Pain Assessment in Children

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Introduction

Pain is a subjective experience, making assessment complex. In children, the wide range of ages and developmental levels as well as physiological, psychological and sociocultural factors must be considered. A child's self-report may be supplemented with observations from parents and professional caregivers, but self-report is still the single most reliable indicator [1].

Pain measurement, which is narrower but more specific and numeric, is an important part of the wider assessment of pain. Pain measurement in children has been the subject of considerable research effort in recent years and includes aspects of intensity, frequency, duration and level of disability. Three pain assessment measures are briefly described: physiological, behavioural and self-assessment, as well as the inclusion of a paediatric pain profile (PPP) (table 1).

Physiological Measures

There is no single clear physiological measure that correlates with pain. Heart rate, blood pressure, oxygen saturation and steroid levels have all been explored. None has proved to be sufficiently reliable, sensitive and specific, particularly for chronic rather than acute pain. Any degree of accuracy involves invasive techniques that are not practical in routine care of children.

Behavioural and Self-Assessment Measures

Although indirect, behavioural measures are the only approaches that can be used in babies, the very young, and those with severe neurological problems. Depending upon age, developmental level and sociocultural considerations, some children will be able to use scales and descriptions that are identical to adults', such as numerical and visual analogue scales. A variety of scales featuring face scales, colour and poker chip tools and ladders have been adapted for younger children [2]. The range of tools available utilise a combination of aspects of cry, facial expression, posture, body movements and verbal expression. The limitations are that these measures may not discriminate clearly between pain and distress for other reasons. Different tools have been developed for different situations; most have been tested for reliability and validity. The behavioural changes that occur with acute pain seem to differ from those in chronic pain. All these tools are proxy measures using the parents' or professional's assessment, not the child's personal experience. Body charts, drawing and play give children the opportunity to explain more about their pain in ways that might be easier for them than verbal description. Nevertheless, self-report remains the most reliable method.

A detailed pain history can provide information about pain and indications as to whether it is visceral, bony or neuropathic in origin. Precipitating and relieving factors may add to the clues about origin. Since past experience of pain may be significant, it may influence pain management. For chronic pain, diaries can help provide a long-term profile.

Table 1. Pain scales

Type of pain	Pain scales	Reference
Acute and procedural pain	Children's Hospital of Eastern Ontario Pain Scale (CHEOPS)	McGrath et al. [3]
Neonatal pain	Neonatal Facial Coding System (NFCS)	Gruneau and Craig [4]
Chronic cancer pain	Douleur Échelle Gustav Roussy (DEGR)	Gauvain-Piquard et al. [5]
Severe neurodisability	Paediatric Pain Profile (PPP)	Hunt et al. [6]

Paediatric Pain Profile

The PPP is a new tool developed and tested specifically for use with children who have severe neurodisabilities, a neglected group whose pain has been particularly difficult to assess. It provides a record made by the parents with a full pain history, profile and score for the well and sick child (prevalence, frequency, severity and sources), including types of cues parents and staff used to identify pain (vocal, movement/posture, facial expression, social/psychological, eating and sleeping, avoidance, and physiological). The PPP enables families to assess changes and communicate them more effectively to medical staff who do not know the child as well. It is available free on the web at www.pppprofile.org.uk.

Conclusion

The subjective experience of pain compounds the difficulty of assessing its source and intensity. Pain assessment measures should be appropriate to the child's age, developmental level and the situation, using self-report when possible. Very young and severely disabled children need a behavioural approach. The differences between acute and chronic pain need to be recognised. A comprehensive pain assessment of the child and family is essential. A pain history can provide information about chronic pain.

References

- 1 Pasero C, McCaffery M: No self-report means no pain-intensity rating. *Am J Nurs* 2005;105:50–53.
- 2 Gaffney A, McGrath PJ, Dick B: Measuring pain in children: developmental and instrument issues; in Schecter N, Berde C, Yaster M (eds): *Pain in Infants, Children and Adolescents*, ed 2. Philadelphia, Lippincott Williams and Wilkins, 2003, pp 128–141.
- 3 McGrath PJ, Johnson G, Goodman JT, Schilling J, Dunn J, Chapman J: CHEOPS: a behavioural scale for rating postoperative pain in children; in Fields HL, Dubner R, Cervero F (eds): *Advances in Pain Research and Therapy*. New York, Raven Press, 1985, pp 395–402.
- 4 Gruneau RVE, Craig KD: Pain expression in neonates: facial action and cry. *Pain* 1987;28:395–410.
- 5 Gauvain-Piquard A, Rodary C, Rezvani A, et al: Pain in children aged 2–6 years: a new observational rating scale elaborated in a paediatric oncology unit – preliminary report. *Pain* 1987;31:177–188.
- 6 Hunt A, Goldman A, Seers K, Crichton N, Mastroyannopolou K, Moffat V, et al: Clinical validation of the paediatric pain profile. *Dev Med Child Neurol* 2004;46:9–18.