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Drugs used in regional block analgesia for thyroidectomy: a network meta-analysis of randomized controlled trials

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Background: Postoperative pain has become one of the major obstacles to postoperative recovery and can lead to increasing demand for opioids. So far, a wide variety of drugs is used for regional block anesthesia, but which one is the best remains unclear. Thus, this study aims to obtain the best drug for thyroid surgery regional block based on their efficacy and side effects through Bayesian network meta-analysis.

Methods: Systemically searched MEDLINE, CENTRAL, Embase, and web of science on July 3, 2021 to obtain randomized controlled trials (RCTs) focusing on adults who underwent open thyroidectomy and regional blocks, and took opioids requirement, and the postoperative pain level as outcomes. The "Gemtc" package of R-4.1.1 was used for Bayesian network meta-analysis based on extracted data.

Results: We retrieved 398 articles, and finally included 31 RCTs, which included a total of 2221 patients. Patients received levobupivacaine had the lowest requirement rate for opioids and lowest pain score at T6 and T12. Non-steroidal anti-inflammatory drugs show significant superiority neither in the opioids requirement nor the pain score. Clonidine has a better potential to act as a qualified anesthetic adjuvant compared to adrenaline. The ranking results of the subgroup analysis were consistent with the integrated analysis.

Conclusion: Levobupivacaine has a relatively greater advantage in reducing opioids requirement and decreasing the pain score of patients, and bilateral superficial cervical plexus blockade and pre thyroidectomy intervention have more advantages than local wound infiltration and post thyroidectomy intervention in alleviating patients' pain.