

B11

IS ENOUGH BEING DONE FOR SAFE PATIENT POSITIONING DURING SURGERY?

Nikki Sizer¹, Philip Breedon¹, Yang Wei², Francesco Siena¹

¹ Nottingham Trent University, Medical Engineering Design Research Group (MEDRG), Nottingham, United Kingdom

² Nottingham Trent University, Smart Wearable Research Group, Nottingham, United Kingdom

Introduction: Safe patient positioning is a common problem in high-risk surgeries, the choice of position used allows for optimal exposure to the site whilst minimising risk of injury [1]. In prone position, mispositioning can cause serious complications such as perioperative vision loss, peripheral nerve damage and pressure ulcers (PU) [2]. Mispositioning can increase the risk of PU development when body weight isn't evenly distributed on support surfaces [3]. There are multiple strategies, risk assessments and predictive models available that act as guidelines for clinicians to help initial positioning to prevent onset of PUs; these methods are paper/digital based tools that don't allow for intraoperative measurements of pressure during positioning. Literature highlights there needs to be more research conducted/evidenced based upon pressure-reducing surfaces [4]; there is a distinct lack of pressure positioning visual aids used in surgery.

Methods: A participant study conducted determined how documented levels of comfort are perceived on a specific spinal frame; participants were placed in prone for a maximum of 5-minutes and asked to document their perceived comfort level using a visual analog scale. The comfort level data was analysed against sensor data collected from the surgical pads (two each on the chest and hips). Data was analysed using logistic regression analysis using the NOMREG procedure in the statistical analysis software.

Results: The predicted results will help to answer the themes that this study raises:

- Is enough being done to ensure patient comfort and safety?
- Will the inclusion of a patient positioning device help reduce the risk and onset of PUs.
- How does the perceived comfort levels and sensor matrix align, does it show participants are incorrectly positioned?
- Does incorrect positioning increase the risk to PU development?

Conclusions: The findings of this study will help determine whether participants have been positioned correctly on the provided support surfaces and highlighting the need for patient positioning devices used in surgery, specifically spinal surgery.

References:

1. Gruenbaum SE, Gruenbaum BF, Shapira Y & Zlotnik A. Patient positioning for neurosurgical procedures. *Neurocritical Care Management of the Neurosurgical Patient*: Elsevier Inc. 2018. 15-24
2. Cunha PD, Barbosa TP, Correia G, Silva R, Oliveira NC, Varanda P, Direito-Santos B. The ideal patient positioning in spine surgery: a preventive strategy. *EFORT Open Reviews*. 2023 Feb 1;8(2):63-72.
3. O'Connell MP. Positioning impact on the surgical patient. *Nurs Clin North Am*. 2006;41(2):173-192.
4. Engels D, Austin M, McNichol L, Fencl J, Gupta S, Kazi H. Pressure ulcers: factors contributing to their development in the OR. *AORN Journal*. 2016 Mar 1;103(3):271-81.

COI: (declaration) This project is part funded.

*SPSS®