

Neo Active Surveillance for patients with negative upfront prostate MRI

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INTRODUCTION

Multiparametric MRI has emerged as a valuable modality in the diagnostic pathway of localised prostate cancer. The false negative rate of MRI has been established as lower than 12 core TRUS biopsy, which is the current standard of care [1, 2]. As such, evidence for the use of MRI prostate as a triaging tool prior to initial prostate biopsy is increasing.

However, literature is scarce on follow-up of patients with a negative prostate MRI who avoid an initial biopsy – what we term Neo Active Surveillance (NAS).

AIM

To assess outcomes of men investigated for prostate cancer with negative initial MRI prostate and no biopsy in the immediate period afterwards, and thereby assess the safety of Neo Active Surveillance.

METHODS

- Retrospective analysis of a prospective IRB-approved database (REDCap) of 1966 patients who underwent MRI for suspicion of prostate cancer in a group urology practice between July 2013 and September 2017.
- Inclusion criteria:
 - Negative MRI (PIRADS 1 or 2) with no prior prostate biopsy
 - No prostate biopsy within 6/12 of undergoing MRI
- Metrics analysed:
 - Age, PSA, %free PSA, PSA density and Prostate Health Index (PHI) at time of MRI
 - Duration of follow-up
 - Results of any subsequent MRI, any first biopsy > 6/12 post-original MRI, and any subsequent radical prostatectomy
- Significant cancer was defined as any Gleason score 3+4=7 (ISUP Grade Group 2) or greater.

RESULTS

- 1254 men underwent MRI prostate without prior biopsy
- 686 had a negative MRI result (PIRADS 1-2)
 - 294 (43%) men had a minimum of 6 months follow up post-MRI without undergoing biopsy, therefore considered eligible for *neo-active surveillance*.

Outcomes in *neo-active surveillance group* (n=264 men)

- Demographics (see **Table 1**)
- Mean duration of follow-up from initial MRI was 16.1 months (range 6 - 43 months)
- 30 (10.2%) patients subsequent had a repeat MRI without undergoing biopsy in the interim
 - 22 (73%) remained negative

- 32 (10.8%) patients had their first biopsy greater than 6 months after MRI
 - 11 (4% of cohort) showed significant cancer
 - 6 were Grade Group 2
 - Mean PSA density was 0.19
 - 8 of these men underwent radical prostatectomy
 - 1/8 (12.5%) had pT3b disease
 - No men had positive margins

Table 1: Demographics of neo-active surveillance group (mean)

Age	63 years
PSA	4.9 ng/mL
%free PSA	21.8%
PHI	38.5
PSAD	0.12

CONCLUSIONS

- Initial clinical experience of avoiding biopsy in selected men with suspicion of prostate cancer based on elevated PSA or abnormal DRE, but with a negative MRI
- A subsequent period of monitoring (neo active surveillance) appears safe, with only 4% of men showing significant cancer on subsequent biopsy
- NAS reduced biopsy by 89% (from 294 to 32).
- We caution that all MRIs were read by highly experienced radiologists and that clinical factors other than a negative MRI must also be taken into account in triaging for biopsy.

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