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Labour Epidural Made Safer

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Introduction

During epidural placement, accidental dural puncture (ADP) occurs at a rate of 1.5%.[1] An inexperienced operator is risk factor for ADP. This study tested and assembled a device that can offer trainees hands-on learning of the loss of resistance (LOR) technique under direct supervision.

Methods

Two LOR syringes were connected in series to a single epidural needle. The injectate flowed in a one-way direction from each or both syringes to the tip of the needle via 3-way taps and non-return valves. Thirty-eight midwives were recruited to test this device; they were first shown how to perform epidural insertion using intermittent and continuous LOR (to water) techniques on a manikin then, asked to perform the procedure on the same manikin under supervision using the assembled device. The supervising anaesthetist was able to observe LOR by using the second LOR syringe and intervened as necessary. Participants were given real-time feedback on failure, false and successful detection of LOR, these attempts were recorded. Participants were also asked to grade the degree of LOR supervision (1- continuous supervisor-needle contact, 2-intermittent, 3-occasional, 4-no supervisor-needle contact).



Results

For the intermittent LOR technique, 15 participants (39.5%) detected LOR, 11 (28.9%) detected false LOR and 12 (31.6%) failed to detect LOR. For the continuous LOR technique 10 participants (26.3%) detected LOR, 13 (34.2%) detected false LOR and 15 (39.5%) failed to detect LOR. For grading the degree of LOR technique supervision, 29 participants (76.3%) graded it as 4 and 9 (23.7%) as 3.

Discussion

This device assembly could help novice anaesthetic trainees to practice LOR technique under direct supervision but with minimal or no supervisor-needle contact. Using the second LOR syringe to detect missed or false LOR by the supervisor could help to prevent ADP.

References

1. Kwak K-H. Postdural puncture headache. Korean J Anesthesiol . 2017; 70: 136-9.