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EDITORIAL

Active surveillance of prostate cancer: MRI and beyond

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Active surveillance (AS) is a management strategy aiming at avoiding overtreatment of a newly diagnosed low-risk prostate cancer until there is evidence of disease progression at repeat testing [1]. Although the definition of low-risk cancer varies according to different institutions and guidelines, and more than one-third of patients will be reclassified as higher risk during AS, this conservative approach translates into a cancer-specific survival up to 100% [1] and should be offered to patients with a life expectancy of at least 10 years according to the European guidelines [2]. Based on these premises, it is a matter of debate whether AS should be extended to favourable intermediate-risk cancers as currently supported by the UK National Institute for Health and care Excellence (NICE) or the US National Comprehensive Cancer Network (NCCN) guidelines [1].

Multiparametric magnetic resonance imaging (mpMRI) has gained an important role in optimising patient selection for AS, alongside conventional clinical criteria such as the clinical stage, prostate-specific antigen (PSA) level, and biopsy results (Gleason score and estimated tumour volume). The high negative predictive value of mpMRI in ruling out clinically significant prostate cancer helps preventing patient dropout from surveillance by reducing unnecessary confirmatory and follow-up biopsies [1, 3]. Also, mpMRI serves to exclude patients unfit to AS by improving the detection and risk assessment of clinically significant prostate cancer through imaging-informed prostate biopsy [4].

Once enrolled into AS, a patient can be managed according to different national and international protocols, usually including PSA monitoring and repeat biopsy schemes at different time points [1]. As suggested by the UK NICE guidelines and a recent report of a Movember International Consensus Meeting [1, 5], mpMRI can be offered whenever changes of concern in digital rectal examination and/or PSA levels occur. The identification of radiological progression on serial imaging can in turn trigger repeat biopsy [2], while stable mpMRI associated to stable PSA kinetics can avoid further biopsies [5]. These roles, which are already real in some high-volume centres, emphasise the importance of access to high-quality imaging [5] and standardised interpretation of lesion changes, such as the one proposed by the Prostate Cancer Radiologic Estimation of Change in Sequential Evaluation (PRECISE) score [6, 7].

Several evidences are in favour of using mpMRI during AS, including the fact that the PRECISE score offers substantial inter-reader agreement when used by experienced readers [8]. However, some open questions remain to be answered to fully implement MRI into clinical practice and guidelines [5]. For example, from the technical viewpoint, it is unclear whether biparametric MRI can offer the same accuracy of mpMRI while saving time and costs, or whether 3.0-T magnets and/or the endorectal coil translates into greater diagnostic advantage over

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1.5-T magnets and the surface coil, respectively [1]. There is also no universally agreed definition of clinically significant prostate cancer on mpMRI during AS, and some work has yet to be done on image interpretation (e.g. understanding the impact of serial changes of the apparent diffusion coefficient during AS) [1]. The exact timing for serial MRI during AS is another matter of debate, as this can be adjusted depending on initial MRI findings and the overall patient risk profile [3]. There is also no widespread consensus whether MRI can fully replace digital rectal examination and, more importantly, avoid unnecessary biopsies. In general, it must be clarified how MRI can contribute to a more personalised approach to AS when taking into consideration all clinical variables and psychological aspects [5]. Finally, promising tools beyond MRI could contribute to refine AS decisions, including prostate-specific membrane antigen (PSMA) positron emission tomography (PET) [9], radiomics, or artificial intelligence algorithms, e.g. for predicting disease progression as recently reported [10].

European Radiology launches a thematic collection on AS aiming to gather all articles relevant to the topic in one place, so that researchers and clinicians can easily access a unique source of updated information on best evidence practice, research developments, challenging aspects, and new trends in the field. A number of previously published papers can be already found in the collection page (at https://link.springer.com/collections/ifijjbcfhc), while several invited reviews and special reports written by experts will be included over the next months. This editorial serves as a call to enrich the collection with new reviews, original articles, and commentaries contributing to the body of knowledge on when and how to use MRI and new instruments such as artificial intelligence during AS. As the call will remain open, unsolicited manuscripts can be submitted to the journal and will be added to the collection if accepted for publication after external peer-review.

Francesco Giganti from University College London, as the Guest Editor of the collection, and Rossano Girometti from University of Udine, as the Deputy Editor for Urogenital imaging in *European Radiology*, both have the pleasure to invite readers to be part of the journal's life by accessing the collection and taking their chance to contribute to this highly relevant topic.

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Guarantor
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Methodology

- Editorial

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