MP75-17 - Ethnic Variation in Prostate Cancer Detection: A Hypothesis Generating Study for use of the Stockholm3 Test in an American Cohort

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BACKGROUND

- African American men have been shown to have higher PSA, more likely to have prostate cancer (PC), and more likely to have high grade of cancer at PC diagnosis compared to Caucasian men.
- Stockholm3 is a validated model used for PC detection, incorporating: PC-associated protein levels + a germline genetic risk score + prebiopsy clinical information.
- It is unknown if Stockholm3 would be useful in an American cohort where clinical practice patterns and ethnicity differ.

OBJECTIVES

- To evaluate if the detection of ISUP grade group ≥2 (GG≥2 PC) between Chicago and Stockholm once risk profiles are equivalent.
- To perform secondary analysis with Stockholm3 in matched Stockholm men to ethnicity-specific risk profiles from Chicago.

METHODS

Propensity scores (PS) were estimated for each man in the study using pre-biopsy covariates including:
- Age
- PSA
- Prostate volume
- Family history of PC
- Prior negative biopsy
- Use of a 5-alpha reductase inhibitor

- Swedish men were matched to ethnic groups risk profiles from Chicago.
- Area under the receiver operating curve (AUC) for Stockholm3 and PSA was assessed in matched cohorts.

RESULTS

- Table 1: Key characteristics of the matched Chicago and Stockholm biopsy cohorts.
- Table 2: Before and after matching between African American and Stockholm subjects.
- Figure 1: Density plots of covariates prior to propensity score matching.
- Figure 2: Density plots of covariates after propensity score matching for African American men and Stockholm3 men.
- Figure 3: GG≥2 PC detection rates seen in men from different ethnicity groups and risk-matched Swedish men.
- Figure 4: Receiver operating characteristics for GG≥2 PC detection with PSA and Stockholm3 in Swedish men with risk profiles matched to different ethnicity groups.

- Detection of GG≥2 PC was far higher in AA Chicago men even after matching: 51% versus 34% (OR: 2.1, 95% CI: 1.57–2.74, P <0.001) compared to matched Caucasian and Hispanic cohorts.

DISCUSSION

- Genome-wide association studies have shown overlap of risk variants previously identified in European men with African American men.
- A prostate risk model using a germline genetic risk has not been assessed in a multiethnic population.
- There may be additional factors associated with increased detection of PC in African American men even after adjusting for known PC risk factors.
- Further studies are needed and underway to assess biologic risk in multiethnic populations.

CONCLUSION

- Figure 1:
- Figure 2:
- Figure 3:
- Figure 4:

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