



CAIRIBU URO-AGING RESEARCH INTEREST GROUP (UroAging RIG)

CAIRIBU URO-AGING KNOWLEDGE EXCHANGES

EXECUTIVE SUMMARY 11/24/2025

URO-AGING RESEARCH INTEREST GROUP

FEAT: ARUNA SARMA, PHD, MHA

11/24/25 [3-4PM ET]

(2PM CT | 12PM PT)



Goal: Facilitate knowledge exchange and spur collaborations in uro-aging research and adjacent fields

Summary

Dr. Aruna Sarma's Presentation: Urologic Complications of Diabetes: UroEDIC, Our 20-year Journey

Introduction to Urologic Complications of Diabetes

- **Dr. Sarma** has worked with Dr. Hunter Wessells (University of Washington) for the past 25 years on urologic complications from diabetes (DM).
- Nearly 30 million people in the US have DM, with the majority (95%) of cases being associated with Type 2 DM.
- People living with DM are living longer as they age, will experience complications such as lower urinary tract symptoms (LUTS), incontinence, urinary tract infections (UTIs), erectile dysfunction (ED), and female sexual dysfunction (FSD).
The extent to which they experience these urologic complications depends on how well or how poorly they manage their DM. Unfortunately, urologic complications are understudied and not clearly understood relative to neuropathy, nephropathy, and retinopathy.

Historical Context and Initial Findings

- There was a dearth of research on urologic complications in DM from 1965 to 2000. This area of research was unfortunately characterized by limited data on humans, clinical paradigms with little impact on disease progression, and lack of evidence-based intervention or prevention approaches.
- In the Diabetes Control and Complications Trial (DCCT), the intensive insulin therapy group (at least 3 daily insulin injections to achieve HbA1c levels as close to nondiabetic range as possible) achieved dramatically less retinopathy, kidney disease, and neuropathy vs. the conventional treatment group, which received only 1 or 2 daily insulin injections.
- From the DCCT, a long-term observational cohort study emerged. The Epidemiology of Diabetes Interventions and Complications (EDIC) study observed participants annually to see how they were controlling their DM. Data allowed investigators to observe differences between those who maintained glycemic control vs. those who did not.

Longitudinal Study Findings and Quality of Life Impact

- In 2003, although most EDIC study participants were in their 30s, there was more urinary incontinence (UI) relative to those >60 years in the general population. **Investigators identified a 41% increase in the odds of UI per HbA1c% increase over the long term**, demonstrating the impact of sustained glycemic control.
- Other salient results follow:
 - ED – **higher HbA1c at baseline was associated with 36% increased odds of ED onset 20 years later.** Thus, investigators concluded that early glycemic control could predict future risk of ED.
 - UTI – investigators found 21% higher odds per percentage increase in HbA1c of a glucotoxic event.
 - Autonomic neuropathy – men with ED and women with bladder dysfunction were at greater risk.
 - Postvoid residuals (PVR) – investigators found that most cohort participants had largely normal PVR. However, LUTS and neuropathy were commonly associated with elevated PVR.
- Dr. Sarma noted that glycemic control is not the only factor impacting urologic complications. For example, **hypertension increased the risk for ED in men.** Additionally, for normal and prehypertensive participants, **unit changes in blood pressure impacted ED risk significantly.**

- DM complications and glycemic control impacted quality of life (QOL) – Dr. Sarma described that QOL decrements were of a magnitude greater in patients with ED and UI compared to those with retinopathy, nephropathy, and neuropathy, despite that they are the primary complications that endocrinologists address.
- This suggests that concentrating on the symptoms that patients find most bothersome may improve DM medication adherence by motivating them to prevent urologic disorders.

Future Research Directions and Knowledge Gaps

- Longitudinally, traditional risk factors like BMI, hysterectomy, and obesity as well as HbA1c are associated with those who experience intermittent ED and UI. Autonomic dysfunction (neuropathy) is a persistent phenotype of those who experience impotence and UI. **Dr. Sarma stated that further research is needed to determine if intermittent phenotype patients eventually become persistent and where interventions to prevent these phenotypes may be effective.**
- Validated or standardized clinically-significant measures to diagnose **the full spectrum of diabetic cystopathy**, beyond identifying symptoms, are needed.
- Future research should focus on **functional, phenotypic, and biologic aging.**
- Dr. Sarma presented a new RFA proposal to study aging in the cohort, including cognitive, frailty, and metabolic dysfunction assessments.
- She concluded by highlighting the need for comprehensive measures to understand the systemic impact of aging on urologic complications.

Aruna Sarma, PhD, is the Chair of the Epidemiology Committee for the International Consultation on Urologic Diseases and the Director of the University of Michigan K12 UroEPI Career Development Program. She is Chief of the Dow Division of Health Services Research in the Department of Urology at University of Michigan and Assistant Dean of Research Faculty at University of Michigan Medical School and has served on numerous local and national committees and is a member of the American Urologic Association, American Diabetes Association, Society of Epidemiologic Research and an inducted member of the American College of Epidemiology. Dr. Sarma's research program entails the study of urological complications of diabetes using epidemiologic and clinical datasets, population-based cohort studies and clinical trials and has played a role in the development of the epidemiologic approach to urologic research in the Department of Urology and has established herself as a prominent researcher in urology nationally.