

**B24** **ULTRASOUND-ASSISTED VERSUS LANDMARK-BASED SPINAL BLOCK PERFORMANCE IN EMERGENCY CAESAREAN DELIVERY IN OBESE PATIENTS AT A CENTRAL HOSPITAL**

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**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 pre-procedural 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 include 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.

**B25** **PSV PRO...PHANTOM MODELS AND REGIONAL ANAESTHESIA**

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**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.

**B26** **THE PATH TO KNOWLEDGE AND SKILL COMPETENCY WITH ULTRASOUND ASSISTED NEURAXIAL BLOCK AMONG ANESTHESIA RESIDENTS**

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**Background and Aims** In recent years, the use of ultrasound (US) in anesthesia has become the gold standard for procedures such as peripheral nerve blocks and vascular access. Despite multiple-systematic-reviews and meta-analysis in favor of the adoption of preprocedural-US for neuraxial procedures in obstetric patients with difficult spine anatomy<sup>2,3,4</sup>, it's use for neuraxial block did not achieve the same popularity<sup>1</sup>. The main barrier to implementing this technique in routine clinical practice might be the lack of familiarity with the technique, hence we design this study to evaluate the improvement of knowledge and clinical competencies in anesthesiology trainees after receiving a training session in ultrasound-assisted-neuraxial block.

**Methods** Participants were given a 1-hour lecture followed by hands-on workshop. They were then assessed individually 4-weeks later after completing a minimum of ten scans on parturients scheduled for discharge.

Our primary-outcome was to measure the improvement in knowledge based on score difference between a pre-test and a post-test. The secondary-outcome was to measure clinical skills improvement in identification of relevant sonoanatomy.

**Results** A total of 30 trainees participated in the study. The mean score for the pre-test and post test was 45% and 65% respectively. Post intervention, (20/30) trainees were able to identify a randomly assigned intervertebral space, (18/30) for the depth of the posterior-complex, and (23/30) had inappropriate skin marking.

**Conclusions** US-assisted-neuraxial blocks is rapidly becoming a necessary skill to acquire for the safe practice of anesthesia. The early implementation of an US-assisted-neuraxial block curriculum is easy and beneficial to improve knowledge and clinical skills in anesthesia training.