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Prostate cancer screening with PSA, Prostate Health Index and MRI in a prospective cohort of Hong Kong Chinese men – an interim result

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Conflict of Interest Disclosure

I have no potential conflict of interest to report

Objective

ß To prospectively evaluate a Prostate cancer (PCa) screening program incorporating PSA, Prostate health index (PHI) and MRI in Hong Kong Chinese men.

Methods

- 5000-men PCa screening study
- Since July 2018, Chinese men aged 50-75 years **not previously screened for PCa** are invited.
- Screening starts with a PSA
- Men with PSA 4-10ng/mL are tested with the PHI test
- A biparametric MRI prostate is offered to men with PSA 4-50ng/mL.
- A prostate biopsy (systematic 10-core, plus 3 cores per target if PI-RADS ≥3) is offered in men with:
  - PHI < 35 and PI-RADS ≥3, OR
  - PHI ≥ 35, OR
  - PSA ≥ 10ng/mL.
- The cancer detection rate in each group and the role of PHI and MRI is evaluated.
- Clinically significant PCa (csPCa) is defined as:
  1. ISUP ≥Grade 2 PCa, OR
  2. High volume ISUP Grade 1(>20% of number of systematic cores involved)

Results

- First 1047 men in this study:
- Median Age 63 (IQR 61-66) years
- BMI 25.6 (IQR 23.5-27.7)
- PSA 1.43 (IQR 0.84-2.73)ng/mL
- First degree family history of PCa: 2.7% (28/1042)

- 7.8%(82/1047) men was offered prostate biopsy
  - 94% were actually biopsied (n=77)

Results

- PCa: 36.4%(28/77)
- ==csPCa: 31.2%(24/77)==
- - ISUP grade ≥2 PCa: 22.1%(17/77)
- - cT3: 5.2%(4/77)
- - cN1: 2.6%(2/77)
- - M1: 0%
- ==Insignificant PCa: 5.2% (4/77)==

- Biopsy sepsis:
- - Transrectal biopsy: 4.5% (3/67)
- - Transperineal biopsy: 0% (0/10)

Results

n=1047	Proportion in cohort	Management	Cancer diagnosis at first round of screening
Group 1- PSA <4	86.8%	PSA 2 years later	No biopsy
Group 2- PSA 4-10 & PHI <35	6.5%	MRI Biopsy only if MRI PIRADS 3-5	MRI PIRADS 3-5: n=62 PIRADS 1-2: 58 (93.5%) => no biopsy PIRADS 3: 3 (4.8%) => 1 x ISUP 1 PIRADS 4: 1 (1.6%) => 1 x ISUP 2
Group 3- PSA 4-10 & PHI ≥35	3.9%	MRI + Biopsy	26.8% (11/41) PCa 19.5% (8/41) csPCa(all cT2N0)
Group 4- PSA >10	2.7%	MRI + Biopsy	53.6% (15/28) PCa 53.6% (15/28) csPCa (4 cT3, 2 cN1)

7.8%(82/1047) men was offered prostate biopsy, 94% were actually biopsied (n=77)

Conclusions

1. A screening algorithm with PSA, PHI and MRI looks able to effectively diagnose csPCa while limiting unnecessary biopsies and diagnosis of non-csPCa

2. In men with PSA 4-10 and low PHI (<35), adding MRI only diagnosed 1.6% csPCa

3. Incorporation of transperineal biopsy could improve risk-benefit ratio in PCa screening by eliminating sepsis

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Thank you !