SUMMARY

The treatment and alleviation of pain is a basic human right regardless of age. For a very long time in the past, children were rarely treated for pain because there was a common belief that child did not feel pain due to lack of their central nervous system maturation required for pain perception.

This concept has proved not to be true, even for the premature infants. The physiology and anatomy of nociception exist from sensory receptors in the skin to the sensory area in the cerebral cortex.

Several methods of assessing childhood pain have been developed upon the behavioral, physiological, and subjective components of pain.

Caudal epidural analgesia has been found to be a simple, safe, and effective method for postoperative analgesia in pediatric patients and it has

This been the most commonly used regional technique. Study was designed to compare the efficacy of caudal bupivacaine, bupivacaine-neostigmine and bupivacaine-ketamine mixtures in the relief of postoperative pain in children.

The study was conducted on 75 pediatric patients of both sexes with ASA physical status I or II, subjected to elective lower abdominal surgeries, and their ages were ranging between 2-14 years.

All patients were generally anesthetized by oxygen and sevoflorane delivered through endotracheal tube. At the end of surgery, while still under anesthesia, the patients had caudal epidural blocks performed and they were divided into three equal groups each composed of 25 patients, according to the type of caudally injected drug:

Group I : **25** patients will receive plain Bupivacaine **0.25%** (**0.5**ml/kg)

Group II : **25** patients will receive plain Bupivacaine **0.25%** (**0.5**ml/kg) mixed with Neostigmine **2**µg/kg.

Group III : **25** patients will receive plain Bupivacaine **0.25%** (**0.5**ml/kg) mixed with Ketamine 0.5mg/kg.

Patients were monitored along the first 24 hours postoperatively to assess analgesia using objective pain discomfort scale modified by ***Hannallah and colleagues (1987),*** associated hemodynamic and respiratory changes as well as side effects (if there was any) as respiratory depression, bradycardia, convulsions and vomiting.

In the present study, we have observed that Addition of either Neostigmine or ketamine to caudal bupivacaine significantly prolonged its analgesic effect but bupivacaine-neostigmine mixture had longer effect than bupivacaine or bupivacaine-ketamine mixture.

In patients receiving neostigmine added to caudal bupivacaine, we noticed hemodynamic stability, pain scores showing no or minimal pain, normal hormonal levels and no major complications were noticed. This analgesic effect of both drugs extends from 16 to 20 hours postoperatively.

By this thesis, epidural neostigmine has proved to be safe in the concentration used and proved to prolong the local anesthetic analgesic duration by a period that reached up to 20 hours postoperatively.