ULTRASOUND-ASSISTED VERSUS LANDMARK-BASED PSV PRO...PHANTOM MODELS AND REGIONAL ANESTHESIA

Background and Aims An ultrasound-assisted spinal block technique for obstetric anaesthesia has not been studied in an African population or during emergency caesarean delivery (CD). The aim of the study was to assess the effect of preprocedural neuraxial ultrasound on the performance of spinal blockade in obese parturients undergoing spinal block for emergency CD in a central hospital in Johannesburg, South Africa.

Methods A two-armed, prospective comparative contextual study design was used. Adult women booked for emergency CD under spinal block had preprocedural ultrasound performed before being randomised to either a landmark-based group (LMG) or an ultrasound-assisted group (USG). The USG had identified landmarks marked to assist the anaesthetist. The primary end-points were first pass success rate, difficult spinal block rate, procedure time, number of needle punctures and needle passes. Secondary end-points included the intervertebral spaces attempted, the predicted ultrasound distance and actual needle depth.

Results Thirty-six participants were recruited between January and February 2020. The USG was associated with a shorter procedure time (48s versus 97s, p<0.05) and fewer needle passes (3 versus 5.5, p<0.05). The LMG had a greater percentage of blocks performed at higher intervertebral spaces (L1/2 or L2/3) compared to the USG (66.7% versus 11.1%, p<0.05). The predicted ultrasound distance correlated well with the actual needle depth (r = 0.86, 95% CI 0.65 – 0.95) with a mean difference of 10 mm (range 0 – 25 mm).

Conclusions Preprocedural ultrasound was associated with a statistically significant improvement in some technical measures of spinal block performance when used for emergency CD in an African population.

Background and Aims Regional anaesthesia is the future of sustainability and forms a mandatory part of the new 2021 anaesthetic trainee curriculum. Simulation provides vital training, and gelatine phantom models enhance needling skills to minimise complications in clinical practice. A meta-analysis of the effectiveness of the loci method as a mnemonic device has proved to aid memory recall. We aimed to determine if there was subjective improvement of needling technique among trainees with the use of part-task gelatine-based models along with the use of the acronym “PSV PRO” as an aid-memoire to facilitate a systematised approach for needling.

Methods We created gelatine phantom models with target artefacts including grapes and cotton threads. Candidates practiced needling techniques on phantom models with the laminate acronym beside. We used anonymous questionnaire to be filled by the trainees and collected data. We then run 2 teaching sessions which were attended by the trainees of broad range of grades to broaden the power of this study.

Results There was >30% improvement in probe handling and needling technique confidence. 28% of trainees became extremely confident after the course. Pre course candidates percentage who said they were confident or very confident combined was 64% of the total number of candidates. However, post course the percentage of trainees who were confident or more increased to >90%.

Conclusions PSV PRO resulted in the subjective improvement of needling technique among trainees during this simulation-based exercise. The homemade jelly phantom models were excellent for purpose. PSV PRO should be used in real life teaching and high-definition simulation.