Inferior Vena Cava Ultrasound-guided fluid administration prior to spinal anesthesia reduced the rate of post-procedural hypotension. A randomized controlled trial.

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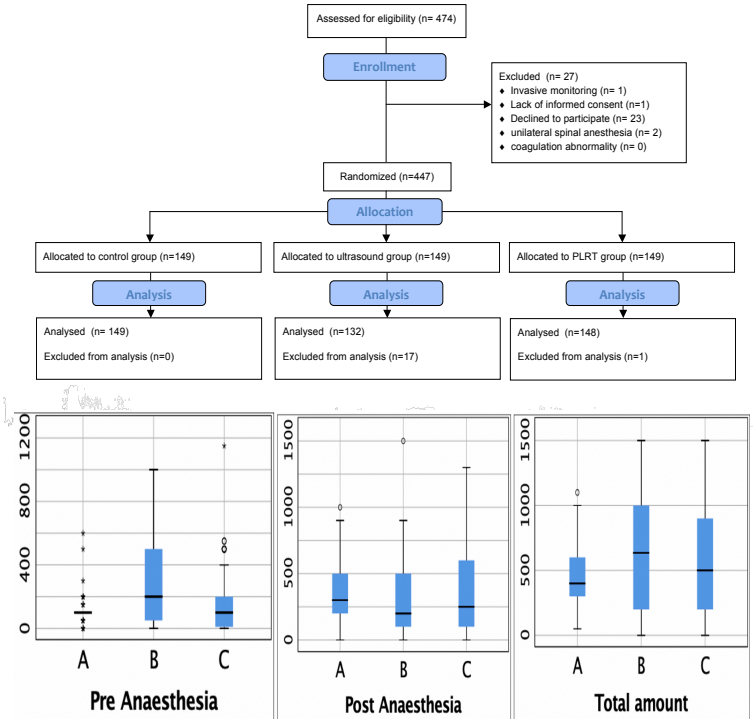
BACKGROUND

Following spinal anaesthesia, arterial hypotension is a common occurrence; to avoid this adverse event, empirical fluid administration is usually performed. To guide fluid therapy in mechanically ventilated patients, inferior vena cava ultrasound and passive leg raising test are usually performed; up today, few data on their use in the specific setting, like post-spinal anaesthesia, are available and most of them are contradictory.

OBJECTIVES

Estimate the incidence of arterial hypotension after inferior vena cava ultrasound (IVCUS) or passive leg raising (PLRT) compared to a control group, to guided volemic optimization in patients underwent spinal anaesthesia for elective surgery.



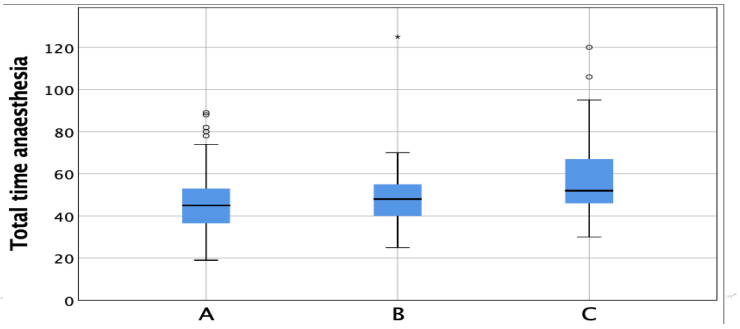
Boxplot representing the crystalloids administration in control group (A), in the IVCUS group (B) and in the PLRT group (C).

METHODS

Randomized, controlled, monocentric, non-blinded study. We recruited 474 consecutive elective patients stratified into 3 groups. In the IVCUS and PLRT groups, the pre-anaesthesia volume optimization was performed following the study protocol procedure. In the control group no intervention was performed. Primary outcome was to measure the hypotension rate after spinal anaesthesia; secondary outcomes was to evaluate the amount of the administered fluids, the dispensed vasoactive drug needed to restore regular blood pressure and the required time to perform spinal anaesthesia.

RESULTS

The hypotension rate was 35% for IVCUS group, 44% for PLRT group and 46% for control group. An 11% reduction rate in arterial hypotension (95% CI -1 to -24%, P = 0.047) was observed between the IVCUS group and the control group. A 2% reduction rate in hypotension (95% CI -3 to -5%, P = 0.428) was observed between the PLRT group and the control group.



Representative boxplot comparing the total time required to complete anaesthesia in the control group (A), in the IVCUS group (B) and in the PLRT group (C).

CONCLUSIONS

A marked decrease in the hypotension rate (-11%) was defined in the fluid optimisation IVCUS group compared to the control group. The comparison between the PLRT group with the control group, presented a slight decrease in the hypotension rate (-2%).

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