



## Re: What is the role of NeuroSAFE in robotic radical prostatectomy?

Eoin Dinneen<sup>1,2</sup> · A. Haider<sup>3</sup> · J. Grierson<sup>4</sup> · T. Briggs<sup>2</sup> · R. Persad<sup>5</sup> · N. Oakley<sup>6</sup> · A. Freeman<sup>3</sup> · G. Shaw<sup>1,2</sup>

Received: 3 April 2019 / Accepted: 9 April 2019 / Published online: 12 April 2019  
© Springer-Verlag London Ltd., part of Springer Nature 2019

Dear Editors,

We read with interest the recent article by Goonewardene and Cahill on the role of NeuroSAFE in robot-assisted laparoscopic prostatectomy (RALP) [1]. The NeuroSAFE technique uses intraoperative frozen section analysis of the prostate margin to provide the surgeon with a realtime microscopic consult to help his/her decision on preservation of the neurovascular bundles (NVB). The goal is to promote safe preservation of the NVBs where they would have, otherwise, been removed during RALP had NeuroSAFE not been performed. This should have beneficial implications for erectile function recovery. On behalf of the NeuroSAFE PROOF RCT team (NCT03317990), we share their interest and agree with the conclusions in their letter.

However, we would also highlight the following points for their attention. First, they refer papers by Beyer et al. and Schlomm et al. as separately illustrating the promising results of NeuroSAFE RALP [2, 3]. Both publications arise from the same institution (The Martini Clinic, Prostate Cancer Center, University Medical Center Hamburg-Eppendorf) and from the same time period (2002–2012). As such, they represent the same surgical series and should

not be considered independently to demonstrate the benefit of NeuroSAFE RALP.

Second, although the aforementioned publications do attest that NeuroSAFE RALP can be done without increasing blood loss, complications, or adverse oncological outcomes, neither paper presents results on functional outcomes, i.e., erectile function recovery. These publications both report an increase in NVB preservation when RALP is performed with NeuroSAFE. Whilst preservation of the NVB is clearly an important surgical indicator [4], if the promise and value of NeuroSAFE is to be realized, patient-reported outcomes of erectile function should be considered as more robust evidence.

Third, despite these and other promising results (including from the Adsheed group [5], who do report on erectile function as an outcome), NeuroSAFE RALP has not been widely introduced in the UK. There are a variety of reasons that explain this, including the significant additional resource requirements to perform NeuroSAFE RALP in resource-limited settings. It is well recognized that retrospective observational studies represent low-quality evidence and may not provide the endorsement necessary to convince clinicians to introduce the technique. Thus, until level 1 evidence exists, NeuroSAFE may remain on the peripheries of what is offered to men undergoing RALP in many healthcare systems. Conversely, often, new technologies and innovations are introduced into surgical practice without proper evaluation with robust randomized trial design [6]. It is important that we guard against this pitfall also.

We are hopeful that our national, multi-center, single-blinded NeuroSAFE PROOF RCT comes at the appropriate time to evaluate this promising technique. We have proven feasibility and we intend to include functional and oncological outcomes as primary endpoints in the definitive study. We look forward to keeping your journal and the wider urology community informed of our findings.

Yours sincerely,

Eoin Dinneen

On behalf of the NeuroSAFE PROOF Team.

✉ Eoin Dinneen  
eoin.dinneen@nhs.net

<sup>1</sup> Division of Surgery and Interventional Science, University College London, Charles Bell House, 43-45 Foley Street, Fitzrovia, London W1W 7TS, UK

<sup>2</sup> Department of Urology, University College London Hospital, London, UK

<sup>3</sup> Department of Histopathology, University College London Hospital, London, UK

<sup>4</sup> Surgical and Interventional Trials Unit, University College London, London, UK

<sup>5</sup> Department of Urology, North Bristol Hospitals Trust, Bristol, UK

<sup>6</sup> Department of Urology, Sheffield Teaching Hospitals NHS Trust, Sheffield, UK

## Compliance with ethical standards

**Conflict of interest** ED, AH, JG, TB, RP, NO, AF, and GS have no conflicts of interest.

## References

1. Goonewardene SS, Cahill D (2019) What is the role of Neurosafe in robotic radical prostatectomy? *J Robot Surg* 13(1):187–188
2. Beyer B, Schlomm T, Tennstedt P, Boehm K, Adam M, Schiffmann J et al (2014) A feasible and time-efficient adaptation of NeuroSAFE for da Vinci robot-assisted radical prostatectomy. *Eur Urol* 66(1):138–144
3. Schlomm T, Tennstedt P, Huxhold C, Steuber T, Salomon G, Michl U et al (2012) Neurovascular structure-adjacent frozen-section examination (NeuroSAFE) increases nerve-sparing frequency and reduces positive surgical margins in open and robot-assisted laparoscopic radical prostatectomy: experience after 11,069 consecutive patients. *Eur Urol* 62(2):333–340
4. Tewari AK, Srivastava A, Huang MW, Robinson BD, Shevchuk MM, Durand M et al (2011) Anatomical grades of nerve sparing: a risk-stratified approach to neural-hammock sparing during robot-assisted radical prostatectomy (RARP). *BJU Int* 108(6 Pt 2):984–992
5. Mirmilstein G, Rai BP, Gbolahan O, Srirangam V, Narula A, Agarwal S et al (2018) The neurovascular structure-adjacent frozen-section examination (NeuroSAFE) approach to nerve sparing in robot-assisted laparoscopic radical prostatectomy in a British setting—a prospective observational comparative study. *BJU Int* 121(6):854–862
6. Aggarwal A, Lewis D, Mason M, Purushotham A, Sullivan R, van der Meulen J (2017) Effect of patient choice and hospital competition on service configuration and technology adoption within cancer surgery: a national, population-based study. *Lancet Oncol* 18(11):1445–1453

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.