



NEWS AND VIEWS

First population-level results of pre-biopsy prostate MRI

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Context: Since a few years there is level-1 evidence for pre-biopsy magnetic resonance imaging (MRI) and targeted biopsies to substantially reduce the proportion of men with a raised prostate-specific antigen (PSA) value who have a prostate biopsy and the detection of low-grade (Gleason score 6) prostate cancer, with a maintained or slightly increased detection of Gleason score ≥ 7 cancer [1]. But results from randomised trials cannot be extrapolated to the effect of implementing a new method in routine clinical care. When the Swedish national guidelines group recommended this new diagnostic pathway instead of systematic biopsies [2], we calculated that it would reduce prostate cancer incidence from 11,000 to 10,000 per year. Most of the estimated reduction of 1,000 cases per year was hoped to represent reduced overdiagnosis. Unfortunately, the shift to “MRI first” occurred in parallel with reduced diagnostic activity because of the COVID-19 pandemic, so the population-level effect of pre-biopsy MRI and targeted biopsies cannot be estimated from the national prostate cancer incidence (down to 9,000 in 2020). Nor has it been reported on elsewhere – until now.

News: Researchers recently reported prostate biopsy outcomes for all PSA tested men in Region Jönköping län, Sweden, who had no previous PSA test the past 4 years. The study period was from 2 years before pre-biopsy MRI and targeted biopsies were first introduced in March 2018 until 2 years thereafter (23,080 men) [3]. The results are striking: the proportion of benign biopsy results was reduced from 28 to 7% and of Gleason score 6 cancer from 24 to 6%. The drastically changing population incidences of different biopsy results over time are beautifully displayed in a figure that can be compared with one showing the rising proportion of men having a pre-biopsy MRI. A greater proportion of the men who were diagnosed after a pre-biopsy MRI had treatment with curative intent (78 vs. 59%), whereas a lesser proportion of them had active surveillance or watchful waiting (13 vs. 31%).

Views: The importance of evaluating the implementation of clinical guideline recommendations was recently discussed in European Urology [4]. This is an excellent and timely example of such an evaluation. The study also demonstrates the usefulness

of national registers for cancer care such as the National Prostate Cancer Register of Sweden.

The study shows that use of pre-biopsy MRI not only reduces the number of men who have a prostate biopsy and are diagnosed with Gleason score 6 cancer on a population level, but also the number of men who start on surveillance. The investment in MRI resources clearly results in manyfold more savings of downstream resources for biopsy and surveillance of low-grade cancer. I hope the research group follows up this important study with one that includes some years when pre-biopsy MRI was fully implemented. The now presented study period ended already in July 2020, just 4 months after the national guidelines more or less banned systematic biopsies without a pre-biopsy MRI, but according to publicly available data (www.npcr.se) the use of pre-biopsy MRI in Region Jönköping län did not peak until 2021. If the researchers plan a follow-up study, I suggest they consider also reporting the proportion of patients who had a targeted biopsy only, without additional systematic biopsy cores, and the population incidence of radical surgery/radiotherapy and surveillance. A health economics evaluation would be nice icing on the cake.

Do these results prove that MRI based prostate cancer diagnostics reduce overdiagnosis and overtreatment? Alas, they do not. This study investigated a single diagnostic evaluation; we do not know the long-term outcomes of the men who were not diagnosed with prostate cancer after their first MRI scan. Most of them were relatively young (median age 60 years) and will have their PSA monitored for a long time. Many will eventually have rising PSA values and a new MRI scan. Some of those scans will be unsuspecting, some will detect a potentially lethal cancer, others will reveal a small Gleason score 3+4=7 tumour that would not have progressed to clinical disease within the man's lifetime. There is a risk that the use of follow-up MRI scanning will substitute overdiagnosis of Gleason score 6 on systematic biopsy with overdiagnosis of small Gleason score 7 cancers on targeted biopsy. Future will tell. The total prostate cancer incidence must fall before we can claim success in the battle with overdiagnosis.

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Conflict of interest

The author has no financial conflict of interest to declare.

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