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## Alternate method of loss of resistance test using 3-way stopcock and two syringes

Sir,

Real time ultrasound guidance for peripheral regional anaesthesia has safety benefits.<sup>[1]</sup> For neuraxial blocks ultrasound guidance can be used for defining correct point of needle insertion and estimating the needle insertion depth or as a real time ultrasound guidance and has safety benefits as well.<sup>[2]</sup> Beside ultrasound guidance, some less expensive methods are designed to

ensure safety of epidural anaesthesia. On the one hand these methods are based on classical principle (Dogliotti principle or loss of resistance test (LORT)).<sup>[3]</sup> On the other hand, they allow anaesthesiologist to grip epidural needle with both hands, to omit pushing the barrel of a syringe with another hand and to make the procedure more controlled and hence safer. These commercially available methods include Epimatic®, Episure Autodetect® and Epidrum® techniques of LORT.<sup>[4,5]</sup>

However, due to financial constraints, it may be useful to search alternative and cheaper techniques of expensive anaesthesiologic procedures, particularly of epidural anaesthesia.<sup>[6]</sup> So, we introduce LORT

method with possibility of having both hands on needle. For this, one will need epidural needle, two regular 10cc syringes and a 3-way stopcock. For more convenience, 5cc syringes can be used as well. One syringe is filled with saline and the second one is filled with air with its barrel pulled out to the full extent. Syringes are attached to a 3-way stopcock. After the epidural needle is inserted into interspinous ligament and the stylet is removed, the 3-way stopcock is connected to the epidural needle (the empty syringe must be directed upwards and be perpendicular to the needle and the saline-filled syringe must be directed towards the anaesthesiologist). The 3-way stopcock should be set to allow flow between the syringes. Then the anaesthesiologist pushes the saline from the filled syringe into the empty one to create positive pressure in the latter. After that (without losing pressure on the filled syringe), the 3-way stopcock is set to allow flow between the pressurised syringe and the epidural needle. At that moment, another syringe can be disconnected or left in place. After that, the anaesthesiologist advances the needle toward the epidural space until a sharp drop of saline level in the upper pressurised syringe is noticed. This saline level drop indicates that the needle tip is in the epidural space [Video 1].

Our choice of syringe sizes and saline volumes is based on pressure measurements that we did before testing our technique in clinical setting. Using patient monitor and arterial line probe we defined that pressurizing 10 cc syringe with 3 cc saline or 5 cc syringe with 1.5 cc saline produce 200-250 mmHg pressure. Besides, these volumes never lead to barrel jumping out of the syringe. This pressure is higher than the pressures produced by Epimatic® and Episure Autodetect® syringes<sup>[6]</sup> but according to literature this pressure can be safely used for epidural space identification with LORT.<sup>[7]</sup>

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#### Conflicts of interest

There are no conflicts of interest.

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