

**Fayoum University  
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**Efficacy of ultrasound-guided bilateral transversus thoracic muscle plane block as postoperative analgesia in adult patients undergoing open heart surgeries: a randomized controlled study.**

A THESIS  
Submitted for partial fulfillment  
Of the requirements of the MD degree in  
Anesthesia, Intensive Care & Pain Management

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2021

## *Summary*

The TTMP block was found to cover the T2-T6 intercostal nerves. The internal mammary region is supplied by the anterior branches of these intercostal nerves that dominate its sensory innervation so surgery of the anterior chest wall could be done under analgesia of this new technique.

This study was conducted at Fayoum University Hospital, Faculty of Medicine, Fayoum University on seventy patients scheduled for open heart surgery including valve replacement or adult congenital (ASD or VSD) after approval of the institutional ethics committee and written informed consent.

We used the study solution (bupivacaine 0.25% or normal saline) and a linear ultrasound probe (Philips clear vue350, Philips healthcare, Andover MAO1810, USA, Machine ID: 1385, Nile medical center, [service@nilemed.net](mailto:service@nilemed.net)) to accomplish this mission. After identification of the anatomical plane between the internal intercostal and the transversus thoracic muscles a 22-gauge short bevel needle (Spinocan, B. Braun Melsungen AG, Germany) will be inserted between the fourth and fifth ribs connecting at the sternum. The TTP block was administered by injection of 20 mL of 0.25% bupivacaine on both sides of sternum.

The primary outcome was Total opioid (fentanyl) consumption. Secondary outcomes included: VAS score for sternal pain, Time to extubation, Patient satisfaction, Hemodynamic variables, complications as nausea and vomiting, infection, hematoma or local anesthetic toxicity, ICU length of stay and Total length stay of hospital.

We found that the TTP significantly decreased the total opioid (fentanyl) consumption in the postoperative period, reducing opioid-related side effects, significant decrease (p-value <0.0001) in first rescue analgesics up to 14 hours postoperative, significant decrease in VAS scores of pain assessment and significant patient satisfaction in the block group.