

*Pediatria*

## IS THERE AN IDEAL METHOD TO ASSESS POSTOPERATIVE PAIN IN NEONATES?

Many different types of surgeries are performed in neonates and postoperative (PO) pain is an expected event which deserves adequate control. Assessment is the first step to achieve good management of PO pain. However, pain assessment in neonates is a difficult task, since these patients cannot verbally communicate pain other methods are needed to confirm presence of pain during the PO. This includes physiological and behavioral alterations as a result of pain as well as specific tools for pain assessment.

Physiological changes related to pain, e.g., alterations in heart and respiratory rates, blood pressure, arterial oxygen saturation and vagal tonus are most specific for neonatal PO pain diagnoses<sup>1</sup>. On the other hand, behavioral changes such as crying, grimacing, agitation, excessive movement of limbs and muscle tension can be used for PO pain assessment. However, they are considered more specific for procedural pain evaluation, e.g. venepuncture and heel lance<sup>1</sup>. The most challenging aspect related to use of these changes as indicators of PO pain is to identify whether the alterations are related to pain, PO complications or therapeutic interventions. Agitation can occur as a result of hypoxemia but use of sedative drugs may reduce behavioral changes. Vasoactive drugs can lead to tachycardia and increase of blood pressure. Furthermore, tachycardia may also be a symptom of hypovolemia.

Tools for PO pain assessment in neonates are classified as unidimensional (only behavioral changes are considered as pain indicators) or multidimensional (physiological and behavioral changes related to pain). Examples of some other tools are: 'CHIPPS' (which considers crying, facial expression, posture of trunk, posture of legs and motor restlessness)<sup>2</sup>, 'CRIES' (which is an acronym for Crying, Requires oxygen to maintain a

saturation > 95%, Increased blood pressure and heart rate, Expression, Sleep state)<sup>3</sup> and 'The Comfort Scale' (in which variables are: alertness, calmness/agitation, respiratory response, physical movement, mean arterial pressure, heart rate, muscle tone and facial expression)<sup>4</sup>. Although these are simple and useful tools there is no correlation between pain scores and the treatment required, a limitation of these measurement methods. Therefore, none of these tools is considered ideal.

PO pain is a recurrent phenomenon that occurs during different types of surgical procedures, ranging from minor to extensive surgeries. Satisfactory pain control improves results of the procedures and minimizes the recovery period. Thus, assessment of PO pain is fundamental for PO care. PO pain assessment in neonates is challenging which not only requires scientific knowledge but also professional ability to perceive real symptoms of pain. The methods presented may be useful however, none is considered a gold standard. That is why association between indicators (physiological and behavioral) and specific tools for neonatal pain assessment seems to be the best and most complete strategy for PO pain assessment in neonates to date.

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### References

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