The German risk-adapted PCA Screening Trial (PROBASE) – first results

C. Arsov1, N. Becker2, K. Herkommer3, Jürgen E. Gschwend3, Florian Imkamp4, M. Kuczyk5, Boris Hadasschik5, M. Hohenfellner5, R. Siener6, G. Kristiansen7, Gerald Antoch8, Peter Albers1

1Department of Urology, University of Düsseldorf, Germany; 2Department of Urology, University of Bonn, Bonn, Germany; 3Department of Urology, Technische Universität München, Munich, Germany; 4Department of Urology, Hannover Medical School, Hannover, Germany; 5Department of Urology, University of Heidelberg, Heidelberg, Germany; 6Department of Urology, University of Bonn, Bonn, Germany; 7Department of Pathology, University of Bonn, Bonn, Germany; 8Department of Diagnostic and Interventional Radiology, University of Düsseldorf, Düsseldorf, Germany

Background and Objective

PSA screening is controversially discussed due to a still high number of men needed to be screened (NNS) and treated (NNT) to achieve the reported decrease in prostate cancer (PCA) mortality. A risk-adapted approach using a baseline PSA value at age 45 may improve the NNT. The German risk-adapted PCA Screening Trial PROBASE is currently the largest ongoing screening trial and aims to accrue 50,000 men within 5 yrs in a prospective and randomized fashion. The trial started accrual in April 2014 and was analyzed for risk groups and incidence of PCA in 45 yrs old men.

Study endpoints

- Primary endpoint (composite endpoint): superiority in terms of the specificity of risk-adapted PCA screening starting at age 50 (arm B) as compared to 45 yrs (arm A) with non-inferiority in terms of metastasis from PCA up to end of screening at age 60 (non-inferiority of arm B with respect to sensitivity)
- Secondary endpoints: PCA mortality rate, overall survival, locally advanced PCA, high grade PCA

Patients and Methods

Fig. 1: General flow chart of the PROBASE-trial

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Results of study arm A

Until January 312 (10 months) 47,234 45yrs-old men were approached of which 6,178 complied with the invitation (13.1%). 3,102 subjects were randomized into study arm A and 3,076 subjects were randomized into study arm B.

Results of study arm B

Tab. 1: PSA values and multiparametric MRI findings of subjects with confirmatory baseline PSA value ≥3.0 ng/ml (high-risk group of study arm A)

Tab. 2: Biopsy results of subjects with confirmatory baseline PSA value ≥3.0 ng/ml in study arm A

Conclusions

- PROBASE started with a rapid recruitment and the expected distribution of risk-groups could be confirmed
- The expected and observed incidence of prostate cancer in 45 yrs-old men based on suspicious PSA values is < 1% 41.7% (5/12) 50.0% (6/12) 34.9% (1,075/3,075) 96.6% (1,038/1,075) 98.8% (1,026/1,038) 1.2% (12/1,038)

Tab. 3: DRE findings and biopsy results of subjects in study arm B

Digital rectal examination (DRE)

- DRE performed
- DRE results available
- DRE not suspicious
- DRE suspicious

Conclusions

- PROBASE started with a rapid recruitment and the expected distribution of risk-groups could be confirmed
- The expected and observed incidence of prostate cancer in 45 yrs-old men based on suspicious PSA values is < 1%
- More than 50% of subjects with an initial suspicious PSA value have confirmatory PSA values < 3.0 ng/ml
- The positivity rate of a DRE in 45 yrs-old men is very low
- A substantial proportion of subjects refused prostate biopsy in spite of high confirmatory PSA values (study arm A) or suspicious DRE (study arm B)

Correspondence: christian.arsov@med.uni-duesseldorf.de

Fig. 2: Overview of the percentage distribution of baseline PSA values in study arm A

Overall PI-RADS score

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<th>Performance</th>
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Tab. 1: PSA values and multiparametric MRI findings of subjects with confirmatory baseline PSA value ≥3.0 ng/ml (high-risk group of study arm A)