Perioperative lidocaine diminishes peroperative opioid usage postoperative TNF-α after oncologic breast surgery

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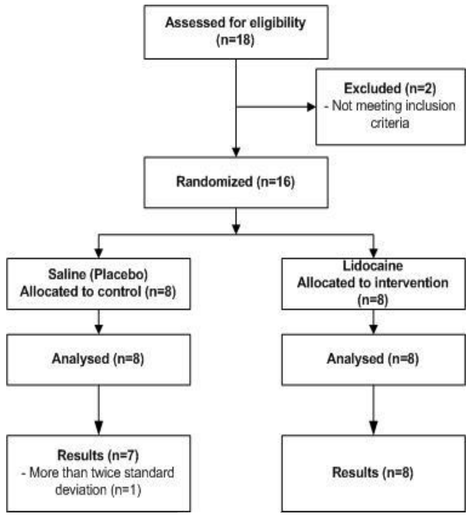
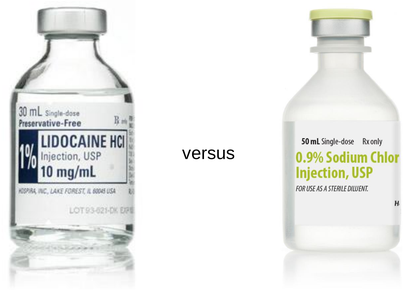
Background

Surgery is associated with an acute phase response, which is characterized by nociceptive pain and inflammation. Intravenous lidocaine is effective in the treatment of acute pain due to its analgesic, anti-inflammatory and antihyperalgesic properties. The aim of this study was to evaluate the impact of intravenous lidocaine on the neuroinflammatory response during oncologic breast surgery





Methods

Sixteen patients participated in this single centre double blind randomized controlled clinical trial. Before induction of anaesthesia, patients received a bolus of intravenous lidocaine 1.5 mg/kg/hour followed by continuous infusion of 2 mg/kg/hour till 1 postoperative or saline in an equivalent volume (control group). Preoperative and four hours postoperative pain scores, numeric rating scale (NRS, 0-10) and blood samples were taken to quantify pain and cytokine plasma level.

Results

Demographics were similar in both groups. Patients receiving lidocaine had a lower perioperative sufentanil consumption (p = 0.004). Tumor Necrosis Factor - α (TNF-α) increased significantly in the control group (p = 0.042) versus patients receiving lidocaine (p = 0.068). No significant difference was found in interleukin-6 (IL-6), IL-8, IL-1β, IL-1RA, IL-10 plasma levels, NRS scores, and perioperative consumption of dipidolor and diclofenac.

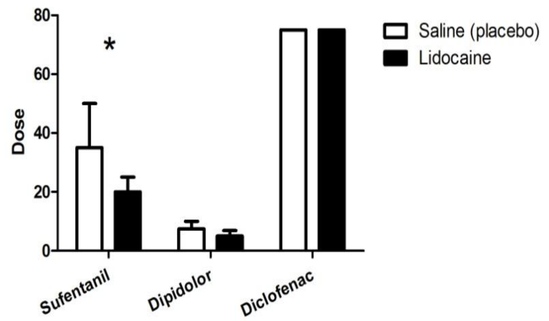


***FIGURE**:*
Intraoperative consumption of sufentanil, dipidolor, and diclofenac in placebo and lidocaine group (= P < 0.05)*

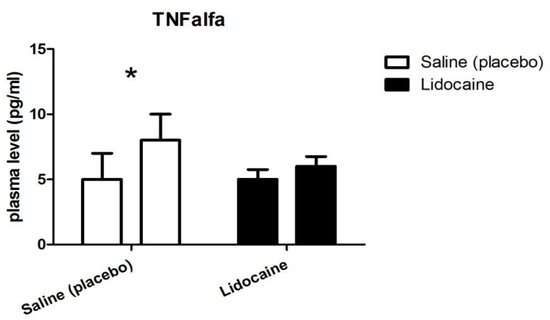


FIGURE
Levels of TNF alfa before and after surgery in placebo and lidocaine group (= P < 0.05)*

Conclusions

This study demonstrated that perioperative administration of lidocaine during oncologic breast surgery decreases intraoperative sufentanil consumption and diminishes the postoperative elevation of TNF-α.

Radboudumc Research Theme: Health Care Improvement Science

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