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EDITORIAL COMMENT

Active surveillance and prostate magnetic resonance imaging (MRI) have revolutionized the management of prostate cancer in recent years. This study evaluates the association between the use of prostate MRI and observation for 8144 men with newly diagnosed low-risk prostate cancer using data from the Surveillance, Epidemiology, and End Results-Medicare database. From 2010-2013, the use of MRI increased 3-fold and the use of observation increased from 30.8%-48.1% in these patients. After propensity-score matching to control for potential confounders captured in the data, the authors demonstrate that men who received a prostate MRI surrounding the diagnosis of prostate cancer were significantly more likely to undergo observation. The authors conclude that prostate MRI may increase confidence in the assignment of low-risk classification and thereby facilitate the use of active surveillance for prostate cancer.

This study offers real-world data that may support the beliefs of many urologists: a prostate MRI without suspicious lesions can make a strong case for active surveillance in an otherwise appropriate candidate. However, there are alternative explanations for the association between MRI and observation noted in this study and the authors are appropriately cautious about making an argument for a causal relationship. Prostate MRIs captured in this analysis may have been used in men who were already being managed with active surveillance. In that context, the use of observation "caused" the MRI more than the converse. Alternatively, there may be unmeasured confounders that are associated with both the use of observation and the use of prostate MRI. One such possibility is a characteristic of the treating physician. Physicians who are more likely to order a prostate MRI for their patients may also be more likely to recommend observation for men with low-risk disease. Particularly in the study period (2010-2013), physicians who were earlier adopters of prostate MRI may also have been more likely to recommend active surveillance to their low-risk prostate cancer patients. Propensity-score matching, which the authors used to generate matched cohorts of patients with and without prostate MRI, can only account for covariates that are captured in the data and cannot control for physician- or hospital-factors that are not available in administrative claims.[1]

Understanding the use of active surveillance on a national level is critically important for the field of urology. Despite long-term data from several centers supporting the safety of active surveillance, its use still varies considerably from physician to physician[2] and the optimal protocol remains unknown.[3,4] Innovations such as prostate MRI and biomarker tests offer us the potential to further refine our patient selection, but we do not know exactly how these tools are being used. Analyses such as this one, using nationally representative data, may help us better understand how these pieces fit

together and how we might continue to improve the management of men with prostate cancer.

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AUTHOR REPLY

The ascendance of prostate magnetic resonance imaging (MRI) coincided with a popular reckoning about years of overdiagnosis and overtreatment of low-grade prostate cancer.[1] Prostate MRI has been heralded as a solution to improve accuracy when diagnosing and staging prostate cancer with 2 primary advantages: (1) detecting occult, high-grade cancer in men who would otherwise be missed, allowing timely treatment, and (2) ruling out aggressive disease in men with ostensibly low-risk cancers allowing greater confidence in avoiding treatment. Studies supporting the performance of prostate MRI in identifying clinically significant cancers have been performed under best-case circumstances—largely in high-volume centers of imaging excellence, and by experts using state-of-the-art equipment.[2] Therefore, it is important to begin to evaluate the assumption that MRI will lead to better clinical outcomes in the "real world."

In this context we appreciate the thoughtful editorial addressing our study which examined the association of prostate MRI and initial management among Medicare beneficiaries with low-risk prostate cancer in Surveillance, Epidemiology, and End Results. We found that men who received prostate MRI in the period surrounding their diagnosis were more likely to be initially observed for their disease. As well-stated by the author(s), there are several alternative explanations that are important to consider in the study period where prostate MRI was in its infancy. As a methodological point, we first wish to clarify that patients in this study were included on the basis of a new diagnosis of prostate cancer, limiting the possibility that MRI was undertaken in the setting of prior active surveillance. Nonetheless, it is possible that physicians who used MRI in the early period were more likely to recommend observation as management, particularly in light of known associations of academic institutions and observation for low-risk cancers.[3] Further, we agree with the commentary that administrative claims lack clinical granularity, limiting our understanding of how MRI data was used when making decisions. For these reasons, we took care to not assert a causal relationship between prostate MRI and observation.

Notwithstanding the possibility that the use of prostate MRI is explained by provider-level variation in the use of observational management or other confounders, there are several notable findings from our study.[4] If a causal association is validated in other studies, the utility of MRI in the management of localized prostate cancer will further support its use. In addition, we found regional, racial, and socioeconomic differences in the use of prostate MRI. In light of recent data showing the growing use of MRI in the contemporary period, there is a timely need to determine how new technologies affect entrenched disparities in prostate cancer care and outcome.[5] Continued expansion of prostate MRI into routine care is likely. Anticipating such changes in the use of MRI and other tools, we fully agree that additional study is needed to understand the benefit of these innovations once put into practice.

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