

**The Efficacy Of Neostigmine As An Adjuvant To Bupivacaine  
For Intrathecal Block In Reducing The Incidence And Severity  
Of Post-Dural Puncture Headache For Parturients Scheduled  
For Elective Caesarian Section: A Prospective Randomized  
Double-Blinded Placebo-Controlled Clinical Trial**

By

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CAESARIAN SECTION: *A PROSPECTIVE RANDOMIZED DOUBLE-  
BLINDED PLACEBO-CONTROLLED CLINICAL TRIAL***

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## Abstract

**Background:** Post-dural puncture headache (PDPH) is still one of the most common complications of neuraxial anesthetic techniques. After the use of neostigmine and atropine in the management of PDPH in recent publication, the role of neostigmine as a prophylaxis is questionable.

**Objective of the current study** is to evaluate the efficacy and safety of intrathecal neostigmine as an adjuvant to bupivacaine in reducing the incidence and severity of post-dural puncture headache in parturients scheduled for an elective cesarean section.

**Methods:** This prospective randomized controlled double-blinded study compared adding neostigmine 20 µg to intrathecal bupivacaine (n=105) versus a dextrose 5% placebo (n=106) for decreasing the incidence and severity of PDPH in parturients aged (20-40) years of American society of anesthesiologists physical status class II undergoing elective cesarean sections. Parturients were followed up for five days postoperative. The primary outcome was the incidence of PDPH. Secondary outcomes included VAS scores, PDPH associated symptoms, intraoperative and postoperative complications and medications.

**Results:** Incidence of PDPH was significantly higher ( $P=0.02$ ) in the neostigmine group (31.4%) compared to the placebo group (17.9%). Neostigmine also significantly increased the incidence of intraoperative nausea and vomiting compared to placebo ( $P<0.001$ ). Neostigmine increased the duration of motor and sensory block significantly compared to placebo ( $p=0.01$  and  $0.001$  respectively).

**Conclusion:** despite being a successful method for postoperative analgesia, the use of intrathecal neostigmine has major limitations and adverse effects in the form of increasing the incidence of PDPH, perioperative nausea and vomiting. Based on these side effects we do not recommend the use of intrathecal neostigmine as an adjuvant to local anesthetics in elective cesarean sections.