

PE32 Intra-operative frozen section for margin evaluation during radical prostatectomy: A systematic review

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Introduction & Objectives: Margin status and neurovascular bundle (NVB) preservation are important prognostic indicators for oncological and functional outcomes in patients undergoing radical prostatectomy (RP). Intra-operative Frozen Section (IFS) has been used to evaluate margin status during surgery with the intention of reducing positive surgical margins (PSM) and guiding safe preservation of the NVBs during RP. However, its value remains controversial in the modern era of robot assisted radical prostatectomy (RALP) and its implementation is not yet widespread. The objective of this review is to conduct a systematic review to determine if outcomes of men undergoing RP with IFS are better than men undergoing RP without IFS.

Materials & Methods: A systematic review of the available literature was performed using Medline, EMBASE and the Cochrane Library in February 2019 without time or language limitations. The protocol for this systematic review was registered on PROSPERO (CRD42019125940). Only comparative studies were eligible. Data were narratively synthesised in light of methodological and clinical heterogeneity of the studies included. Outcomes assessed were PSM rates, oncological long-term outcomes, NVB preservation and erectile function (EF) recovery. The risk of bias of each included study was assessed.

Results: Ten non-randomised comparative studies (including 16, 897 patients) evaluating IFS in patients undergoing RP were retrieved for data extraction. Five studies included men who had RALP only, three studies included men who had open RP only, and two studies included patients who had both RALP and open RP. In total, 5,155 had RALP and 11,742 patients had open RP. Performance of IFS differed technically considerably between studies. Eight studies report a reduction in rates of PSM (range -1.4% to -14.5%) in the IFS group, whereas two studies report higher PSM rates (+0.4% to +10%) in the IFS group. In the three studies that report long-term oncological outcomes, IFS does not improve nor worsen outcome. Four studies perform IFS systematically at the posterolateral margin of the prostate (the NeuroSAFE technique). All four studies report either improved NVB preservation or EF recovery. All included studies were deemed to be at either serious or moderate risk of bias.

Conclusions: No randomised controlled trials were identified and significant heterogeneity existed with regard to many features of the studies included. Within the limitations of this review, the evidence suggests that IFS during RP can modestly improve rates of PSM. There is evidence that IFS performed systematically at the posterolateral margin of the prostate (NeuroSAFE) can facilitate improved NVB preservation without compromising oncological control. Further prospective, randomised, research with long-term outcomes and standardised reporting is needed to help understand if there is a beneficial role for IFS during RALP.