forest plots of the primary meta-analysis for microbiological eradication of the proxy; a, placebo treatment, b, the three active control treatments



Summary of meta-analysis results for active comparator treatments

Intervent	Effect endpoint	Analysis (population)	Mean analysis estimate effect size (95% CI)
Depression	Microbiological eradication	Primary (MST)	0.10 (72.7, 84.2)
	Microbiological eradication	Sensitivity (SD)	0.23 (79.6, 90.4)
	Clinical response	Primary (MST)	0.42 (80.8, 96.3)
Leishmaniasis	Microbiological eradication	Primary (MST)	0.70 (75.6, 82.3)
	Microbiological eradication	Sensitivity (SD)	0.80 (83.8, 87.8)
	Microbiological eradication	Sensitivity (MST)	0.70 (73.5, 82.6)*
Impaired children	Microbiological eradication	Primary (MST)	0.40 (80.8, 96.3)
	Clinical response	Sensitivity (CI)	0.83 (79.8, 90.2)
	Clinical response	Sensitivity (CI)	0.86 (73.6, 98.5)
Overall	Microbiological eradication	Primary (MST)	0.10 (76.8, 82.3)
	Microbiological eradication	Sensitivity (MST)	0.70 (76.8, 82.3)*

Antimicrob Agents Chemother. 2013;57(11):5284-9

**Optimal empirical antibiotics: Monotherapy**

Empiric therapy for hospital-acquired, Gram-negative complicated intra-abdominal infection and complicated urinary tract infections: a systematic literature review of current and emerging treatment options

Yüzey Geleceği

CCR-TDCT <sup>†††</sup>							
Index	Reference	Agent A	Agent B	Description	Quality	Comparative outcome (A vs B)	Year
N	[38]	Doxorubicin 90.1 (24/26)	Levofloxacin 90.2 (24/26)	F, R	H	Noninferior	200
N	[39]	Doxorubicin 94.1 (51/543)	Levofloxacin 90.2 (24/26)	See comments	H	Noninferior	201
O	[43]	Ceftriaxone-spectinomycin 90.6 (32/741) ME	Levofloxacin 93.2 (32/633) ME	R, DB, F3	H	Noninferior	
P	[41]	Ceftriaxone-avibactam 85.6 (24/28)	Imipenem-cilastatin 85.6 (24/28)	F2, DB, R	M		201

CCR-TOC/ITT clinical cure rate at the test of cure endpoint intent-to-treat, DB double-blind, ME microbiological eradication, OX open-label, P2 phase 2, P3 phase 3, R randomized.

BMC Infect Dis. 2015;15:313

### Optimal empirical antibiotics: About Guidelines

요로 폐쇄 관련 신우신염이 발생한 성인 환자에서 항생제 병합 요법은 단독 요법에 비해 우월한가?

	관소사항	근거수준	권고수준
13-1	오로 폐색 관련 심부전 증상에서 원인군과 항생제 감수성 결과를 아는 경우 심부전의 치료 항생제로 일반적으로 추천되는 감수성은 항생제를 단독 요법으로 사용한다.	낮음	강함
13-2	폐혈증이 의심되는 중증 감염, 재발이 없었던 경우나 의료관련 감염인 경우는 초기 경험적 치료를 강화하여 병합 요법을 고려한다.	낮음	약함
13-3	병합 요법을 고려하는 경우 광범위 beta-lactam 항생제와 aminoglycoside 또는 fluoroquinolone 병합할 수.		

요로감염 항생제 사용지침, 2018

### Optimal empirical antibiotics: About Guidelines

	연구사항	연구수준	연구수준
14-1	요로 폐쇄 관련 신우신염은 항생제 치료와 함께 감압을 위한 시술이 필요하다.	높음	강함
14-2	요로 폐쇄 관련 신우신염으로 진단되고 백색 조영은 감압이 필요한 경우에는 가능한 빨리 시술을 시행해야 한다.	낮음	강함
14-3	요로 결석에 수반될 수신종과 요관결석이 있는 경우 경피적 신루 설치술 또는 요관 스텐트 삽입술을 가능한 빨리 시행한다.	낮음	강함
14-4	전립선 비대에 의한 급성 요로 폐쇄에 동반된 요관결석이 있는 경우 가능한 빨리 도뇨관을 삽입한다.	낮음	강함

요로감염 항생제 사용지침, 2018

### Optimal empirical antibiotics: About Guidelines

요로 폐쇄 관련 신우신염이 발생한 성인 환자에서 적절하게 요로 폐쇄를 해소시킨 이후 얼마나 항생제 치료를 시행해야 하는가?

	권고사항	근거수준	권고수준
15-1	오로 폐쇄 관련 신수입원 환자에서 오로 폐쇄 유발 요인이 교정되고 추가적 관력의 요소가 없다면 일반적으로 7일에서 14일간 항생제를 사용할 수 있다.	낮음	약함
15-2	환인 질환의 치료나 증상의 호전 및 오로 폐쇄의 교정이 불충분하면 신장 보양에 주해서 21일 이상 치료를 연장할 수 있다.	낮음	약함

요로감염 항생제 사용지침, 2018

## How to reduce the spread of antibiotic resistance

- Do not use antibiotics to treat viral infections, such as influenza, the common cold, a runny nose or a sore throat. Ask your doctor for other ways to feel better.
- Use antibiotics only when a doctor prescribes them.
- When you are prescribed antibiotics, take the full prescription even if you are feeling better. Ensure that members of your family do the same.
- Never share antibiotics with others or use leftover prescriptions.

<https://www.euro.who.int/en/health-topics/disease-prevention/antimicrobial-resistance/publications/2021/antimicrobial-stewardship-interventions-a-practical-guide-2021>

## 요로 폐쇄 관련 신우신염이 발생한 성인 환자에서 항생제 병합 요법은 단독 요법에 비해 우월한가? 병합요법

임 동 훈  
(조선의대 비뇨의학과)

### Antimicrobial Therapy

Empiric	Definitive (Directed)	Prophylactic
<ul style="list-style-type: none"> <li>Not available microbiological result (24-72hrs)</li> <li>Broad-spectrum antimicrobial agents</li> </ul>	<ul style="list-style-type: none"> <li>Identified microbiology result with AST</li> <li>Narrow-spectrum antibiotic agents</li> </ul>	

### 2018 요로감염 항생제 사용지침

권고사항	근거 수준	권고 수준
KQ 13. 요로 폐쇄 관련 신우신염이 발생한 성인 환자에서 항생제 병합 요법은 단독 요법에 비해 우월한가?		
13-1 요로 폐쇄 관련 신우신염 환자에서의 원인균과 항생제 감수성 결과를 아는 경우 신우신염의 치료 항생제로서 일반적으로 추천되는 감수성 있는 항생제를 단독 요법으로 사용한다.	낮음	강함
13-2 패혈증이 의심되는 중증 감염, 재발이 많았던 경우나 의료관련 감염인 경우는 초기 경험적 치료를 강화하여 병합 요법을 고려할 수 있다.	낮음	약함
13-3 병합 요법을 고려하는 경우 광범위 beta-lactam계 항생제와 aminoglycoside 또는 fluoroquinolone을 병합할 수 있다.	낮음	약함

### Reasons for using combination therapy

- To Extend the Antimicrobial Spectrum Beyond That Achieved by Use of a Single Agent for Treatment of Polymicrobial Infections
  - most intra-abdominal infections are usually caused by multiple organisms with a variety of G(+) cocci, G(-) bacilli, and anaerobes
- When Critically Ill Patients Require Empiric Therapy
  - in empiric therapy for health care-associated infections
- Synergy
  - 1+1=3
  - more rapid clearance of the infecting microorganism
  - shorten the course of antimicrobial therapy
- To prevent Emergence of resistance
  - when treatment duration is likely to be prolonged

### Combination therapy VS Monotherapy





## Combination therapy VS Monotherapy

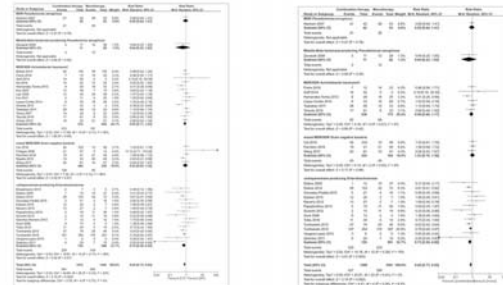
2019 SCIENTIFIC REPORTS

### OPEN Monotherapy versus combination therapy for multidrug-resistant Gram-negative infections: Systematic Review and Meta-Analysis

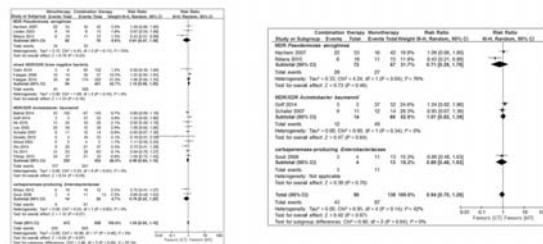
Andreas Schmitt, Alina Willems, Johannes H. W. H. van der Werf, Peter W. Schell, Roger K. B. ...

- RCTs, case-control studies, cohort studies and case series comparing outcomes
- 53 studies with a total of 4514 patients (n=15), osteoarticular (n=1), and mixed infections (n=27)
- Mortality and clinical cure rates served as primary and secondary outcome
- No large-scale and well-designed RCTs

## Mortality – RR of Combination 0.83



## Clinical cure rates



- Combination antimicrobial therapy of multidrug-resistant Gram-negative bacteria appears to be superior to monotherapy with regard to mortality.

## The Selection of Antimicrobial Therapy Should Be Individualized

## Common factors associated with complicated UTIs

- Obstruction at any site in the urinary tract
- UTI in males
- Foreign body
- Pregnancy
- Incomplete voiding
- Diabetes mellitus
- Vesicoureteral reflux
- Immunosuppression
- Recent history of instrumentation
- Healthcare-associated infections
- Isolated ESBL-producing organisms
- Isolated multi-drug resistant organism

2020 EAU UTI guideline

## Risk factors of MDR G(-) UTIs

- A multidrug-resistant G(-) urinary isolate
- Inpatient stay at a health care facility (eg, hospital, nursing home, long-term acute care facility)
- Use of a fluoroquinolone, trimethoprim-sulfamethoxazole, or broad-spectrum beta-lactam (eg, third or later generation cephalosporin)
- Travel to parts of the world with high rates of multidrug-resistant organisms

MDR refers to nonsusceptibility to at least one agent in three or more antibiotic classes. This includes isolates that produce an ESBL.

## Approach to Empiric Therapy of Acute Complicated UTI

Patient population	Risk for MDR <sup>a</sup>	Empiric regimens	Comments
Hospitalized with: <ul style="list-style-type: none"> <li>• Critical illness with ICU nursing, severe sepsis) or</li> <li>• Urinary tract obstruction</li> </ul>	N/A	<ul style="list-style-type: none"> <li>• Vancomycin 15 to 20 mg/kg IV every 8 to 12 hours with or without a loading dose</li> <li>• An antipseudomonal carbapenem <ul style="list-style-type: none"> <li>✓ Imipenem 500 mg IV every 6 hours or</li> <li>✓ Meropenem 1 g IV every 6 hours or</li> <li>✓ Doripenem 500 mg IV every 8 hours</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• The rationale for broad coverage is the high risk of adverse outcomes with insufficient antimicrobial therapy.</li> <li>• Regimens with a narrower spectrum (eg, regimens listed for other hospitalized patients without MDR risk) may be appropriate in regions with low community prevalence of MDR organisms.</li> </ul>
Other hospitalized patients	No	<ul style="list-style-type: none"> <li>• Ceftriaxone 1 g IV once daily or</li> <li>• Piperacillin-tazobactam 3.375 g IV every 6 hours or</li> <li>• Alternatives: <ul style="list-style-type: none"> <li>✓ Levofloxacin 750 mg IV or orally daily</li> <li>✓ Ciprofloxacin 400 mg IV twice daily</li> <li>✓ Ciprofloxacin 500 mg orally twice daily</li> <li>✓ Ciprofloxacin extended-release 1000 mg orally once daily</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• If enterococcus or streptococcus species are suspected (based on prior isolates or gram-positive cocci on urine Gram stain), piperacillin-tazobactam is preferred.</li> <li>• If Pseudomonas is suspected (based on prior isolates), piperacillin-tazobactam or a fluoroquinolone is preferred.</li> </ul>
	Yes	<ul style="list-style-type: none"> <li>• Piperacillin-tazobactam 3.375 g IV every 6 hours or</li> <li>• An antipseudomonal carbapenem <ul style="list-style-type: none"> <li>✓ Imipenem 500 mg IV every 6 hours or</li> <li>✓ Meropenem 1 g IV every 6 hours or</li> <li>✓ Doripenem 500 mg IV every 8 hours</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• If VRE or MRSA are suspected (based on prior isolates or gram-positive cocci on urine Gram stain), vancomycin (or MRSA or daptomycin or teicoplanin [for VRE] is added).</li> </ul>

Update:  
Literature review current through: Sep 2021. | This topic last updated: Mar 19, 2021.

## Summary

- 요로감염의 치료로 원인균과 항생제 감수성을 아는 경우 가능한 단일 요법 치료가 좋다.
- 항생제 선택을 할 때 환자의 중증도, 요로폐색의 유무, 다제내성균의 위험성, 다른 complicating factor의 유무, 지역사회 내성패턴 등을 고려하여 치료제를 결정한다.
- 심한 패혈증 같은 중증 환자나 요로폐색을 동반한 환자에서는 초기 경험적 치료로 병합요법을 고려한다.
- 병합요법 사용시 그람 양성균의 치료를 고려하여 항생제를 선택한다.
- 경험적 치료이후 미생물학적인 결과를 확인하고 항생제 사용을 재평가한다.

## 감사합니다





# 2021 제45회 한남비뇨의학회 추계학술대회



## Pediatric Urology

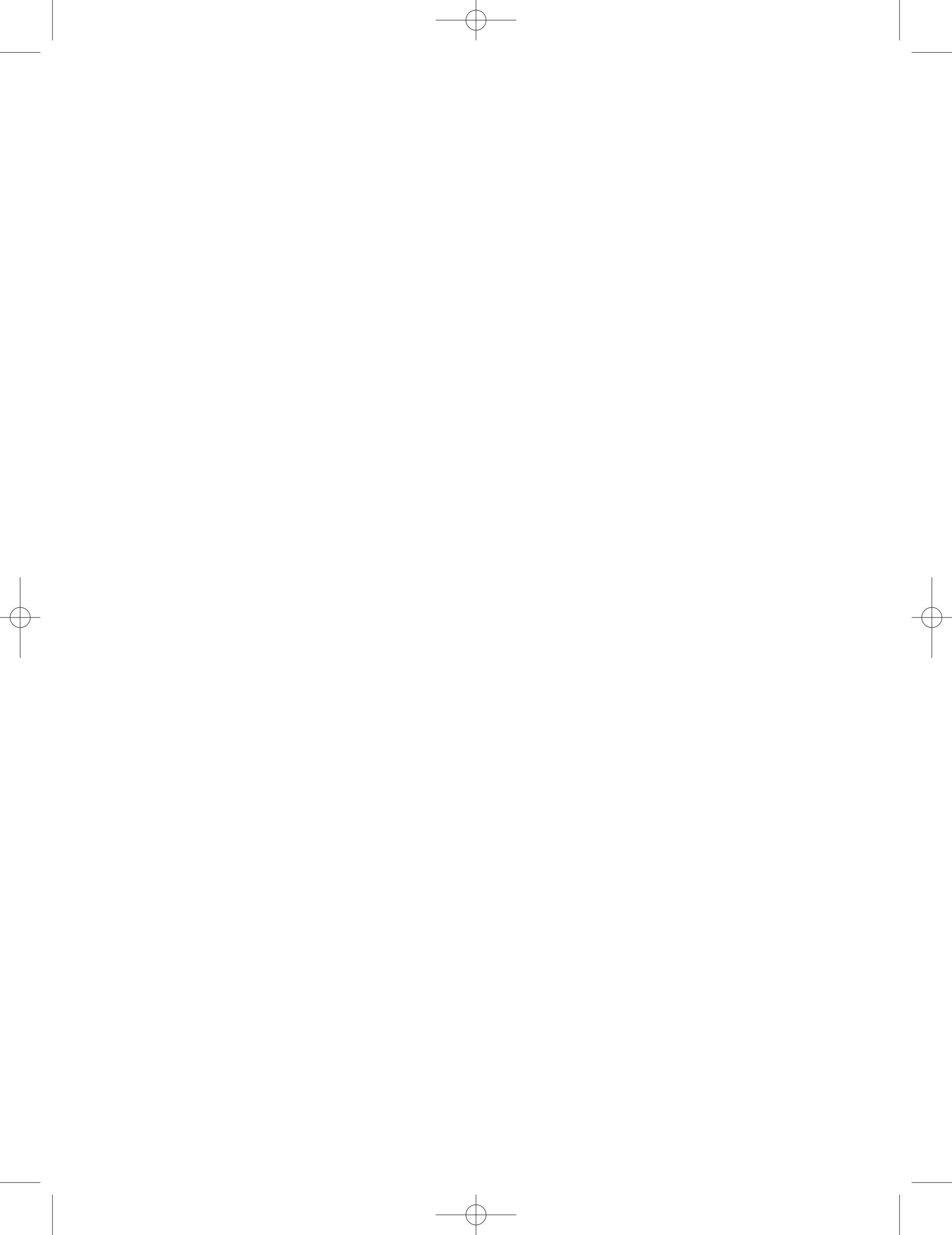
좌장: 조원열 (동아의대), 류동수 (성균관의대)

Current issue in concealed penis

정재민 (부산의대)

Pediatric hydrocele – laparoscopic treatment, characteristics and classification    하지용 (계명대의대)





## Current issue in concealed penis

정재민  
(부산의대)

### Current issue

- What is the concealed penis?
- Is the concealed penis disease?
- Should we treat the concealed penis?
- When is optimal timing of surgery for the concealed penis?

### What is the concealed penis?



Pusan National University  
Children's Hospital

### Inconspicuous Penis

- Concealed penis, also referred to as a hidden or buried penis
- penis that appears to be small
- normal stretched penile length and normal diameter of the penile shaft (from the pubic symphysis to the tip of the glans)

#### Micropenis

- SPL < 2.5 standard deviations below the mean size for age
- karyotype & assessment of the hypothalamic-pituitary-testicular axis

### Measuring techniques of the penile parameters



Stretched penile length  
(SPL)

Penile circumference (PC)

### Measuring techniques of the penile parameters



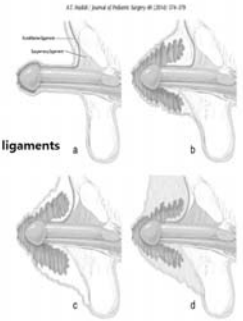
Penile length above baseline skin level (BPL)



Stretched penile length (GPL) Penile circumference (PC)

### Concealed penis

- abnormally long inner prepuce
- abnormal dartos fascia attachment
- abnormal distal attachment of fundiform and suspensory ligaments
- excess suprapubic fat deposition



### Variants of inconspicuous penis.

Buried penis



Megaprepuce

Webbed penis



Trapped penis

Castagnetti M, et al. World J Pediatr. 2015; 11(4):316-23

### Congenital megaprepuce (CMP)



### Bilateral hydrocele in an infant



mimicking a buried penis

### Treatment of concealed penis

- If patients without voiding symptoms – no treatment
- first-line therapy : weight loss

## Indication of penoplasty in CP

- Diagnosis itself
- Severity
- Age
- Associated Sx
- > surgeon preference

## Treatment of concealed penis

- surgical reconstruction : remains controversial
- **congenital megaprepuce (CMP)**
- abnormally long inner prepuce in conjunction with a phimotic ring causing progressive dilation of the inner foreskin from urine trapping
- intermittent ballooning and associated UTI and skin irritation



## Treatment of concealed penis

- prepuce is required to cover the penile shaft
- Circumcision can result in a trapped penis that may require the use of a free skin graft afterwards
- General principles
  - skin tapering and fixation
  - recreate a cylindrical penis with a peno-pubic and peno-scrotal angle
- Complications - rare
  - Recurrence
  - Skin redundancy (inadequate trimming)
  - Residual penile torsion (asymmetry in skin fixation)

## Fundamental technical principles

- **Vertical incision** along median raphe allows access to Buck's fascial plane for dissection without interference with lymphatic flow.
- **Complete circumferential degloving** of penis allows lysis of all tethering bands and development of skin flap that assures coverage.
- **Attachment of penile shaft to prepubic fascia** allows for slight lengthening of penis and prevents retraction.
- **Firm attachment of penoscrotal skin** to the base of penile shaft improves shaft exposure and further prevents retraction.

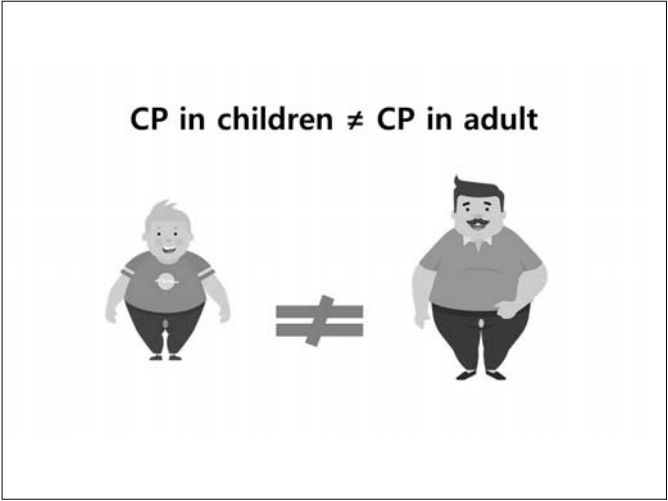
## 국민건강보험 요양급여의 기준에 관한 규칙 [별표 2] <개정 2020. 6. 29.>

비급여대상(제9조제1항관련)

- 다음 각목의 질환으로서 업무 또는 일상생활에 지장이 없는 경우에 실시 또는 사용되는 행위·약제 및 치료재료
  - 단순한 피로 또는 권태
  - 주근깨·다모(多毛)·무모(無毛)·백모증(白毛症)·탈기초(주사비)·점(모반)·사마귀·여드름·노화현상 등으로 인한 탈모 등 피부질환
  - 발기부전(impotence)·불감증 또는 생식기 선천성기형 등의 비노생식기질환
  - 단순 코골음
  - 질병을 동반하지 아니한 단순포경(phimosis)
  - 검열반 등 안과질환
  - 기타 가욕 내지 바욕에 상당하는 질환으로서 보건복지부장관이 정하여 고시하는 질환

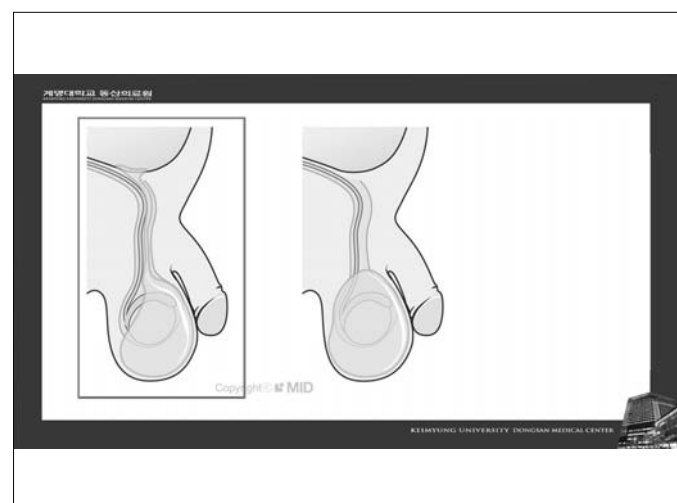
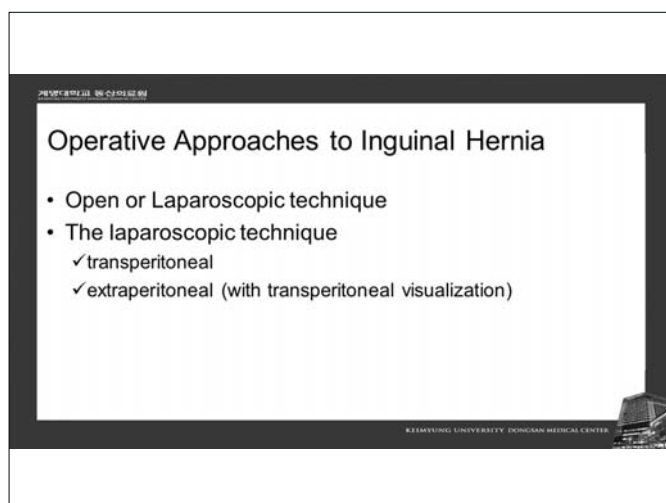
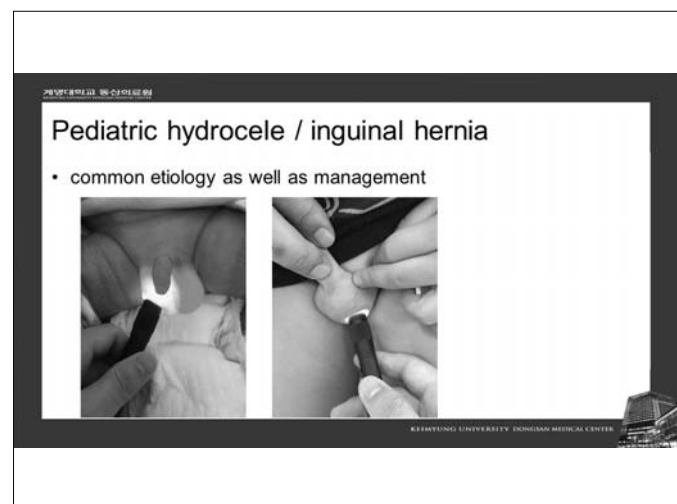
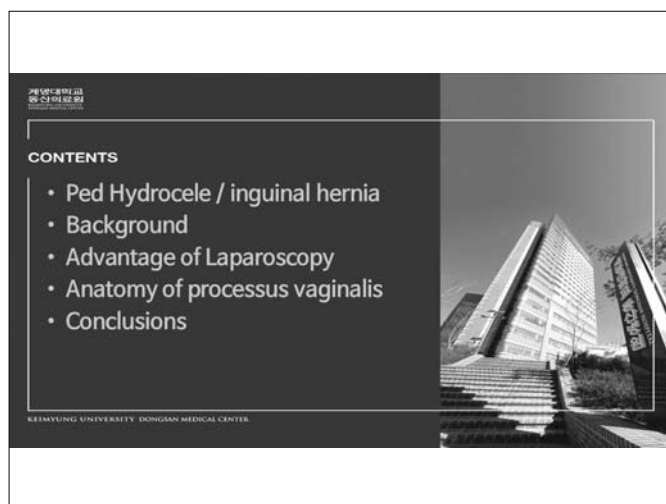
## Why should we perform penoplasty in CP patient?

- **CP**
  - Negative psychological effects on patient and family
  - Intermittent voiding problem (ballooning)
  - UTI and skin irritation due to phimosis
- **Penoplasty**
  - Simple procedure
  - Negligible morbidity
  - Excellent cosmetic and functional results
  - Improvement of penile hygiene and accessibility

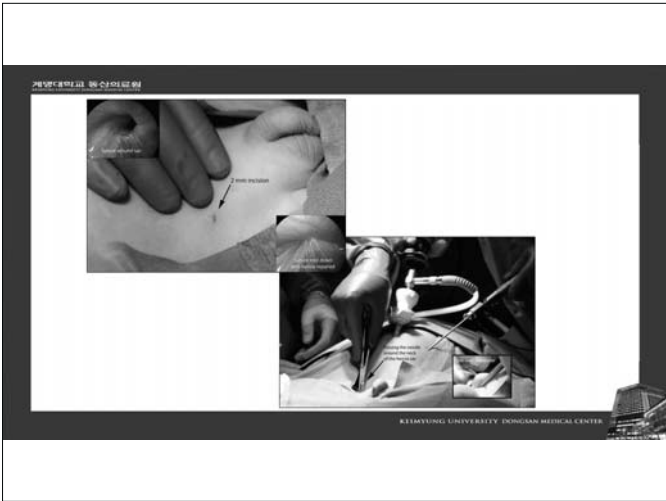
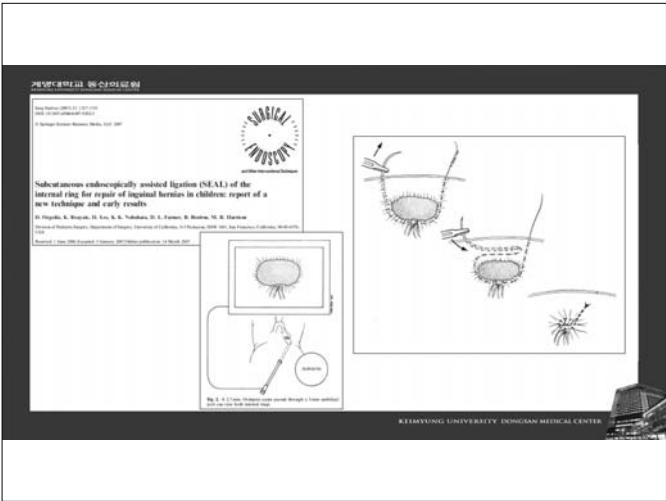
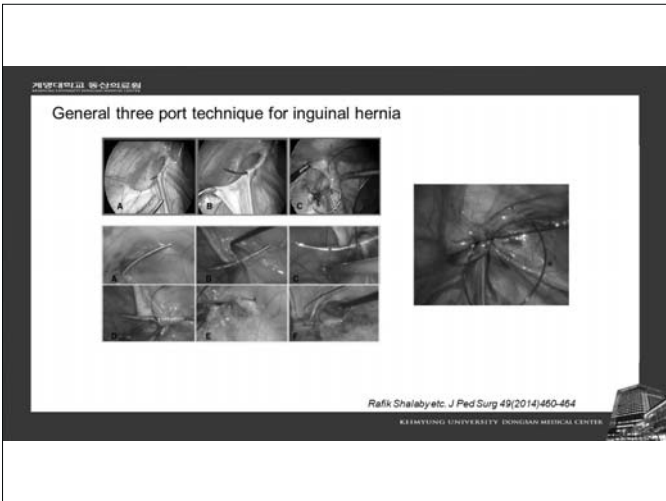
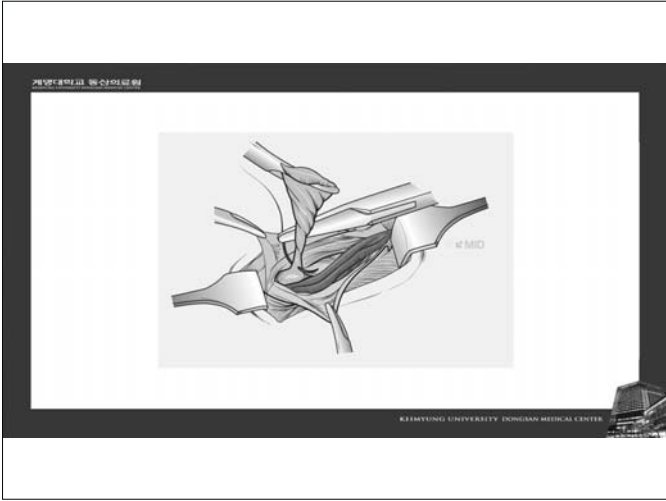
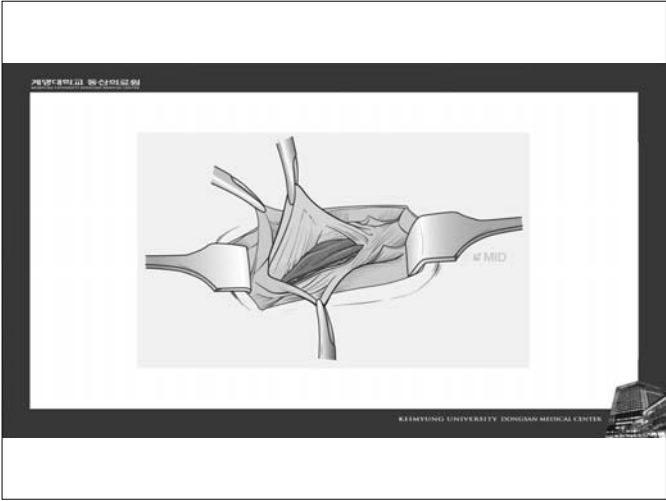


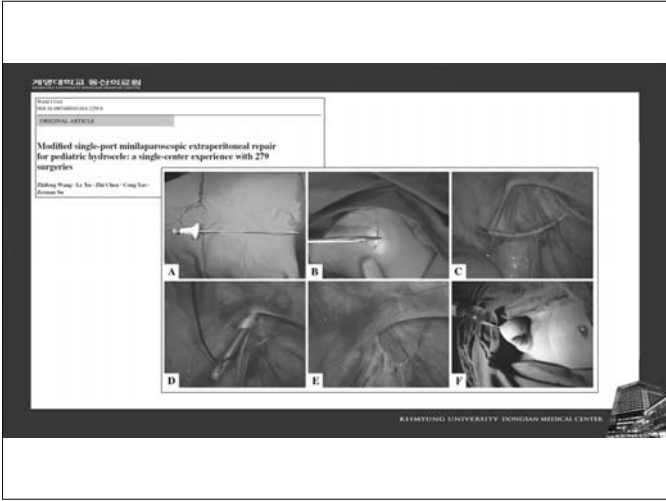
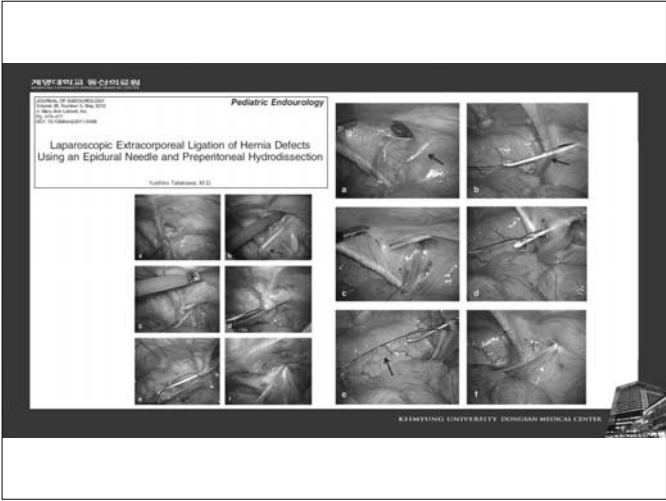
# Pediatric hydrocele - laparoscopic treatment, characteristics and classification

하지용  
(계명대의대)







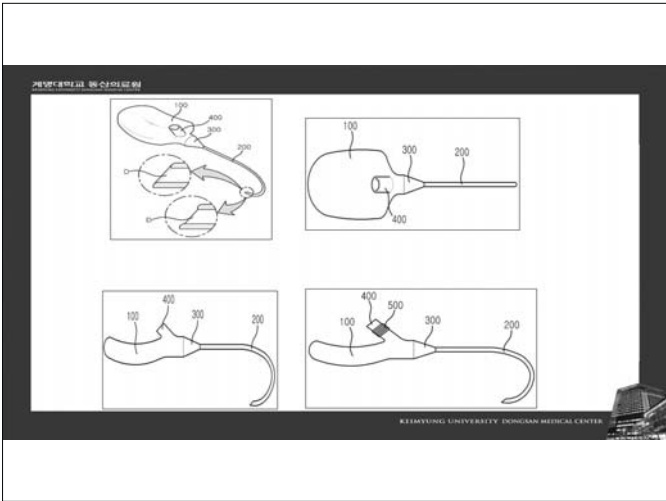
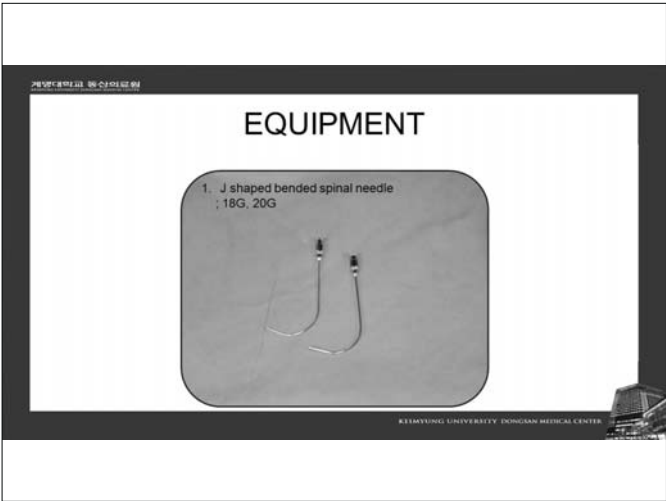
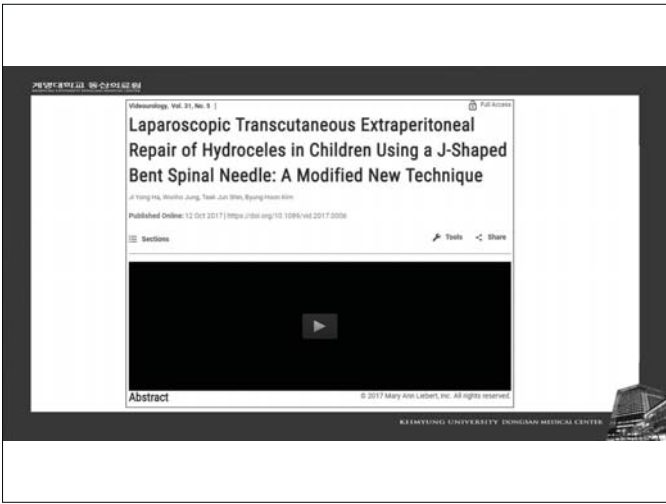


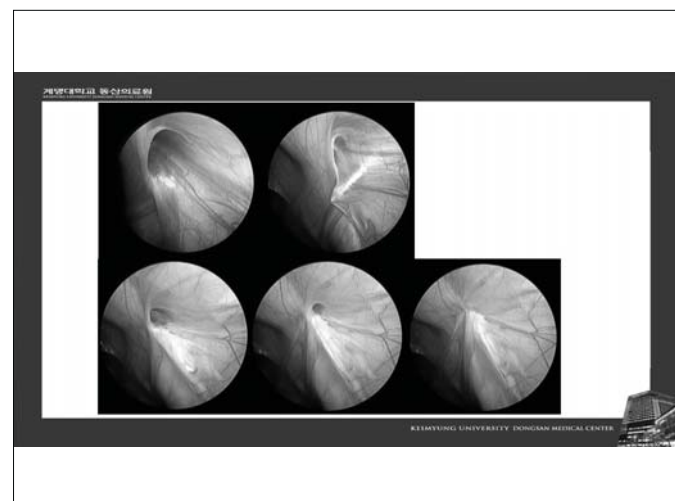
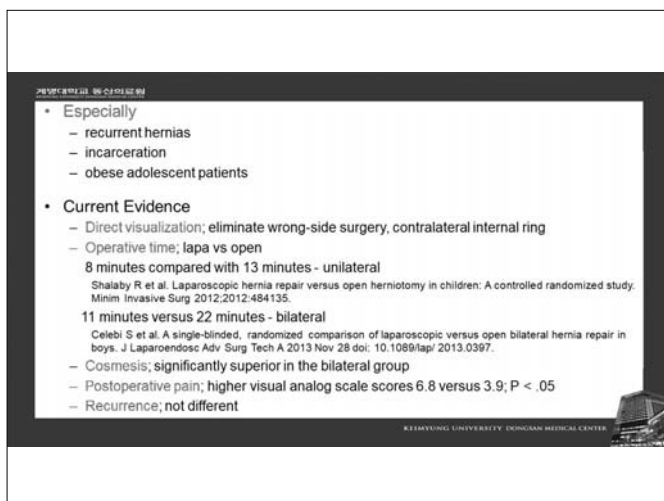
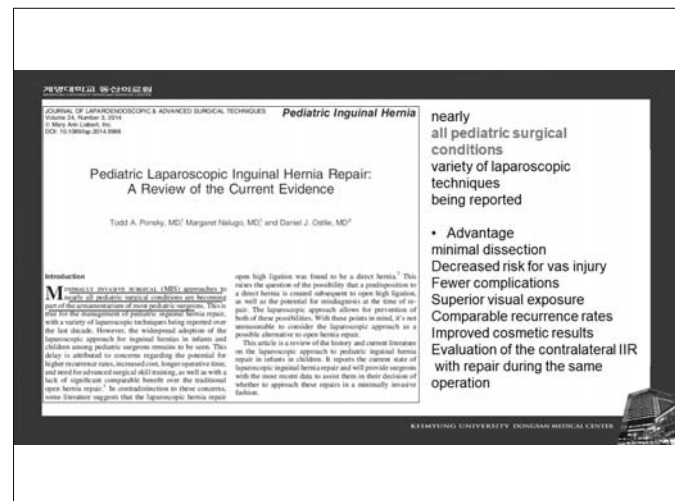
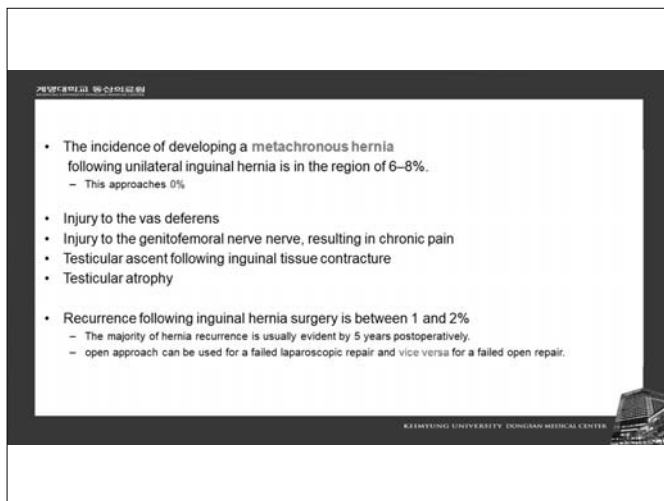
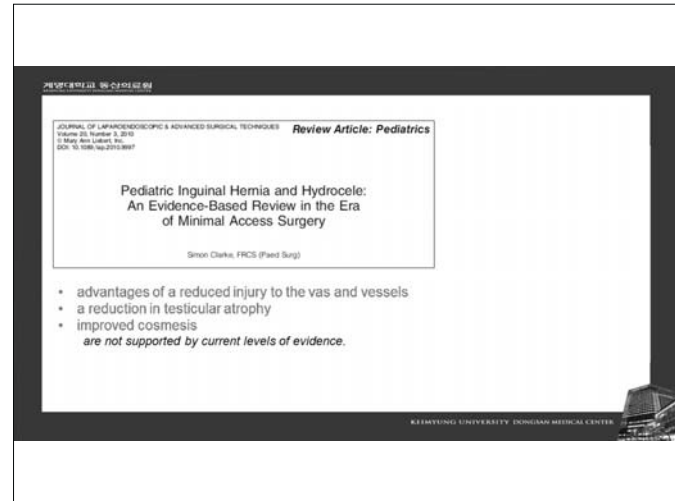
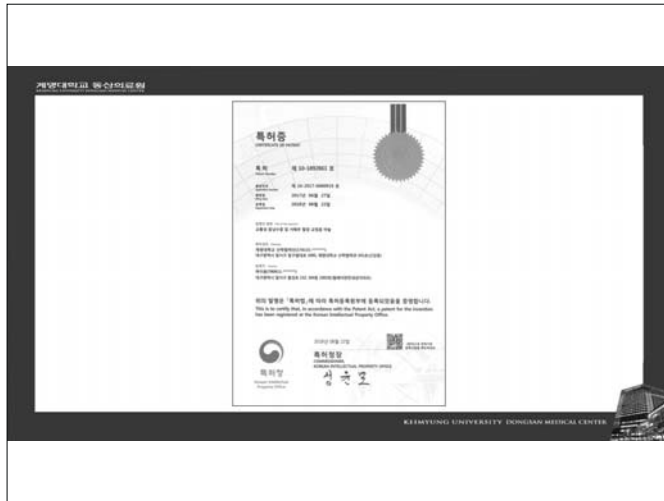
개원대학교 동산의료원

Comparison of methods and results by authors

	2007	2012	2014	2015
Author	Harrison MR	Takakawa Y	Wang Z	Ha JY
Sample size	204 (300)	13 (17)	279 (274)	37 (45)
Indication	Inguinal hernia	Inguinal hernia	Hydrocele	Hydrocele
Port	2	2	2	1
Tool	Needle(2.0 Ticon)	17G epidural needle	Taper needle, Endoclipse needle	J shaped Bended spinal needle
Hydrodissection	X	O	X	O
Operation time	N/A	N/A	19.5m (unilateral) 24.8m (bilateral)	13.2m (unilateral) 19.3m (bilateral)
Hospital stay	0	0	2.1day	0
flw duration	235d	6.1month (2-12)	9month (6-29)	12 (1-17) mo
Recurrence	4.3% (13/300)	0% (0/17)	0.7% (2/274)	4.4% (2/45)
Complication		0% (0/17)	1.5% (4/274)	0

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안녕하세요, 김경원입니다

### Anatomy of the processus vaginalis in hydrocele

Figure 140-23. Anatomy of the processus vaginalis in hydrocele. A. Normal closure of the processus vaginalis; straight arrows indicate the funicular process; curved arrow is the tunica vaginalis. B. Communicating hydrocele with complete patency of the processus vaginalis. C. Funicular hydrocele with distal closure of the processus vaginalis; communication with the peritoneal cavity may also result in hernia. D. Encysted hydrocele of the spermatic cord. (From Martin LG, Share JC, Peters C, et al. Hydrocele of the spermatic cord: embryology and ultrasonographic appearance. *Pediatr Radiol* 1996;26:529-30.)

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안녕하세요, 김경원입니다

From July 2014 to June 2020

- 250 boys(298 Units) with hydrocele
- Laparoscopic Transcutaneous Extraperitoneal repair

Classified

- Clinical characteristics
  - Cystic dense/reducible
- Inguinal ring type
  - Hole with communicating/with tapering/closed
- Treatment methods
  - High ligation only/high ligation with scrotal aspiration/hydrocelectomy

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안녕하세요, 김경원입니다

Hole with communicating, n=163	Hole with tapering, n=131	Closed, n=4

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안녕하세요, 김경원입니다

Abdominoscrotal hydro	Cordcele	Slit opening

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안녕하세요, 김경원입니다

high ligation only n=186	high ligation c aspiration, n=100	Hydrocelectomy n=12
Reducible hydrocele	Dense hydrocele	Closed IR, preferred, recurred
97.6% (121/124) Incomplete high ligation	98% (49/50)	100% (12/12)
#3, bleeding of inf. epigastric vein #1, subQ emphysema		#2, scrotal swelling or hematoma

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안녕하세요, 김경원입니다

Q

High ligation only?

A

The distal sac is not dissected  
Because this may result in ischemic orchitis or postoperative hematomas.


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Q

High ligation only?

A

Through an inguinal incision, hydrocele fluid drained, and a high ligation of the processus vaginalis is performed.




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Q

High ligation only?  
If an older boy?

A


Diagnostic laparoscopy can be performed.  
If the internal ring is closed, then the hydrocele may be corrected with a scrotal incision.



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Advantage

- Simple, safe, fast
- Better Cosmesis : scarless abdomen
- Less risk of injury to the cord structure
- Simultaneous repair of contralateral side
- Faster Recovery
- Less pain

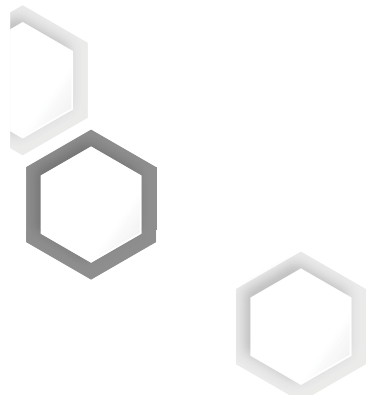
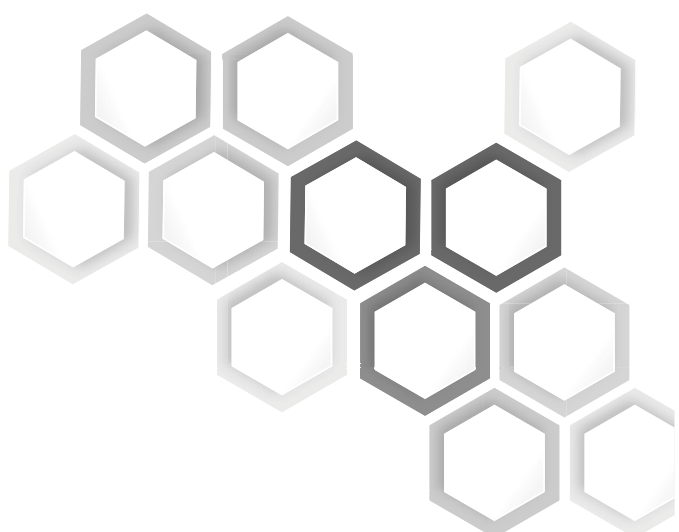


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# 2021 제45회 한남비뇨의학회 추계학술대회

## Management of genitourinary cancer during COVID-19 pandemic

좌장: 임재성 (충남의대), 강택원 (전남의대)

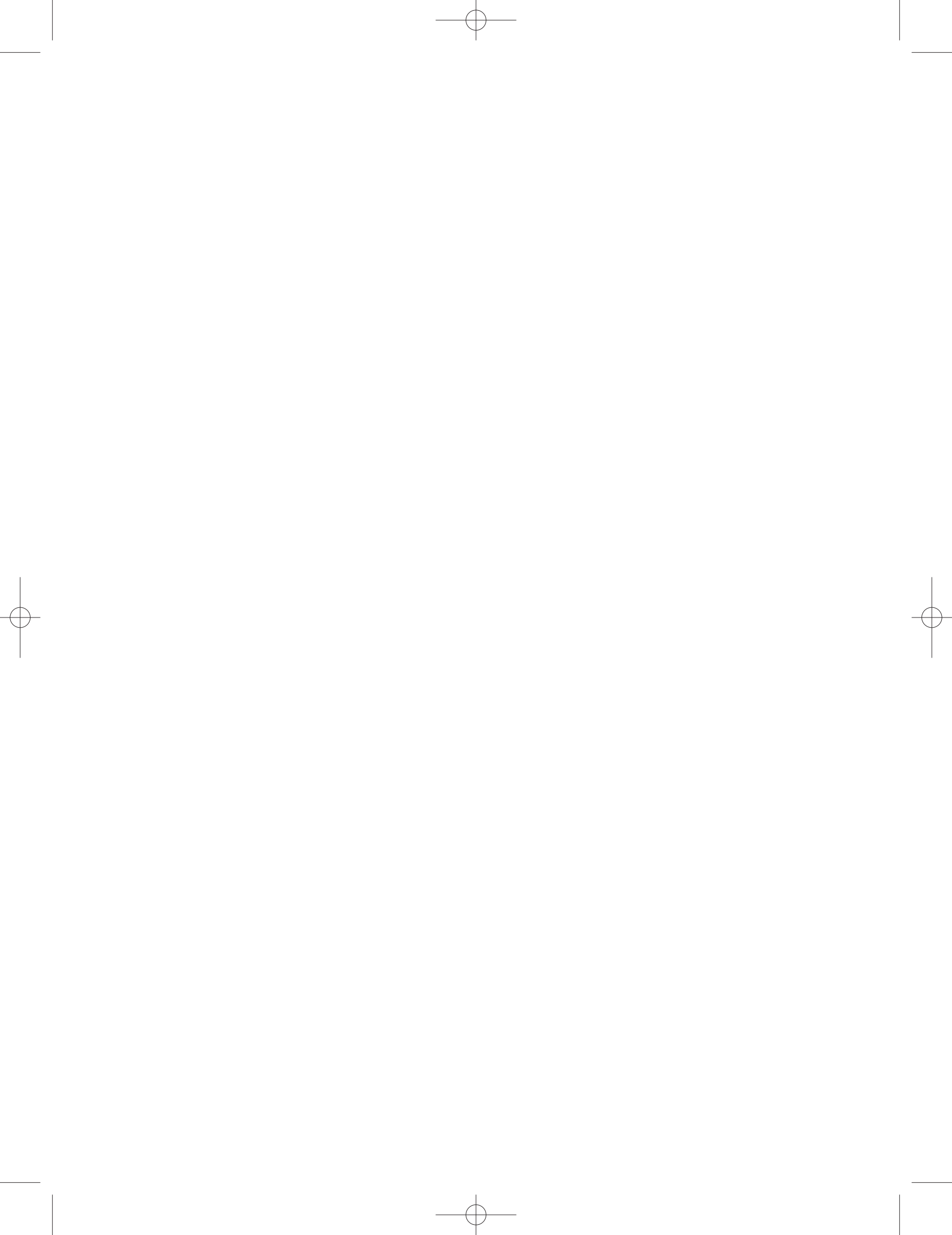
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Risks from deferring treatment for GU cancer during the COVID-19 pandemic      김민석 (조선의대)

---

Adjustment in the use of intravesical instillations of BCG for high risk NMIBC during  
COVID-19 pandemic      박성찬 (울산의대)

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## Risks from deferring treatment for GU cancer during the COVID-19 pandemic

김민석  
(조선의대)

2019년 12월에 중국 우한에서 신종 코로나 바이러스의 감염이 확인되었고 WHO는 COVID-19로 명명하였다. 코로나 바이러스는 212개 국에 세계적 대유행을 보였으며 전 세계 대부분의 의료 시스템에 큰 혼란과 위기를 초래하였다. 코로나 환자의 기하 급수적인 증가는 이를 치료할 병상 및 시설의 부족함을 야기 하였으며 이는 큰 사회적 문제로 대두되었다.

이러한 문제들뿐만 아니라 코로나환자의 증가 및 코로나환자와 밀접접촉으로 인한 자가격리 환자들이 늘어남에 따라 수술이 예정이던 환자가 코로나에 감염되는 경우가 많아 이로 인한 수술을 연기함으로써 기존 질병으로 인한 위험도가 증가되게 되었고 백신 접종에 따라 백신으로 인한 수술의 연기 또한 논란이 되고 있는 실정이다.

Covid-19 감염이 있을 때 비뇨생식기 암에 대해 수술을 미루는 문제에 대해서 각 계통별 암에 대한 위험성을 지금까지 발표된 paper를 중심으로 알아보고자 한다.

고위험군의 방광암은 최대한 빨리 수술을 하는 것이 좋으며 UTUC의 경우도 고위험군일 경우 지지면 최소화하는 것이 좋다. 저병기의 신장암은 어느정도 지연이 가능하고 2기의 신장암은 가능한 빨리 하는 것이 좋다. 고위험 전립선암은 neoadjuvant hormone Tx.을 하면서 기다려볼 수 있다.

결국 코로나 환자의 비뇨생식기 암의 치료 시기는 암의 stage와 grade 그리고 aggressiveness에 따라 술자가 환자의 상태를 적절히 고려하여 선택을 하는 것이 좋겠다.

# Adjustment in the use of intravesical instillation of BCG for high risk NMIBC during COVID-19 pandemic

Sungchan Park, M.D., Ph.D.

(Professor of Department of Urology, Ulsan University Hospital, University of Ulsan College of Medicine, Ulsan, Korea)

## Introduction

Lenfant L et al. Eur Urol 2020;78:1-3

- ◆ The median age at initial diagnosis in NMIBC and BCG patient population is >70 yr and it has recently been reported that almost 30% of patients older than 65 yr may develop acute respiratory distress syndrome after contracting COVID-19.
- ◆ Therefore, most NMIBC patients should be considered at high risk of presenting with severe forms of COVID-19 that might require admission.



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## Introduction

Lenfant L et al. Eur Urol 2020;78:1-3

- ◆ Current COVID-19 pandemic is forcing caregivers to adapt their clinical practice, especially for the management of life-threatening conditions such as urological malignancies.
- ◆ The treatment course is likely to depend on COVID-19 status, which should be evaluated via meticulous clinical examination to look for common and uncommon symptoms and a detailed history to account for recent contact with confirmed COVID-19 cases.
- ◆ COVID should be a priority during cancer treatment.



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## Induction BCG

2021년 한남비뇨의학회 추계학술대회

- ◆ **Patients without COVID-19 suspicion**
- ◆ Six weekly doses of BCG induction should be completed for high-risk NMIBC cases, given that several randomized controlled trials and meta-analyses have shown that such treatment is associated with decreases of up to **60–70%** and **26%** in the risk of **recurrence** and **progression**, respectively.

- ◆ **Patients with COVID-19 suspicion**

COVID priority



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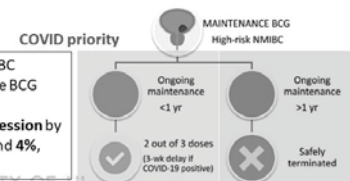
## Maintenance BCG

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- ◆ To minimize the number of hospital visits, receipt of at least two out of the three doses of a BCG maintenance course should be considered acceptable.
- ◆ BCG instillation courses that have been ongoing for longer than 1 yr can be safely terminated for high-risk NMIBC patients. Although the European Association of Urology (EAU) guidelines recommend 3-weekly instillations at 3, 6, 12, 18, 24, 30, and 36 mo on the basis of European Organization for Research and Treatment of Cancer data.

- ◆ Among high-risk NMIBC patients, maintenance BCG reduces the rates of **recurrence** and **progression** by approximately 15% and 4%, respectively.

COVID priority



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## BCG vaccinations and COVID-19

Lenfant L et al. Eur Urol 2020;78:1-3

- Recent theories suggest that use of BCG as a vaccination could prevent COVID-19.
- 1. Epidemiologically, older patients are at higher risk of COVID-19, especially severe forms, while younger patients could be protected by BCG vaccination providing childhood immunity that may last for approximately 20 yr.
- 2. Preclinical studies in mice have shown that BCG vaccination could offer protection against various DNA and RNA viruses via induction of innate immune memory and heterologous lymphocyte activation.

Kleinnijenhuis J et al. Trans R Soc Trop Med Hyg 2015;109:157-65

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## BCG vaccinations and COVID-19

Ozdemir C et al. Allergy 2020;17:316-7

- Mean cases per habitants is significantly lower in BCG-vaccinated countries than in BCG-non-vaccinated countries ( $p < 0.0001$ ).

- Moreover, mean death is significantly lower in BCG-vaccinated countries compared to BCG-non-vaccinated countries ( $p < 0.0001$ ).

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## BCG vaccinations and COVID-19

Lenfant L et al. Eur Urol 2020;78:1-3

- Recent theories suggest that use of BCG as a vaccination could prevent COVID-19.
- 3. Two randomized controlled trials are currently testing BCG vaccination for COVID-19 prevention in Australia (NCT04327206) and the Netherlands (NCT 04328441).
- Arguably, intravesical instillations of BCG for induction of a local immune response with activation of macrophages, neutrophils, and natural killer T lymphocytes could help in preventing and/or controlling COVID-19.
- These are only a hypothesis that cannot currently be used for clinical decision-making.

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## Protective role of intravesical BCG in COVID-19 severity

Gallegos H et al. BMC Urol 2021;21:50

BMC Urology

Characteristics	Covid group (n = 43)	No-covid group (n = 132)	p value
Mean age (years) ± SD	72.9 ± 10.9	73.1 ± 10.1	0.899
Male, % (n)	83.7% (36)	72.0% (95)	0.157
Full dose BCG, % (n)	16.3% (7)	22.0% (29)	0.518
Maintenance therapy, % (n)	62.8% (27)	75.0% (99)	0.170

Protective role of intravesical BCG in COVID-19 severity

- Forty-three patients (cumulative incidence 24.6%) were diagnosed with COVID-19. During follow-up only 1 patient died from the disease (Case Fatality Rate = 2.3%), only 2 patient (4.6%) required hospitalization, and only 2 patients (4.6%) had COVID pneumonia. Most patients only presented upper respiratory symptoms, compatible with a flu.
- Control group (age group 70–79 years) had a cumulative incidence of COVID-19 infection of 6.3% (40.629 COVID-19 confirmed cases, 643.423 people in the 70–79 age group), and a Case Fatality Rate of 14% (5.671 deaths due to COVID-19, 40.629 confirmed cases) in Chile.
- Instillation schemes should not be suspended in a pandemic!

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## Protective role of intravesical BCG in COVID-19 severity

Intravesical instillation of Calmette-Guérin bacillus and COVID-19 risk

Ugo Fedeli<sup>a</sup>, Angelo Porreca<sup>a</sup>, Michele Collicchia<sup>a</sup>, Elena Schievano<sup>a</sup>, Walter Artibani<sup>b</sup>, Luigi Roberto Biasio<sup>c</sup>, and Giorgio Palu<sup>a,d</sup>

<sup>a</sup>Epidemiological Department, Azienda Zero Veneto Region, Padua, Italy; <sup>b</sup>Department of Urology, Policlinico Abano Terme, Padua, Italy; <sup>c</sup>University Contract Lecturer in Infectology, Rome, Italy; <sup>d</sup>Department of Molecular Medicine, University of Padua, Padua, Italy

Fedeli U et al. Hum Vaccin Immunother 2021;17:1

- No evidence of a protective effect. However, the interpretation of these data need some caution, due to the low prevalence of infection (<1%) observed within this population. → need larger prospective study.

	Subjects in the cohort		COVID-19 infections		Hospitalizations		ICU admissions/deaths	
	BCG	No BCG	BCG	No BCG	BCG	No BCG	BCG	No BCG
Males								
<60	200	960	1	7	-	1	-	-
60–69	507	1,754	3	5	1	4	-	1
70–79	980	3,304	10	22	8	18	4	9
80+	658	2,729	5	33	5	25	3	14
Total	2,345	8,747	19	67	14	48	7	24
Females								
<60	45	307	-	2	-	-	-	-
60–69	110	515	-	1	-	1	-	-
70–79	168	717	-	1	-	1	-	1
80+	135	844	-	11	-	4	-	5
Total	458	2,383	-	15	-	6	-	6

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## COVID-19 vaccination vs. intravesical BCG

- Interaction of Covid 19 vaccination and BCG: no data!
- BCG therapy:
  - mycobacterial Ag presentation to T helper cell by phagocytes is pivotal.
  - bladder cancer cell takes on some features of BCG-infected phagocyte
- There is also some evidence that BCG treatment can interact with influenza vaccine; for this reason, it is recommended that you do not undergo vaccination against influenza within 6 weeks of having an instillation of BCG.

Prescott S et al. Clin Infect Dis 2000;31:591-3

last updated on 0/27/2016, NHS

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## Management of BCG side effects

- In managing side effects related to intravesical BCG instillations, **careful attention should be paid to persistent fever by isolating and testing patients for COVID-19.**
- **Nonsteroidal anti-inflammatory drugs should only be used in COVID-19-negative patients**, given that these medications may worsen the course of COVID-19, potentially leading to a higher risk of hospital and intensive care unit admission.

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## Conclusions

- **The current COVID-19 pandemic is likely to impact management of NMIBC.**
- **But patients should be reassured that management of urological malignancies remains a top priority even during the health care crisis.**
- **Reasonable adjustments are required to limit the risk of COVID-19 contamination while maintaining adequate oncological outcomes.**

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## Guideline for Cancer Care

Special Article  
Lee JB et al. Cancer Res Treat 2021;53:323-9

### Guidelines for Cancer Care during the COVID-19 Pandemic in South Korea

Ji Bum Lee<sup>1</sup>, Minhye Jung<sup>2</sup>, Juna Hyun Kim<sup>3</sup>, Bo Hyun Kim<sup>4</sup>, Yeul Kim<sup>5</sup>, Young Seok Kim<sup>6</sup>, Byung Chang Kim<sup>7</sup>, Jin Kim<sup>8</sup>, Sung Ho Moon<sup>9</sup>, Keon-Uk Park<sup>10</sup>, Meerin Park<sup>11</sup>, Hyoun Jin Park<sup>12</sup>, Sung Hoon Sim<sup>13</sup>, Hong Man Yoon<sup>14</sup>, Soe Jung Lee<sup>15</sup>, Eumyoung Lee<sup>16</sup>, Juna Young Chon<sup>17</sup>, Yeon Kyung Chung<sup>18</sup>, So-Youn Jung<sup>19</sup>, Jinsoo Chung<sup>20</sup>, Eun Seok Lee<sup>21</sup>, Hyun Chae Chang<sup>22</sup>, Tak Yun<sup>23</sup>, Sun Young Rha<sup>24</sup>

<sup>1</sup>Division of Medical Oncology, Department of Internal Medicine, Yonsei Cancer Center, Yonsei University College of Medicine, Seoul; <sup>2</sup>Song-dong Institute for Cancer Research, Yonsei University College of Medicine, Seoul; <sup>3</sup>Orthopedic Oncology Clinic, National Cancer Center, Gyeonggi; <sup>4</sup>Center for Liver and Pancreatobiliary Cancer, Research Institute and Hospital, National Cancer Center, Gyeonggi; <sup>5</sup>Division of Cancer Prevention in Early Detection, National Cancer Control Institute, National Cancer Center, Gyeonggi; <sup>6</sup>Department of Radiation Oncology, Asan Medical Center, University of Ulsan College of Medicine, Seoul; <sup>7</sup>Center for Colorectal Cancer, Research Institute and Hospital, National Cancer Center, Gyeonggi; <sup>8</sup>Department of Surgery, Korea University College of Medicine, Seoul; <sup>9</sup>Center for Proton Therapy, Research Institute and Hospital, National Cancer Center, Gyeonggi; <sup>10</sup>Department of Internal Medicine, Keimyung University Daegu Hospital, Daegu; <sup>11</sup>Department of Pediatrics, Center for Pediatric Cancer, Research Institute and Hospital, National Cancer Center, Gyeonggi; <sup>12</sup>Breast Cancer Center, Research Institute and Hospital, National Cancer Center, Gyeonggi; <sup>13</sup>Center for Gastric Cancer, Research Institute and Hospital, National Cancer Center, Gyeonggi; <sup>14</sup>Department of Oncology (Hematology), School of Medicine, Keimyung National University, Daegu; <sup>15</sup>Department of Internal Medicine, Research Institute and Hospital, National Cancer Center, Gyeonggi; <sup>16</sup>Department of Obstetrics and Gynecology, National Cancer Center, Gyeonggi; <sup>17</sup>Department of Urology, Center for Urologic Cancer, Research Institute and Hospital, National Cancer Center, Gyeonggi; <sup>18</sup>Center for Bone Cancer, Research Institute and Hospital, National Cancer Center, Gyeonggi, Korea

- **COVID-19-positive cancer patients should be treated in the same manner as COVID-19-positive patients without cancer. Stop all cancer treatments such as elective surgery, chemotherapy, and radiotherapy if a cancer patient is diagnosed with COVID-19.**
- **Patients who have completed their cancer treatment or are under surveillance for recurrence should not postpone routine tests or hospital visits. Postponing follow-up tests and hospital visits should only occur if there are shortages of medical devices or healthcare workers.**

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## Guideline for Surgery and Chemotherapy

Lee JB et al. Cancer Res Treat 2021;53:323-9

- **Surgery should not be postponed due to the potential risk of cancer progression.**
- **Prior to elective surgery, all patients should be screened for COVID-19.**
- **Cancer patients receiving adjuvant chemotherapy should not delay treatment except during a shortage of medical resources, in which case the patients should be referred to other hospitals.**
- **The clinicians should discuss the benefits and risks of omitting or delaying treatment, including the possibility of recurrence to the patients.**
- **Patients with advanced or recurrent solid tumors requiring palliative chemotherapy should continue treatment.**

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## Timing of COVID-19 vaccination for cancer patients

- **For patients receiving cytotoxic chemotherapy, given the lack of data on the optimal timing of vaccination, we recommend COVID-19 vaccination whenever a vaccine is available.**
- **(1-2 weeks before or 1-2 weeks after drug dose, when possible, to increase the potential for the immune system to mount a response)**

Desai A et al. Nature Reviews Clinical Oncology 2021;18:313-9

Solid tumours	
Cytotoxic chemotherapies	On vaccine availability (1-2 weeks before or 1-2 weeks after drug dose, when possible, to increase the potential for the immune system to mount a response)
Targeted therapy (e.g. TKIs)	On vaccine availability
Hormone therapy (e.g. anti-androgens or anti-oestrogen therapy)	On vaccine availability
Immunotherapy (e.g. immune-checkpoint inhibitors)	On vaccine availability
Epigenetic therapy	On vaccine availability
Surgery clinical trials	Administer at discharge after recovery from post-operative complications or 1 week before surgery, whichever is most feasible

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## COVID-19 vaccination for cancer patients

- **Data from a study on the optimal timing of influenza vaccination during 3-week chemotherapy cycles indicate that antibody responses to the vaccine are similar in patients inoculated concurrently with chemotherapy administration and in those inoculated during the cytopenic period of the chemotherapy cycle.**

Keam B et al. Cancer 2017;123:841-8

- **Undergoing active treatment for cancer be vaccinated against COVID-19? → not contraindicated.**

Strategies such as providing the vaccine in between cycles of therapy and after appropriate waiting periods for patients receiving stem cell transplants and immune globulin treatment can be used to reduce the risks while maintaining the efficacy of vaccination. last updated on 05/21/2021, ASCO

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## Summary

INDUCTION THERAPY

- Specifically, induction BCG should be maintained for all high-risk patients with the exception of patients infected with COVID-19.

COVID priority

MAINTENANCE

- For COVID-19 + patients, BCG installations should be delayed for 3 wk.
- Intravesical BCG therapies that have been ongoing for >1 yr can be safely terminated for high-risk NMIBC patients because maintenance BCG reduces the rates of recurrence and progression by approximately 15% and 4%, respectively.

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## Induction BCG

Adjustments in the Use of Intravesical Instillations of Bacillus Calmette-Guérin for High-risk Non-muscle-Invasive Bladder Cancer During the COVID-19 Pandemic

Lenfant L et al. Eur Urol 2020;78:1-3

- Patients without COVID-19 suspicion
  - Six weekly doses of BCG induction should be completed for high-risk NMIBC cases, given that several randomized controlled trials and meta-analyses have shown that such treatment is associated with decreases of up to 60–70% and 26% in the risk of recurrence and progression, respectively.
- Patients with COVID-19 suspicion
  - COVID priority

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## Maintenance BCG

- To minimize the number of hospital visits, receipt of at least two out of the three doses of a BCG maintenance course should be considered acceptable.
- BCG instillation courses that have been ongoing for longer than 1 yr can be safely terminated for high-risk NMIBC patients. Although the European Association of Urology (EAU) guidelines recommend 3-weekly instillations at 3, 6, 12, 18, 24, 30, and 36 mo on the basis of European Organization for Research and Treatment of Cancer data.

Lenfant L et al. Eur Urol 2020;78:1-3

COVID priority

Among high-risk NMIBC patients, maintenance BCG reduces the rates of recurrence and progression by approximately 15% and 4%, respectively.

MAINTENANCE BCG High-risk NMIBC

Ongoing maintenance <1 yr

2 out of 3 doses (1-wk delay if COVID-19 positive)

Ongoing maintenance >1 yr

Safely terminated

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경청해 주셔서 감사합니다 !!!

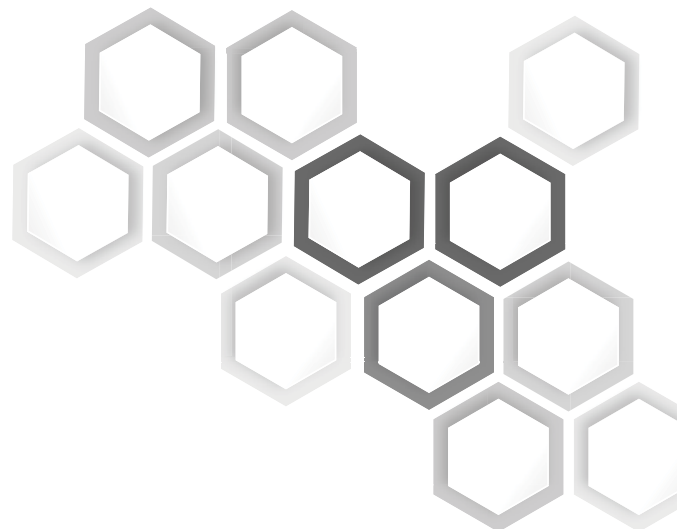
2021년 울산대학교병원 비뇨의학과 의과직진

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# 2021 제45회 한남비뇨의학회 추계학술대회



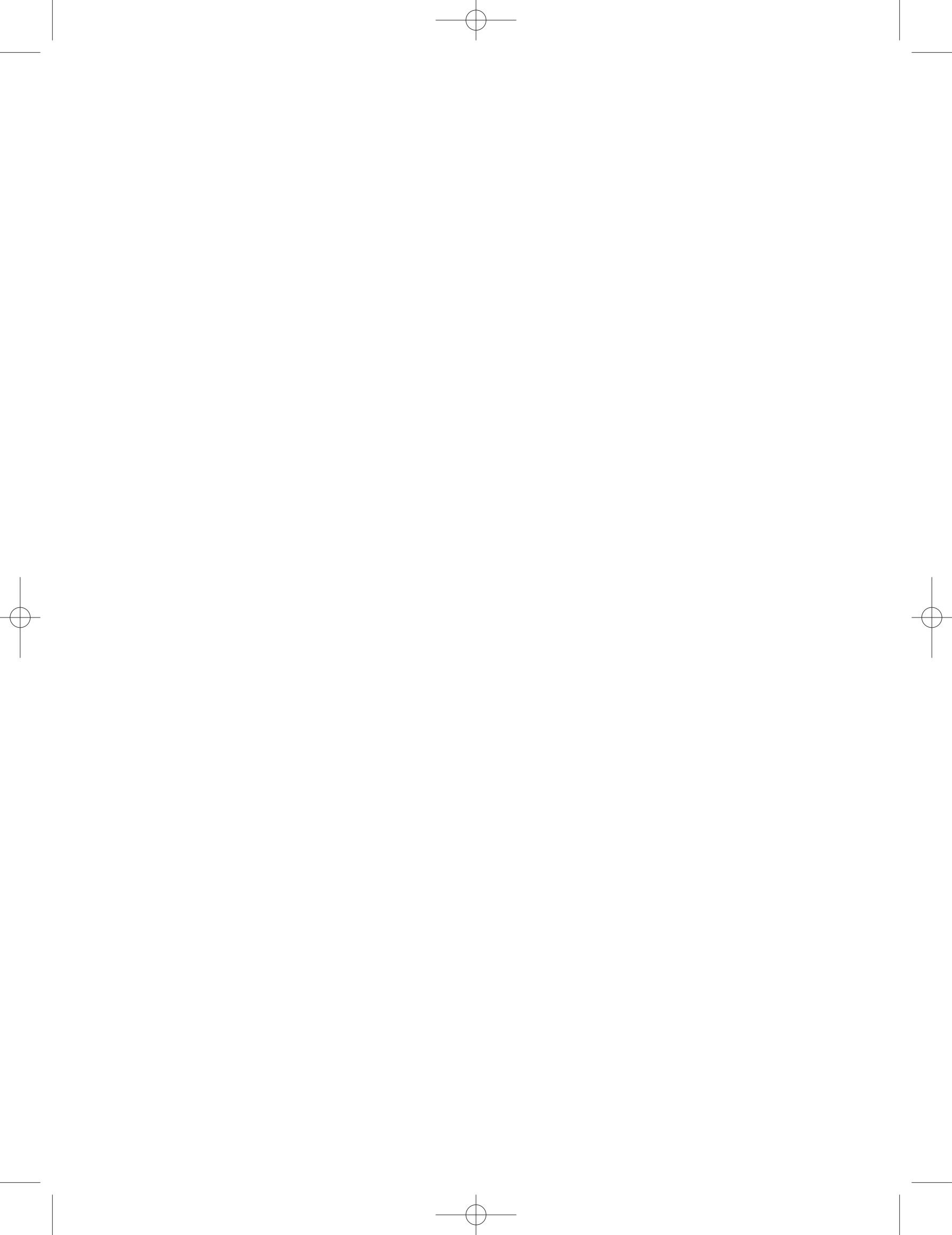
## 부록

1. 한남비뇨의학회 회칙

2. 회원 주소록







## 한남비뇨의학회 회칙

(개정 2012. 10. 20)

(개정 2021. 04. 17)

### 제 1 장 총 칙

#### 제 1 조 (명칭)

본회는 한남비뇨의학회(Hannam Urological Association:HUA)라 칭한다.

#### 제 2 조 (목적)

본회는 영남, 호남, 충청 및 제주지역 비뇨의학과 의사들이 학술교류 및 상호친선을 통해 비뇨의학 발전에 기여하는 것을 목적으로 한다.

#### 제 3 조 (사무소)

본회의 사무소는 회장의 근무지에 둔다.

#### 제 4 조 (사업)

본회의 사업은 다음과 같다.

1. 회원 상호간의 학술정보 교환 및 협동연구 지원
2. 회원 상호간의 친목도모 및 권익옹호
3. 회원의 교육
4. 국내외 유관단체와의 협력사업
5. 학술대회 및 기타 학술 강연회 개최
6. 학회지 및 기타 간행물의 발간 및 배포
7. 국내외 학술 문헌 및 정보의 교환
8. 기타 본회의 목적달성에 필요한 사업

### 제 2 장 회 원

#### 제 5 조 (구성 및 자격)

본회의 회원은 정회원, 준회원, 특별회원 및 원로회원으로 한다.

가. 정회원은 영남, 호남, 충청, 제주지역 소재 병원에 근무하는 비뇨의학과 전문의 또는 이에 준하는 자격이 있는 자.

나. 준회원은 상기 지역 소재 병원에 근무하며 비뇨의학과에서 수련 중에 있는 의사 및 본 학회의 취지에 찬동하는 자.

다. 특별회원은 상기지역이외 소재 병원에 근무하는 비뇨의학과 전문의 또는 이에 준하는 자격이 있는 자 중 본회의 취지에 찬동하는 자.

라. 원로회원은 본 학회 정회원이었던 만 65세 이상인 자.

### 제 6 조 (입회)

가. 본회의 입회는 입회원서를 제출하고 상임이사회의 의결을 거쳐 이루어진다.

나. 본회의 취지에 찬동하는 준회원과 특별회원은 상임이사회의 의결 및 이사회의 인준을 받아 입회한다.

### 제 7 조 (의무 와 권리)

가. 본회의 정회원은 본회의 회칙과 제반 규정 및 의결사항을 준수하고, 소정의 회비를 납부할 의무가 있다.

단 원로회원은 회비 및 부담금을 면제한다.

나. 정회원으로서 7조 가항의 의무를 다한 회원은 발언권, 선거권, 피선거권 및 의결권을 가지며 학회의 지원과 보호를 받을 수 있다.

다. 준회원, 특별회원 및 원로회원은 선거권, 피선거권 및 기타 의결권이 없다.

### 제 8 조 (포상 및 징계)

가. 본 학회 회원으로서 회원의 의무를 다하고 학회 발전 및 학술활동뿐만 아니라 사회봉사 등에서도 탁월한 업적을 이룬 회원에 대해 포상 할 수 있다.

나. 본회의 정회원으로서 본회의 명예를 손상하는 행위를 한 자는 이사회의 의결을 거쳐 회원의 자격이 상실된다.

재 입회를 원할 때는 이사회의 심의를 거쳐야 한다.

## 제 3 장 임 원

### 제 9 조 (임원)

본 회는 다음과 같은 임원을 둔다.

1. 회장 1명
2. 차기 회장 1명
3. 부회장 : 2명 이내
4. 상임이사 : 20명 내외
5. 이사 : 60명 내외
6. 자문위원 : 10명 이내
7. 감사 2명

### 제 10 조 (임원의 선출과 구성)

가. 회장선출은 지역별 순환제로 회장단과 지역이사들이 협의하여 후보자를 추천하고 이사회에서 과반수이상 찬성으로 후보자를 선출하며 총회의 인준을 받는 것을 원칙으로 한다.

나. 상임이사과 부회장은 회장이 임명한다.

다. 회장은 필요에 따라 상임이사를 회칙이 정하는 범위 내에서 신설, 폐지, 명칭변경을 할 수 있으며 기타 특별위원회를 둘 수 있다.

라. 감사는 총회에서 회원의 추대에 의하여 선출한다.

마. 이사는 당연직 이사와 임명직 이사로 구성된다.

바. 자문위원회는 직전회장과 학회 발전에 기여한 회원들로 구성한다.

사. 학회의 임원은 지역별로 균등하게 안배하는 것을 원칙으로 한다.

**제 11 조 (임원의 임기)**

- 가. 본 회의 임원의 임기는 2년으로 하며 회계연도를 기준으로 한다.
- 나. 회장은 단임으로 하며, 그 외 임원은 연임 및 중임이 가능하다.

**제 12 조 (임원의 임무)**

- 가. 회장은 학회를 대표하며 회무 및 사업을 총괄하며 총회, 이사회, 상임이사회의 의장이 된다.
- 나. 차기 회장은 회장을 보좌하며 차기 학회 업무의 준비를 담당한다.
- 다. 부회장은 회장을 보좌하며 회장유고시에는 회장직을 대행한다.
- 라. 총무이사는 회장을 보좌하며 학회의 일반사무, 기록사무, 회원관리업무, 및 기타 규정된 사업진행에 관한 제반사무업무를 담당한다. 원활한 업무진행을 위하여 2명의 부총무가 업무를 보좌한다.
- 마. 학술이사는 학술대회 및 비뇨의학 학술활동에 대한 제반사항을 담당한다.
- 바. 재무이사는 학회의 재정관리를 담당한다.
- 사. 연구이사는 회원이 참여하는 연구와 교육 및 회원의 교육활동에 필요한 제반 업무를 담당한다.
- 아. 편집이사는 학회에서 발간하는 학술지의 편집과 간행 및 발간업무를 담당한다.
- 자. 법제협력이사는 학회의 회칙 및 제규정을 제정 및 개정 필요에 필요한 제반업무를 담당한다.
- 차. 정보이사는 홈페이지 구축과 관리 등의 업무를 담당한다.
- 카. 문화기획이사는 회원들의 인문학적 감성을 함양하기 위한 문화예술향을 기획하고 집행하는 업무를 담당한다.
- 타. 그 외의 상임이사의 임무는 회장이 필요에 따라 신설하여 임무를 부여한다.
- 파. 감사는 업무 및 재정에 대한 감사를 년 1회하며, 총회에 보고한다.
- 하. 자문위원은 회장의 자문에 응하며 필요시 학회 사업에 대하여 건의할 수 있다.

**제 13 조 (임원의 보선)**

- 가. 회장유고시에는 부회장이 회장업무를 승계한다. 단 유고된 회장의 잔여임기는 유고년도의 12월 31일까지로하고 익년 1월 1일부터 차기회장의 임기가 개시되는 것으로 한다.
- 나. 상임이사 와 이사의 결원이 생길 때는 회장이 임명하고 차기 이사회의 인준을 받고 차기 총회에 보고한다.
- 다. 감사의 결원이 있을 때는 차기 총회에서 보선한다.
- 라. 회장이외의 보선에 의한 임원의 임기는 전임자의 잔여기간으로 한다.

**제 4 장 회 의****제 14조 (회의 및 의결)**

- 가. 본 회의 회의는 정기총회, 임시총회, 상임이사회 및 이사회로 구분한다.
- 나. 총회는 출석회원으로 성립되고 출석회원 과반수의 찬성으로 의결한다. 단 회칙의 개정은 출석회원 2/3이상의 찬성으로 의결한다.
- 다. 상임이사회 및 이사회는 정원의 과반수의 출석으로 성립하고 출석회원 과반수의 찬성으로 의결하며 가부동수일 때는 회장이 결정한다.
- 라. 위임을 통보한 회원은 정족수로 인정하나 의결권은 없다.
- 마. 회장은 상임이사회에서 의결한 긴급한 사안이 있을 때 전자메일 또는 우편을 통하여 이사회나 총회를 소집하여

의결할 수 있다.

바. 총회, 상임이사회 및 이사회는 회의록을 기록하고 보존해야 한다.

#### 제 15조 (총회)

가. 정기총회는 년 1회, 추계학술대회 기간 중 회장이 소집하고, 임시총회는 회원 1/3 이상이 요구 할 때나 상임이사회 의결에 의해 회장이 소집한다.

나. 의결사항

1. 회장 인준 및 감사 선출
2. 회칙제정 및 개정의 인준
3. 예산 및 결산 승인

4. 이사회에서 부의 된 사업계획을 포함한 기타 제반사항을 심의하며 사업보고를 받는다.

다. 서면결의

회장은 이사회 또는 상임이사회가 요청하는 사안에 대하여 정회원을 대상으로 전자메일을 통하여 의결할 수 있다.

이때 정회원 과반수의 참가와 참가회원 과반수의 찬성으로 의결한다.

라. 의안

정회원은 정기총회에 제출할 의안을 총회 30일전까지 상임이사회에 제출하여야 한다.

마. 총회의 의안은 상임이사회에서 상정한다.

바. 총회소집은 정기총회는 10일전 임시총회는 5일전에 회의의 목적 및 토의사항, 일시 및 장소를 공고하여야 한다.

## 제 5 장 이사회

#### 제 16 조 (이사회 구성 및 소집)

가. 이사회는 당연직 이사과 임명직 이사로 구성된다.

1. 당연직 이사는 회장, 차기회장, 직전회장, 부회장, 상임이사, 수련병원 과장으로 한다.
2. 임명직 이사는 회장이 20명 내외로 임명한다.

나. 이사회는 정기 이사회와 임시 이사회로 구분한다.

다. 정기 이사회는 연 2회 개최하며 임시 이사회는 회장이 필요하다고 인정되거나 1/3이상의 이사들의 요청이 있을 때 회장이 이를 소집한다.

라. 회장은 상임이사회에서 의결한 긴급한 사안이 있을 때 이사회를 소집하여 전자메일 또는 우편을 통하여 의결할 수 있다. 이때 이사 정원의 과반수의 참가와 참가회원 과반수의 찬성으로 의결하며 차기 총회에 보고해야 한다.

#### 제 17 조 (이사회 임무)

이사회는 다음의 사항을 보고받거나 심의 의결하며, 총회의 인준을 받는다.

가. 회원 자격심사에 관한 사항

나. 사업계획, 예산편성, 대외협력에 관한 사항

다. 회장후보자 선출에 관한 사항

라. 각 위원회의 위원장 인선 및 사업 계획 인준에 관한 사항

마. 재정의 결정

- 바. 사무직제 및 규정에 관한 사항
- 사. 포상, 징계에 관한 사항
- 아. 기타 필요 사항

## 제 6 장 상임이사회

### 제 18 조 (상임이사회의 구성과 소집)

- 가. 상임이사회는 회장, 차기 회장, 부회장, 상임이사로 구성된다.
- 나. 상임이사회는 연 2회 이상 정기회의를 가지며, 회장이 소집하고 주관한다.
- 다. 상임이사는 업무의 원활한 수행을 위해 각 소관 산하 소위원회를 둘 수 있으며, 위원은 상임이사의 추천을 받아 회장이 임명한다.
- 라. 회장은 필요에 따라 의결사항 관련자를 상임이사회에 출석시켜 의견을 들을 수 있다. 단, 출석자는 의결권이 없다.

### 제 19 조 (상임이사회의 임무)

상임이사회는 다음의 항을 심의 의결하며, 이사회에서 의결하고 총회에서 인준을 받는다.

- 가. 총회 또는 이사회에서 위임된 사항
- 나. 특별회원의 자격심사에 관한 사항
- 다. 사업계획, 예산편성, 대외협력에 관한 사항
- 라. 각 위원회의 선출 및 사업계획 인준에 관한 사항
- 마. 재정의 운용에 관한 결정
- 바. 사무직제 및 규정에 관한 사항
- 사. 포상, 징계에 관한 사항
- 아. 기타 필요 사항

## 제 7 장 학술대회

### 제 20 조 (학술대회 구성 및 소집)

- 가. 학술대회는 연 2회 추계와 춘계에 개최한다.
- 나. 학술대회는 지역별 순환 개최를 원칙으로 하고 개최대학의 지원과 협조를 받아 운영한다.
- 다. 학술대회의 추진 및 진행 등 전반적인 관리운영은 학술이사가 담당한다.
- 라. 학술강연회는 학술이사의 요청에 의해 필요시 개최할 수 있다.

## 제 8 장 재 정

### 제 21 조 (자산)

- 가. 본 회의 재정은 회비 및 찬조금으로 충당한다.
- 나. 학회의 재산은 회장 책임 하에 관리 운용한다.
- 다. 학회는 학회의 장기적 발전을 도모하기 위하여 기금을 조성할 수 있다.
- 라. 학회의 자산 중 기금 외의 현금은 학회 명의로 금융기관에 예치하고 증서는 재무이사가 보관한다.

- 마. 재정에 관한 사항은 별도로 규정한 본회의 회계운영지침에 따른다.
- 바. 본회의 회계운영지침에 규정되지 않은 사항은 대한비뇨의학회 학술활동지원 지침에 의거하여 집행할 수 있다.

#### 제 22 조 (예산 및 결산)

- 가. 각 회계연도의 예산과 사업계획은 전년도 추계학술대회 기간의 첫 이사회와 총회의 의결로 성립한다.
- 나. 회장은 필요시 추가경정예산을 이사회에 제출할 수 있다.
- 다. 각 연도의 세출결산은 익년도 첫 이사회와 총회의 승인으로 완결된다.
- 라. 예결산은 감사의 감사를 거쳐 이사회 및 총회에 보고하고 인준을 받는다.
- 마. 학회의 효율적인 예산 편성과 투명하고 효율적인 회계 집행 및 이에 대한 감사를 위하여 회계 및 감사 업무에 관련된 규정을 별도로 정한다.

#### 제 23 조 (회계연도)

- 가. 학회의 회계연도는 매년 1월1일부터 12월 31일까지로 한다.

### 제 9 장 보 칙

#### 제 24 조 (규정 제정, 개정 및 폐기)

- 가. 학회의 제 규정은 이 회칙과 이 회칙의 위임에 따른 규정, 규정의 위임에 따른 시행세칙을 두며, 회장은 회칙, 규정 및 시행세칙의 범위 내에서 지침을 별도로 정할 수 있다.
- 나. 회칙과 규정은 상임이사회의 발의로 이사회에서 제정, 개정 및 폐기되고 총회에서 인준 받으며, 세칙은 상임이사회의 의결로 제정, 개정 및 폐기된다.

#### 제 25 조 (준용규정)

- 가. 이 회칙에 규정되지 아니한 사항에 대하여는 대한비뇨의학회의 정관 및 민법의 규정 또는 일반관례를 준용한다.

### 제 10 장 부 칙

- 제 1 조. 본 회칙은 1998년 11월 28일부터 효력을 발생한다.
- 제 2 조. 본 회칙은 2001년 5월 26일 일차 개정하여 효력을 발생한다.
- 제 3 조. 본 회칙은 2005년 10월 15일 이차 개정하여 효력을 발생한다.
- 제 4 조. 본 회칙은 2008년 4월 26일 삼차 개정하여 효력을 발생한다.
- 제 5 조. 본 회칙은 2011년 6월 4일 사차 개정하여 효력을 발생한다.
- 제 6 조. 본 회칙은 2012년 6월 2일 오차 개정하여 효력을 발생한다.
- 제 7 조. 본 회칙은 2012년 10월 20일 육차 개정하여 효력을 발생한다.
- 제 8 조.
  - 가. 본 개정회칙은 2015년 4월 25일 칠차 개정하여 이사회 및 임시 총회의 인준과 동시에 효력이 발생한다.
  - 나. 2015년도 기정예산은 회계연도 개시일을 1월 1일로 하여 추가경정예산을 편성하고 당해 연도 이사회의 승인을 받아 집행하되, 기 집행된 세출은 추가경정예산에 따라 지출된 것으로 간주한다.
  - 다. 차기회장의 임기는 2016년 11월 1일부터 2018년 12월 31일까지(2년2개월)이며 2019년부터 회장의 임기는 회계연도에 맞추어 당해연도 1월 1일부터 익년 12월 31일까지 2년으로 한다.



제 9 조. 본 회칙은 2019년 4월 20일 팔차 개정하여 효력을 발생한다.

제 10 조. 본 회칙은 2019년 10월 5일 구차 개정하여 효력을 발생한다.

제 11 조. 본 회칙은 2021년 4월 17일 십차 개정하여 효력을 발생한다.

## 한남비뇨의학회 회원 주소록

### 1. 가톨릭대학교 대전성모병원

대전 중구 대흥로 64 (301-701) 외래: 042-220-9090 / 의국: 042-220-9727 / 팩스: 042-220-9051

한동석		배뇨장애및요실금
육승모		전립선질환
장 훈		일반비뇨기과학
윤창식		종양,결석

### 2. 건국대학교 충주병원

충북 충주시 국원대로 82 (380-704) 외래: 043-840-8270 / 의국: 043-840-8460 / 팩스: 043-848-4722

김홍섭		비뇨기 종양, 전립선 질환, 요로결석
양상국		남성과학, 배뇨장애 및 요실금
정 훈		배뇨장애 및 요실금, 요로감염

### 3. 건양대학교병원

대전 서구 관저동로 158 (302-718) 외래: 042-600-9225 / 의국: 042-600-8964

장영섭		배뇨장애, 남성
김진범		종양, 전립선
김홍욱		배뇨장애, 전립선
김형준		종양, 내비뇨
고동훈		비뇨기종양, 내비뇨기학(로봇/복강경 수술), 소아비뇨기질환
유지은		전공의

#### 4. 경북대학교병원

대구 중구 동덕로 130 (700-721) / 외래: 053-420-5841 / 의국: 053-420-5847 / 팩스: 053-421-9618

유은상		배뇨장애 및 요실금
김현태		종양
김범수		내비뇨 및 복강경
최석환		비뇨기종양학
권순오		배뇨장애, 전립선, 감염, 일반비뇨기질환
오정석		전공의
장세원		전공의
강재훈		전공의

#### 5. 칠곡경북대학교병원

대구 북구 호국로 807 (702-210) 외래: 053-200-3012, 053-200-3027 / 의국: 053-200-2166 / 팩스: 055-360-2164

권태균		종양, 내비뇨
김태환		비뇨기종양학
이준녕		소아비뇨기과학
정재욱		종양, 요로결석
하윤석		종양, 남성
이승윤		전공의
이상희		전공의

#### 6. 경상대학교병원

경남 진주시 강남로 79 (660-702) 외래: 055-750-8196 / 의국: 055-750-8195 / 팩스: 055-757-4503

현재석		전립선 질환, 성기능 장애, 남성 갱년기
화정석		배뇨장애, 종양
최세민		종양
제성욱		비뇨기종양, 내비뇨기, 소아비뇨기
최재휘		비뇨기암, 배뇨장애, 전립선비대증, 내비뇨기

## 7. 창원경상대학교병원

경남 창원시 성산구 삼정자로 11 대표전화: 055-214-1000

감성철		남성, 배뇨, 종양
이천우		종양
이상은		비뇨기종양, 전립선질환, 복강경수술, 로봇수술
이민호		비뇨기종양, 전립선질환, 요로결석, 일반비뇨기질환
정기현		비뇨기종양, 소아비뇨기

## 8. 계명대학교 동산병원

대구 중구 달성로 56 (700-712) 외래: 053-250-7644 / 의국: 053-250-7084 / 팩스: 053-250-7643

김병훈		비뇨기종양, 복강경수술, 요로결석, 전립선질환, 로봇수술
하지용		소아비뇨기, 일반비뇨기
정원호		요로결석, 전립선질환, 로봇수술, 배뇨장애
신태준		종양
변혜진		전립선 비대증, 과민성 방광, 요실금
이경섭		전립선질환
최민수		전공의
임현규		전공의

## 9. 고신대학교 복음병원

부산 서구 감천로 (602-702) 외래: 051-990-5077 / 의국: 051-990-5075 / 팩스: 051-990-3994

류현열		종양, 전립선, 이식
최 성		요실금 배뇨장애, 전립선, 남성의학
김택상		종양, 복강경, 전립선
강수환		일반비뇨기과학
서원태		비뇨기계 일반질환

## 10. 광주기독병원

광주 남구 양림로 37 (503-715) 외래: 062-650-5171 / 의국: 062-650-5174

노준화		전립선질환
박성운		비뇨기종양학
유동훈		전립선질환
김준석		전립선, 비뇨기종양

## 11. 단국대학교병원

충남 천안시 동남구 망향로 201 (330-715) / 외래: 041-550-6630 / 의국: 041-550-6277 / 팩스: 041-553-6635

이길호		감염, 종양
김형지		배뇨장애, 남성
홍정희		종양, 내비뇨
서유미		일반

## 12. 대구가톨릭대학교병원

대구 남구 두류공원로 17길33 (424-72) / 외래: 053-650-4600 / 팩스: 053-650-2164

박재신		종양, 소아
김덕윤		종양, 배뇨장애
신홍석		남성, 전립선
정현진		소아, 내비뇨
하윤수		종양, 내비뇨

## 13. 대구파티마병원

대구 동구 아양로 99 (701-010) 외래: 053-940-7150 / 의국: 053-940-7154 / 팩스: 053-954-7417

김재수		내비뇨
권준범		배뇨장애, 결석
김연주		종양, 결석, 전립선질환, 배뇨장애, 손상, 요로감염

허경재		전립선, 결석
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#### 14. 대동병원

부산 동래구 충렬대로 187 (607-711) 외래: 051-550-9244 / 팩스: 051-522-0481

이영익		전립선, 배뇨장애, 비뇨기생식기종양
서영은		전립선 질환, 요로결석, 남성의학, 남성갱년기, 소아비뇨의학과, 여성요실금 및 배뇨장애, 성기능, 비뇨기 종양

#### 15. 동국대학교 경주병원

경북 경주시 동대로 87 (780-350) 외래: 054-770-8265 / 의국: 054-770-8469 / 팩스: 054-770-8503

서영진		배뇨장애, 내비뇨
권세윤		종양, 전립선
박동진		결석, 배뇨, 감염, 소아, 남성

#### 16. 동남권 원자력 의학원

부산광역시 기장군 장안읍좌동길 40 TEL : 051-720-5114 / FAX : 051-720-5992

서영준		전립선암, 방광암, 신장암, 전립선비대증, 배뇨장애
구자윤		전립선암, 방광암, 신장암, 로봇수술 및 복강경 수술

#### 17. 동아대학교병원

부산 서구 대신공원로 26 (602-715) 외래: 051-240-5440 / 의국: 051-240-5446 / 팩스: 051-253-0591

성경탁		종양, 내비뇨
조원열		소아, 배뇨장애
김태효		종양, 내비뇨
김수동		종양, 남성
이기수		내비뇨, 종양
고혁준		방광암, 요로결석, 요로감염, 일반비뇨기과

**18. 메리놀병원**

부산 중구 중구로 121 (600-730) 외래: 051-461-2238 / 의국: 051-461-2542 / 팩스: 051-465-7470

김인곤		일반비뇨기과학
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**19. 부산대학교병원**

부산 서구 구덕로 179 (602-739) 외래: 051-240-7345 / 의국: 051-240-7351 / 팩스: 051-247-5443

박남철		전립선, 성기능장애, 불임, 남성갱년기, 일반비뇨기과
박현준		성기능, 불임, 신이식, 소아남성
이정주		전립선, 요실금, 배뇨장애, 손상재건
신동길		전립선, 요실금, 배뇨장애
하홍구		비뇨기종양, 복강경
김태남		비뇨기종양, 복강경
김현우		배뇨장애 및 일반비뇨기학
이권경		전공의
박시균		전공의
성우섭		전공의

**20. 양산부산대학교병원**

경남 양산시 물금읍 금오로 20 (626-770) 외래: 055-360-1433, 055-360-1432 / 의국: 055-360-2134 / 팩스: 055-360-2164

이상돈		소아비뇨기, 요로생식기감염
정재민		소아비뇨기, 요로생식기감염
박성우		종양, 내비뇨
남종길		종양, 내비뇨
이승수		내비뇨, 전립선
송원훈		비뇨기암(전립선암, 신장암, 방광암), 전립선비대증(레이저수술), 로봇수술 및 복강경 수술
이단비		전공의
김재연		전공의



## 21. 부산성모병원

부산 남구 용호로 232번길 25-14 (608-090) 외래: 051-933-7861 / 의국: 051-933-7863 / 팩스: 051-932-8600

이준택		일반비뇨기과학
강동일		비뇨기 종양, 소아 비뇨기과, 전립선비대증, 요로감염, 과민성방광

## 22. 성균관대학교 삼성창원병원

경남 창원시 마산회원구 팔용로 158 (630-522) 외래: 055-290-6056 / 의국: 055-290-6900 / 팩스: 055-290-1224

오태희		비뇨기종양학
류동수		소아비뇨기과학
이영숙		배뇨장애 및 요실금
정승찬		일반비뇨기
박지훈		일반비뇨기

## 23. 순천향대학교 구미병원

경북 구미시 1공단로 179 (730-706) 외래: 054-463-7151 / 팩스: 054-463-7504

윤종현		비뇨기종양학
김재호		비뇨기종양학
조규형		요로결석, 배뇨장애

## 24. 순천향대학교 천안병원

충남 천안시 동남구 순천향 6길 31 (330-721) 외래: 041-570-2275 / 의국: 041-570-2278 / 팩스: 041-574-6248

전윤수		비뇨기종양학
김두상		내비뇨 및 복강경
양희조		내비뇨 및 복강경
김기홍		일반 비뇨기질환
이창호		여성, 배뇨장애
김시현		전공의

## 25. 영남대학교병원

대구 남구 현충로 170 (705-703) 외래: 053-620-3170 / 팩스: 041-574-6248

정희창		배뇨장애
문기학		남성과학
송필현		비뇨기종양, 내비뇨기과학
고영휘		비뇨기종양, 내비뇨기과학
최재영		요로결석, 내비뇨기과학, 소아비뇨기과학
김영욱		일반비뇨의학
하종균		전공의

## 26. 울산동강병원

울산 중구 태화로 239 (681-711) 외래: 052-241-1277 / 의국: 052-241-1741 / 팩스: 052-241-1277

김하영		요로결석, 요실금, 전립선
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## 27. 울산대학교병원

울산 동구 방어진 순환도로 977 (682-714) 외래: 052-250-7190 / 의국: 052-250-7198 / 팩스: 052-250-7199

전상현		비뇨기종양(전립선암, 신장암, 방광암등), 로봇수술, 복강경 및 최소침습 수술
문경현		남성과학, 배뇨장애, 요실금, 요로결석, 전립선레이저
박성찬		로봇수술, 비뇨기종양(전립선암, 신장암, 방광암등), 결석, 내비뇨기(복강경수술)
박세준		비뇨기종양(전립선암, 신장암, 방광암등), 로봇수술, 내비뇨기학, 비뇨손상학, 요로결석
권택민		비뇨기종양(전립선암, 신장암, 방광암등), 로봇수술, 내비뇨기학, 결석
윤지형		배뇨장애, 방광염, 결석
김성철		소아비뇨기, 비뇨기종양, 로봇수술, 전립선질환
채종석		전공의
박명찬		전공의

## 28. 원광대학교병원

전북 익산시 무왕로 895 (570-711) 외래: 063-850-1320 / 의국: 063-850-1330 / 팩스: 063-858-1181

정희종		소아비뇨기과학
서일영		내비뇨 및 복강경
박승철		비뇨기종양학
오태훈		

## 29. 을지대학병원

대전 서구 둔산서로 95 (302-799) 외래: 042-611-3533 / 팩스: 042-611-3881

김대경		배뇨장애/요실금, 여성비뇨
유대선		비뇨기종양, 배뇨장애/요실금

## 30. 인제대학교 부산백병원

부산 부산진구 복지로 75 (614-735) 외래: 051-890-6380 / 의국: 051-890-6384 / 팩스: 051-892-9887

민권식		남성과학
정재일		비뇨기종양학
서원익		일반비뇨기과학
이찬호		일반 비뇨기과, 내비뇨기, 소아

## 31. 인제대학교 해운대백병원

부산 해운대구 해운대로 875(612-896) 연락처: 051-797-0100

박상현		비뇨기종양학, 내비뇨기학
정재승		비뇨기종양학, 내비뇨기학
오철규		비뇨기종양학, 내비뇨기학
박명찬		비뇨기종양학, 내비뇨기학
김정호		비뇨기암(전립선암, 방광암, 신장암, 요관암, 신종양), 복강경 및 로봇수술, 전립선질환

### 32. 전남대학교병원

광주 동구 제봉로 42 (501-757) 외래: 062-220-6718 / 의국: 062-220-6700 / 팩스: 062-227-1643

박광성		남성의학, 전립선질환
강택원		비뇨기종양, 전립선
김선옥		배뇨장애, 여성, 소아이식
오경진		내비뇨기과학, 요로결석, 비뇨기 손상
유성현		일반비뇨의학
은성종		일반비뇨의학
구진석		전공의
임도경		전공의
송재익		전공의

### 33. 화순전남대학교병원

전남 화순군 화순읍 서양로 322 (519-763) 외래: 061-379-8160 / 의국: 061-379-7745 / 팩스: 061-379-7750

권동득		비뇨기종양, 전립선
정승일		비뇨기종양, 내비뇨, 감염
황의창		비뇨기종양, 감염, 소아
정호석		비뇨기종양, 내비뇨, 남성
류지원		비뇨기계종양, 일반비뇨기학
김재현		전공의
이호연		전공의
조현진		전공의
구희모		전공의

### 34. 전북대학교병원

전북 전주시 덕지구 건지로 20 (561-712) 외래: 063-250-1565 / 의국: 063-250-1560 / 팩스: 063-250-1564

김형진		종양
박종관		남성, 전립선
정영범		종양
김명기		배뇨장애, 종양
유재형		결석, 소아
신유섭		남성, 전립선
김지용		일반비뇨기

### 35. 제주대학교병원

제주도 제주시 아란13길 15 (690-767) 외래: 064-717-1760, 064-717-1762 / 팩스: 064-717-1130

허정식		종양, 배뇨장애
김영주		배뇨장애, 전립선
김성대		남성, 감염
박경기		종양, 배뇨장애

### 36. 조선대학교병원

광주 동구 필문대로 365 (501-717) 외래: 062-220-3210 / 의국: 062-220-3216 / 팩스: 062-232-3210

김철성		종양, 내비뇨
노 준		남성, 배뇨장애
임동훈		내비뇨, 감염
조원진		배뇨장애, 감염
김민석		종양
서해평		일반비뇨의학과

**37. 충남대학교병원**

대전 중구 문화로 262 (301-721) 외래: 042-280-7770 / 의국: 042-280-7772 / 팩스: 042-280-8512

송기학		종양학, 손상
임재성		내비뇨, 종양학
신주현		소아비뇨기, 배뇨장애
양승우		종양, 남성학, 내비뇨
이지용		비뇨기계 일반
이충렬		전임의
나현석		전공의

**38. 세종충남대학교병원**

세종특별자치시 보듬 7로 20 세종충남대학교병원 (30099) Tel : 044-995-4701 Fax : 044-995-3209

나용길		배뇨장애, 전립선비대증, 요로감염
김계환		요실금 배뇨장애, 여성비뇨의학, 전립선, 전립선암, 소아비뇨의학, 신경비뇨의학, 성의학
박종목		종양, 전립선, 내비뇨의학
이재근		내비뇨의학, 전립선

**39. 충북대학교병원**

충북 청주시 서원구 1순환로 776 (362-711) / 외래: 043-269-6136 / 의국: 043-269-6137 / 팩스: 043-269-6129

이상철		요석, 내비뇨, 전립선
윤석중		종양, 복강경, 전립선, 여성비뇨, 소아
김용준		종양, 복강경, 전립선, 요실금, 배뇨장애
김원태		전립선, 종양, 남성학, 불임, 배뇨곤란
강호원		종양, 배뇨장애, 비뇨생식기 감염, 비뇨생식기 손상
이희운		전공의
김 경		전공의
문성민		전공의

40. 차의과대학 구미차병원

경상북도 구미시 신시로10길 12 (39295) 연락처: 054-450-9700

김건남		전립선질환, 배뇨장애 및 요실금, 요로결석, 남성질환 및 불임, 소아비뇨기질환, 비뇨내시경
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# 2022년 제46회 춘계학술대회 일정

2022년 04월 15일(금) 한남비뇨의학 춘계 심포지움  
2022년 04월 16일(토) 한남비뇨의학회 춘계학술대회

장소 : 전북대학교병원

## 홈페이지 소개



[www.hnurology.org](http://www.hnurology.org)

## 한남비뇨의학회의 발전을 위한 제언

### 1. 가장 흥미로웠던 주제

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### 2. 개선할 사항

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3. 다음 학회에서 다루었으면 하는 주제

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4. 기타 학술대회나 학회 발전을 위한 제언

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## 2021 제45회 한남비뇨의학회 추계학술대회

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인쇄일	2021년 10월 26일
발행일	2021년 10월 29일
발행처	한남비뇨의학회
인쇄처	<b>에이플러스기획</b> 서울시 관악구 남부순환로 1568 Tel : 02) 582-8572, Fax : 02) 704-8573 E-mail : app@app2010.com