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Patient Sex and Gender: Influence on TKA Outcomes

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Disclosures

- Consultant, Zimmer (Healthcare Disparities)
- Consultant, Stryker (non-personal payment)
- ABJS Board of Directors
- CORR Board of Trustees

The Fundamental Questions

- Do women do as well as men after TKA?
- Are the results for women less predictable?

Patient Sex and Gender TKA Outcomes

- Implant survival
- Pain relief
- Functional scores

Influence on Implant Survival

- Numerous studies show higher revision rate in males
 - 3,817 patients (5,279 TKA, min 2-year follow-up)
 - 10.2% men vs. 8% women (P=0.006)

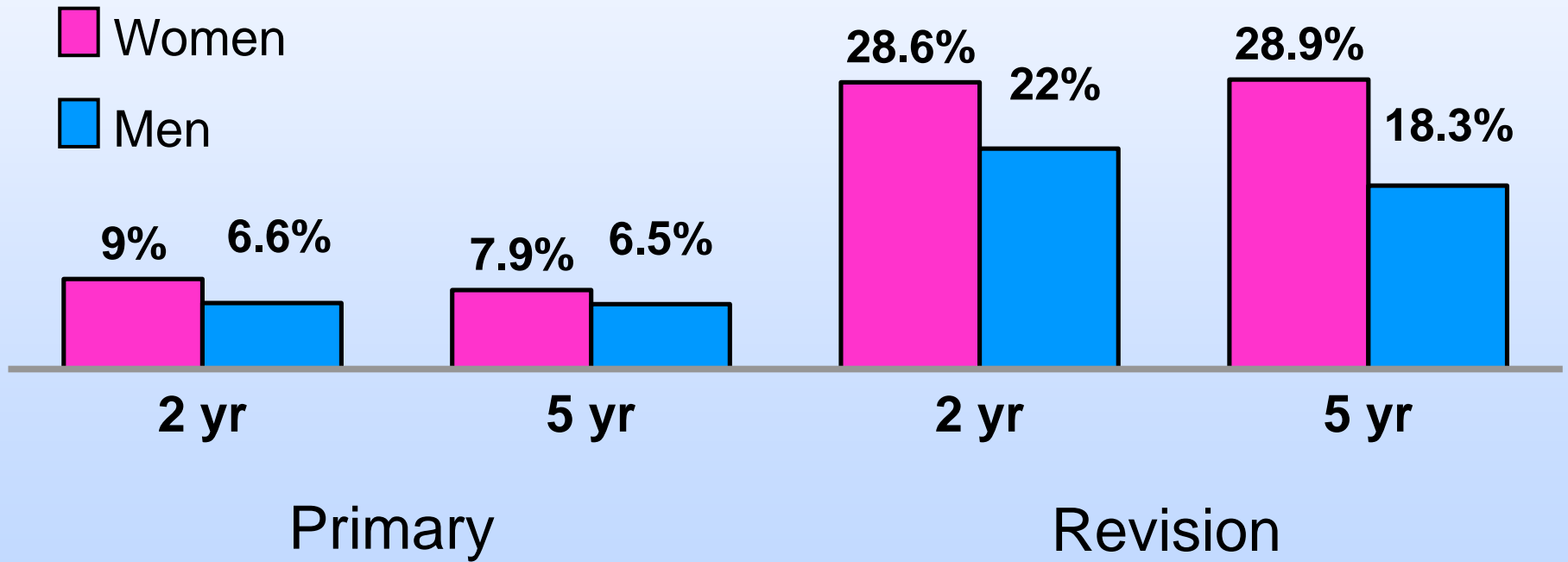
What About Pain?

Follow-up questionnaire 2-5 years

- Primary TKA 5,290 pt 2 yr; 2,602 pt 5 yr
- Revision TKA 1,109 pt 2 yr; 505 pt 5 yr

What About Pain?

Moderate-severe pain levels higher in women than men after both primary and revision TKA



What About Pain?

- Women have same or slightly greater improvement in pain as compared to men but still greater pain at final outcome*
- Sex differences have been identified with females have greater sensitivity to painful stimuli

*Dalury JBJR Br 2009

*Ritter J Arthroplasty 2008

What about Function?

		Pre-Op	Post-Op	
Ritter	Males	45.8	85.8	
	Females	42.4	77.5	<0.0001
MacDonald	Males	48.7	70.8	
	Females	41.3	59.9	<0.0001

MacDonald et al CORR 2008
Ritter et al J Arthroplasty 2008

What about Function?

- Data shows that women improve to same degree or even slightly better than men
- Data shows, however, that women do not reach the same final level of outcome at 2 years
- *Final function for women is not as good*

“Never Catch Up” Syndrome

- Women are more physically disabled at time of TKA as compared to men
- Woman: Pre-op 40, +40, Postop 80
- Man: Pre-op 50, +40, Postop 90
- *Women undergo arthroplasty at a more advanced disease state than men do*

Dalury et al: JBJS-B, 2009; Fortin PR et al: Arthritis Rheum, 1999; Fortin PR et al: Arthritis Rheum, 2002; Lingard EA et al: JBJS, 2004; Petterson SC et al: JBJS, 2007

“Never Catch Up” Syndrome

- Women are more physically disabled at time of TKA as compared to men
- Women report greater disability on SF-36 physical and mental component scores and Knee Outcomes Survey compared to men ($P < 0.05$)
- Women more symptomatic than men for same degree of knee OA but less symptomatic with increasing severity of OA

Why do Women undergo TKA at a more advanced disease state?

- Do women elect to delay TKA or is it not offered to them at the same time in their disease course as men?
- Are orthopedic surgeons not offering surgery to women as they do men?

Surgery by Gender

- THA and TKA underutilized by both sexes by degree of underutilization
3X greater in women (Hawker 2000)
- Women underutilize other surgical procedures also such as CABG, kidney transplantation
- Girls 22% less likely to be placed on kidney transplant list (Pediatric Transplantation 2011)

Our Hypothesis

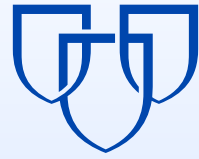
- Unconscious bias influences whether surgeons offer patients TKA
- Surgeons more likely to offer surgery to:
 - Men > Women
 - Whites > African-Americans

Our Study

- Standardized patients
 - Male vs. Female
 - Caucasian vs. African American
- Our barrier: standardized insurance
 - Self-Pay may bias surgeons
 - Commercial insurance may bias surgeons
 - Ideally Medicare as insurance
 - How do we do this?

Discussion

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Thank you!

