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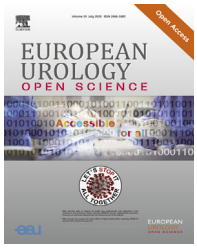

European Association of Urology

Open to Debate Con

TREXIT Is Now: Should We Abandon the Transrectal Route for Biopsy? A Three-continent Debate—No

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Transrectal (TR) ultrasound-guided biopsy of the prostate is currently the most common technique in most countries. Today, the role of TR biopsy is being challenged by transperineal (TP) prostate biopsy. Indeed, the European Association of Urology guidelines now recommend that the TR approach should be abandoned in favour of the TP approach despite any possible logistical challenges [1].

This recommendation is mainly based on a meta-analysis and a population-based study on infection rates between the two approaches. The meta-analysis, published in 2016, demonstrated that TR biopsy was associated with a higher burden of hospitalisation (1.1% vs 0.9%) and sepsis (0.8% vs 0.1%) compared to TP biopsy [2]. The population-based study from the UK ($n = 73\ 630$) showed lower readmission rates for sepsis among patients who had TP versus TR biopsies (1.0% vs 1.4%). Use of the TP route would prevent one readmission for sepsis in 278 patients at the cost of three additional patients readmitted for urinary retention [3]. Currently, there are no randomised studies comparing infectious complications after TR and TP biopsy. It is also unclear if more careful patient preparation before TR biopsy, such as antibiotic prophylaxis based on results from a rectal swab culture, would further narrow the gap in postbiopsy sepsis rates between TR and TP biopsy.

Fluoroquinolone misuse has resulted in an increase in fluoroquinolone resistance and infections with TR have risen to between 2% and 4% in recent years [4]. Consequently, the European Commission has applied strict regulatory conditions regarding the use of fluoroquinolones, resulting in their prohibition for perioperative antibiotic prophylaxis including prostate biopsy. In countries where use of fluoroquinolones is banned, cephalosporins or aminoglycosides can be used, with similar rates of infectious complications [5].

Despite these issues, the TR route has many advantages. TR biopsy is a core urological procedure carried out by most practising urologists. TR biopsy is easily performed in consulting rooms or an operating theatre for minor procedures and takes approximately 10 min to complete, including administration of local anaesthesia. Furthermore, the equipment needed is generally available in urological centres.

TR biopsy is extremely cost-effective compared to TP biopsy, which requires access to an operating theatre and is usually performed under general anaesthesia. A brachytherapy grid is frequently used to assist in either targeted or systematic TP biopsies, and the equipment needed may be prohibitively expensive in some small urology centres. The procedure is longer than TR biopsy, taking approximately 30 min, with extra time required for anaesthesia. TR biopsy allows for discharge immediately after the procedure and is suitable for rapid-access diagnostic services, whereas TP biopsy requires a day-case admission and a greater level of nursing support. Not all insurers may reimburse for the entire costs of TP biopsy. These factors all contribute to the cost-effectiveness of TR biopsy. Switching to TP biopsies will involve a learning curve for most urologists who are not currently familiar with the technique.

Both TR and TP biopsy have been associated with postprocedural urinary retention, requiring insertion of an indwelling catheter until inflammatory changes resolve. The risk of retention is generally regarded as lower for TR than for TP biopsy. In 2017, a meta-analysis by Borghesi et al [6] revealed that urinary retention occurs in 0.4–6% of

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patients undergoing TR biopsy and in 1.7–11.1% of patients undergoing TP biopsy. The data set included a cohort study of 3000 patients by Pepe and colleagues [7], who demonstrated that the risk of urinary retention after TP biopsy significantly increased with the number of biopsy cores sampled.

There is a lack of high-quality data comparing the diagnostic yield of TR biopsy versus TP biopsy. In 2017, Xue et al [8] performed a systematic review and meta-analysis that included 13 studies comprising more than 4200 patients, and concluded that the overall prostate cancer detection rate did not significantly differ between TR and TP biopsy. Sugano et al [9] also showed that current evidence supports comparable detection rates for clinically significant prostate cancer between the two approaches, although additional high-level evidence is needed.

In addition, the 12-core systematic biopsy template has been validated for TR biopsy, but there is no consensus for TP biopsy. To reach the same detection rate, the TP approach needs more biopsy cores than the TR approach. To date, there is no randomised controlled trial supporting an overall benefit of TP over TR biopsy.

In conclusion, TR prostate biopsy has been the standard diagnostic approach for prostate cancer and remains an effective option. TR biopsy shows some disadvantages, with a higher risk of sepsis. With good patient selection and an adapted empirical antibiotic regimen, these complications can be minimised. Although the two routes seem to have the same rates of prostate cancer detection and overall complications, we note that TR biopsy remains more popular worldwide, probably related to its features as a simple, quick, effective, well-tolerated, well-established, and highly cost-effective technique. Perhaps the most prudent and efficient approach would be to identify strategies to mitigate the infection risk with TR biopsy rather than switch to a new, more expensive, more morbid technique to reduce infection risk by $<1\%$.

Conflicts of interest: The authors have nothing to disclose.

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