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PAIN MANAGEMENT AND NON-PHARMACOLOGICAL ANALGESIA IN PEDIATRIC EMERGENCIES

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Summary: Pain is defined as all those unpleasant emotional and sensory experiences associated with actual or potential tissue damage (International Association for the Study of Pain, IASP). The experience of pain begins from the moment children go to the emergency room: the very discomfort of the disease itself, the fear of the unknown, physical exploration and of course, the completion of complementary examinations. Also, this fear is increased if, at any time, they have to be separated from their parents. This allows us to see the importance of the humanization of these procedures.

Keywords: Pain, non-pharmacological analgesia, emergency.

METHODOLOGY

A bibliographic search has been carried out in the central databases such as Pubmed, Scielo, Cochrane and Google Academic, with no temporal criteria. Articles have been selected in both Spanish and English. Also, different publications of the Spanish Society of Pediatric Emergencies (SEUP) and the Spanish Association of Pediatrics (AEPED) have been consulted.

IMPORTANCE OF THE TOPIC

It was once thought that children did not experience pain. Today it has been proven that they not only experience pain but share it to a greater extent. Thus, in newborns, the mechanisms of pain transmission to the cerebral cortex are well developed. In contrast, the means of downward inhibition have not fully matured, causing hypersensitivity to the painful stimulus and experiencing exaggerated physiological and hormonal responses to this same stimulus than those shown by older children or adults (Adrian Gutierrez et al., 2009).

Also, newborns can remember these painful experiences, showing less tolerance to pain at later ages (Míguez Navarro et al.,2018).

Although in recent years the treatment of pain is taken as a primary part of care, there are some obstacles to its evaluation, such as the impossibility of verbalization of the painful experience, the belief of masking other symptoms, the poor management in the use of some analgesics and their possible adverse effects, etc. (Míguez Navarro et al.,2018).

SCALES

Due to all of the above factors, there is a need to evaluate these signs to confirm the presence of pain and its severity and to adjust the type of analgesia/sedation. For this, we have different scales:

Objective scales (Bárcena Fernández et al., 2012):

1. **FLACC Observation Scale (Face, Legs, Activity, Cry, Consolability)**: Consider the following items: **face,** leg movement, activity, crying, controllability. Rate the items on a scale of 0 to 2, to obtain points from 0 to 10.

Category	0	1	2
Face	Absence of expression or smile	Frowning or frowning Feels withdrawn and indifferent	Trembling chin, contracted jaw
Legs	The regular and relaxed position	Uncomfortable, restless and tense	Kicking or leg lifts
Activity	Calm and normal	It squirms, sways forward and backwards. Tense	Arched body. Stiffness or unsteady movements.
Crying	Absence of this one.	Whining or grimacing	Constant crying, screaming and frequent complaints
Consuelo	Calm, relaxed	He calms down when touched, hugged or	Difficulty of consolation

		spoken to.	

2. **Pediatric Objective Pain Scale**: The parameters it assesses are blood pressure, crying, movement, agitation and pain complaints. It has a score of 0 - 2 each item, resulting in a scale of 0 to 10.
3. **Observational Scale of Behavioral Distress (OSBD)**: Contains 11 indicative behaviours of distress, rated 1-4. There is a revised version (OSBD-R) with 11 categories.

4. **Child-Adult Medical Procedure Interaction Scale (CAMPIS and CAMPIS-R)**: Based on above. It assesses behaviours before, during, and after interactions with the physician.

5. **Procedure Behavior Checklist**: scores eight behaviours on a scale of 1 to 5, depending on whether or not they occur before, during or after the procedure

Subjective scales:

1. **Visual Analogical Scale (VAS)**: On one line the child indicates the degree of pain, pointing at one end to the absence of pain and the other end to the maximum pain imaginable. It is a reliable and useful measure of acute pain in the emergency department; although this scale can be affected by factors such as age, verbal fluidity, visual acuity, motor function and cognitive capacity. It requires some degree of cognitive development, so it is recommended for use in children seven years of age and older. One variation is the coloured scale, useful between 3 and 7 years of age where pain intensity is represented by colour intensity.

2. **Facial drawing scales**: The child expresses his pain by identifying himself with different faces. The Wong-Baker facial plate has six faces, scored from 0 to 10. Some studies show a relationship between the Wong facial scale and VAS, making it a useful tool for measuring pain in preschoolers who come to the ER. Another plate of faces would be the Oucher scale, which can be used from the age of 3.

3. **Verbal scales**: this is the most useful measure of pain in adults. In children, it can be used from 7 years old if they have an excellent cognitive level. There is a choice between different levels of pain: No pain - mild pain - moderate pain - severe pain - unbearable pain, scored from 0 to 10.

4. **Numerical scales**: Quantification of pain from 0 to 10. It is limited by age and intellectual development.

Up to 3 years is better to use accurate scales. Between 3 and 7 years of age, face or colour scales can be used. Visual, verbal and numerical analogue scales are more reliable from age 7.

If analgesia is used to perform a procedure, the degree of it should be evaluated before starting the process. Four levels of analgesia can be established, and it is considered that the operation can be created when level 3-4 is reached.

EMERGENCY MANAGEMENT

Regarding pain management in the emergency room, several aspects are essential. One of them would be the anticipation of the painful experience, and another would be the correct use of the method we use since as we will see below, the use of drugs is not always necessary.

Some of these techniques would be:

Breastfeeding (Valero & Calvo, 2017): the effects at the physiological level would be a decrease in heart rate and duration of crying in infants from 1 to 12 months, among others. To do this, we must place the infant to the breast at least 15 minutes before the procedure, not interrupt it during the process and continue it at least two minutes later. The mechanism of action may be due to different reasons, such as containment, skin-to-skin contact, the taste itself of the breast milk, distraction and the hormonal induction that this entails.

In the case of vaccinations, it reduces the pain of administration concerning 1 or 2 vaccines. It also affects the technique of heel pricking. In case breastfeeding is not possible, the importance of containment along with non-nutritive suction is evidenced (Saitua Iturriaga et al., 2009).

Oral Sucrose: Consists of the administration of oral sucrose solutions or others such as glucose or dextrose at different concentrations, about 2 minutes before performing the invasive procedure. It lasts for approximately 7 minutes. There is plurality concerning the volumes to be administered. The limit of reliable analgesia is at 12 months of age; beyond this time, its effectiveness is not apparent.

Sucrose is useful in specific procedures such as heel lance, venipuncture and intramuscular injection in both preterm and term children. No adverse effects are evident, although no consensus can be identified regarding the correct dose. There is also evidence that sucrose, in combination with other non-pharmacologic interventions such as non-nutritive suction, is more effective than sucrose alone. More evidence is needed on the use of sucrose in large, unstable, or mechanically ventilated premature infants. There is a need to determine the effect of sucrose during the painful experience and the development of repeated administration in the short and long term (Stevens, Yamada, Ohlsson, Haliburton, & Shorkey, 2016).

Kangaroo method or skin on skin (Raies, Doren, & Torres, 2012): It emerged in 1978 in Bogotá (Colombia) due to the lack of incubators and economic resources in the neonatal services of public hospitals. It was based on prolonged skin-to-skin contact and nutrition through breastfeeding of low-birth-weight premature infants. This is how it was found to be a very beneficial method for preterm and term infants for

thermoregulation, neurological development, mother-child relationship, child development and decrease in days of hospitalization. It is considered by health professionals as a safe method that can be incorporated into standard care, favouring the humanization of care.

The technique consists of placing the newborn baby half-naked or with the diaper in a central position on the mother/father for as many hours as possible. The head would be turned to one side and slightly extended, hips and arms flexed and legs extended. The supine position there is evidence that increases the perception of pain in the face of any painful stimulus. There are also benefits to listening to the parent's heartbeat by the newborn (Cabrejas & Ureta, 2014).

Facilitated Tucking (Valero & Calvo, 2017): We would keep the newborn in a lateral position, with arms and legs bent and close to the trunk, simulating the posture of the maternal uterus.

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