# SUMMARY

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. A cute pain e.g. postoperative pain is that type of pain, which occurs within about 0.1 second from the surgical trauma and usually ends with tissue healing. For decades children were rarely treated for pain because there was a common believe that children are somehow immune to physical and psychological effects of pain. It was believed that children do not feel pain and if they feel pain they do not remember it due to lack of their central nervous system maturation required for pain perception. Now, this assumption is not true even for the premature infants. The anatomy and physiology for nociception exists from the sensory receptors in the skin to the sensory area in the cerebral cortex. All children even the smallest neonates can experience pain thus it makes it easy to measure pain. Pain assessment is fundamental for understanding the progress and the treatment of pain.

Pain can be assessed directly by the patient or indirectly by an observer. Several methods for assessing childhood pain have

been developed upon the physiological behavioral and subjective components of pain. Acute pain increases sympathetic nervous system activity producing pupillary dilation, increase in heart rate, blood pressure and respiratory rate. Also, pain can be assessed by intermittent observation of an infant or child for verbal and non verbal pain behaviors, e.g. crying, facial expression, etc. via a rating scale. Three types of assessment techniques are available.

1- Self-Reporting scale. It requires a child have sufficient ability to indicate the degree of pain. Three types of self-reporting scales are used:

   a- Visual analogue scale (V.A.S.)

   b- Numerical rating score (NRS).

   c- Graphic rating scale (GRS).

2- Behavioral observation scores.

3- Physiology monitoring.

However pain is assessed, it is important that the level of pain and the response to treatment are regularly monitored and recorded. This allows early recognition of treatment failure and should lead to alteration in the analgesic dosage or method.

Postoperative pain management in pediatrics is done either by.

1- **systemic drug therapy which include :**

A- Non narcotic analgesics, which include Acetaminophen and NSAIDs like indomethacin, ketorolac, ibuprofen, and diclofenac. They are useful for treatment of mild to moderate pain or as an adjuvant therapy to diminish narcotic side effects.

b- Narcotic analgesics as morphine, fentanyl, methadon, codein and mepridine. Each of them has its specific dose and route of administration. The opioids may be administered intramuscularly, intravenously, epiduraly, oraly, rectaly or even transdermal. In each age group of pediatics, it is pereferable to one of the previous routes of administration according to their pain severity, type of operation and their ability to follow the instruction and the consious level. Intravenous and epidural administration of opioids for postoperative

pain relief in pediatrics can be achieved by bolus injections or by continuous infusion through patient controlled analgesia system.

C- Performance of regional block used for preoperative, operative or postoperative analgesia. Regional anaesthesia causes fewer side effects such as nausea, sedation or respiratory depression compared to those receiving systemic opioids. So regional anaesthesia is becoming increasingly popular in pediatric anaesthesia. In older children, regional techniques are being increasingly used because they provide unparalled pain relief with preservation of consiousness and lack of respiratory depression. Regional block may be either peripheral or central neural block peripheral neural block include direct wound infiltration with local anaesthetic, the use of brachial plexus block for the operation in the upper limb and to provide postoperative analgesia. Also ile-inguinal and ileo-heypogastric nerve block are used for herniorrhaphy operation in pediatrics and penile block for circumcision and simple hypospadies repair. Central neural block includes spinal, epidural or caudal analgesia. The

duration of analgesia is no more than 3-4 hours, this is insufficient for postoperative analgesia so introduction of indwelling catheters into the (epidural) space allowed repeated dosing and hence postoperative pain control for long period. Combination between opioids and local anaesthetics allowed decreased amount of each drug and so minimize the incidence of side effects of each drug.

3- Special technique in postoperative pain relief in pediatrics like the use of cryo-analgesia, transcutaneous electrical nerve stimulation, acupuncture with the help of psychological support, hypnosis and music. All these techniques have been used successfully and are associated with improvement in the postoperative experience and less side effects