

How to Assess Paediatric Pain and the Problems Associated with its Management

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Summary

The aim of this article is to outline how pain is assessed in children; including self-report, biological markers, and behavioural assessment. It will also identify some of the many problems associated with managing pain in paediatric patients, and the ways health professionals can overcome these issues. I hope this will give some understanding of how pain is most effectively assessed in children, and the best ways to overcome the problems associated with its management.

Introduction

The International Association for the Study of Pain defines pain as “An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”¹. Yet another definition was introduced by Margo McCaffery in 1968, stating “Pain is whatever the experiencing person says it is, existing whenever he says it does”². In my opinion the latter definition is the most suitable in health care practice, as it is well known that different people experience pain in different intensities depending on experience, culture, gender, etc. If patients say they are in pain, it should be acknowledged and managed as best it can. But a problem arises when a patient cannot tell the doctor that they are in pain, or where the pain is. This happens a great deal in children, and shows a flaw in both of the definitions above. There is a great deal known about pain, and how to manage it; with more studies being carried out each year giving improved findings; yet research also suggests that the prevalence of childhood pain continues to increase³. This article seeks to outline the assessment of pain in children and the problems associated with its management.

Assessing Pain in Paediatric Patients

Assessing pain in children is obviously more difficult than in adults, especially in non-verbal children. “Pain can be measured by self-report (what children say), biological markers (how their bodies react), and behaviour (what children do)”⁴. Although self-report is said to be the most useful guide to assessment⁵, this is only available to be used on children that are able to express their pain. There are many assessment tools available which incorporate these three ways of measuring pain, depending on the child’s competence, ability, and age.

Self-Report

As a general rule, self-report can be used by children aged three years or more⁶. The faces scale is a widely used tool in younger children to assess the degree of pain. Health care professionals can then base their treatment of the pain based on this. Figure 1 shows an example used in clinical practice, the Wong-Baker Faces Scale⁴. The child points to the face they are feeling most like, and this corresponds to a numeric scale, and a phrase. If a child says they are in pain it should be taken seriously, no matter what the age or competency of the child.

Another self-report tool that is largely recognised in practice, for children aged four or five years, is Hester’s Poker Chip Tool⁴. The child is given poker chips, and they are described as pieces of hurt; the child is then asked how many pieces of hurt they have.

In children aged eight years or more, a visual analogue scale is used for self-report. This uses a 10cm line with one end labelled as no pain, and the other as the worst pain. The child is told how to use the tool, and then puts a mark on the line which is measured in cm from the no pain line⁶.

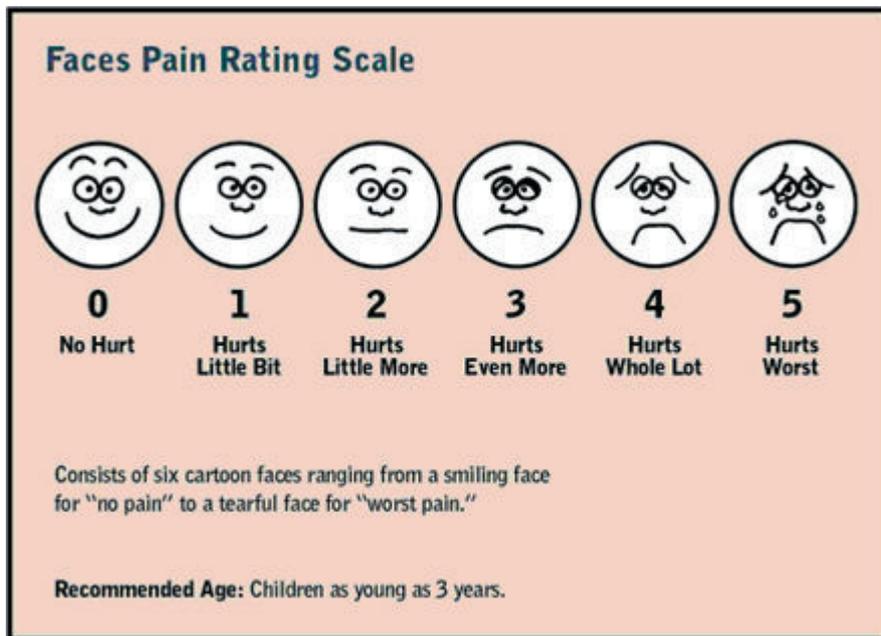


Figure 1. Wong-Baker Faces Pain Rating Scale⁴.

A study was conducted to compare observational pain assessment and self-report in paediatric triage⁷. The study had two outcome measures: the difference in pain scores between observational assessment and self-report; and the difference in pain scores between waiting room and triage. The Alder Hey Triage Pain Score (AHTPS) was the observational scoring tool used, and the self-report tools were the Wong-Baker Faces Scale, for ages three to seven, and Visual Analogue Scale, for ages 7-15. It was a single-blind study, where one researcher did both assessments in the waiting room, and then another researcher, without conversing with the other, did both assessments in the triage room within 20 minutes. The results concluded that observational pain assessment underestimates children's perception of pain; and that triage has a calming effect on children. The children rated their own pain higher than the observer; which could easily lead to a child being in unnecessary pain if both tools are not used.

This study shows a limit to assessing pre-verbal children; as they cannot use self-report tools,

so their pain assessment is purely based on observation. The study had advantages and disadvantages. The assessors were trained in using the AHTPS, and their ability to use the tool was assessed by comparing the nurses' use of the tool and the researchers' use. The data were managed and analysed using computer software, giving a better reliability. The researchers were blind to each other's data for the secondary outcome measure. The study had many limitations, however. The children used in the study were not well matched on age, gender, type of pain, or location of pain. The sample was

also relatively small, only using 75 patients. There was no consistency to whether pain was first evaluated in triage or in the waiting room; therefore the results could be skewed due to time delays.

In clinical practice, this study could be used; as clinicians can now be aware that their observational tools are not sufficient, and that the child could still be in more pain than the observer thought. I do however believe that similar research should be conducted with more participants and control of limitations; so that it can be correctly concluded that observational assessment is not accurate, and therefore new assessment tools can be developed based on its results.

Biological Markers

The use of biological markers can be used to a degree in children whether they can talk or not. For short sharp pain the heart rate initially decreases then increases again⁴. The limitations of using this marker are that heart rate may not rise much in older children, it cannot be used to assess chronic pain and ill and premature babies have less predictable responses.

Oxygen saturation is also used as a biological marker, and is used widely in neonatal intensive care. During painful procedures oxygen saturation decreases, but in neonates this can also occur during moving and handling⁴.

Plasma cortisol levels increase during stressful experiences such as pain⁴. This can be measured but has its limitations. For example, when taking a blood sample the levels can increase, and in ill children these levels will be high anyway.

Blood pressure also increases in response to pain, yet this is limited to acute episodes of pain and cannot be used to measure chronic pain⁸.

Although biological markers can be useful in the assessment of pain in pre-verbal children; they are not without their limitations, and should be used with caution and with other assessment tools.

Behaviour

Assessing a child's behaviour is a good way to assess pain. The child's face will be grimacing and usually crying if in pain. The fists will be clenched, and the child could be touching the place it hurts. The child will usually be unsettled, inconsolable, and tense in posture. All these show signs that a child is in pain. Many assessment tools have been developed to score these behaviours to give a pain rating in children who cannot self-report. An important thing to mention is that nurse and parental opinion should be taken into consideration, as these are the people who know the child best. Examples of pain assessment tools are given below; but most hospitals develop their own tools based on these shown below.

CRIES is an assessment tool which includes both behavioural assessment and biological assessment. It assesses the crying of the child, oxygen saturation, vital signs, facial expression, and sleep quality. This scale is most useful for neonate post-operative pain assessment⁶.

A purely behavioural tool used is FLACC. This assesses facial expression, leg position or movement, activity, crying, and consolability. It is validated to be used from the ages of two months to seven years⁶.

Another tool used is NIPS (Neonatal/Infants Pain Scale). This is mainly used in children under the age of one. It assesses facial expression, crying, breathing pattern, arms, legs, and state of arousal. These are observed for one minute intervals before, during, and after a procedure. It is then scored numerically. The limitations are that a falsely low score could be seen in an infant who is too ill to respond, or taken a paralytic agent⁹.

Associated Problems in Paediatric Pain Management

In this section of the report, I will investigate the problems that health care professionals encounter when attempting to care for the child in pain. I will also give my opinions on how some of these problems can be overcome, so that there is an improvement in the quality of life of the child in pain.

Research

A major flaw in the management of paediatric pain is the small evidence base. Pharmacological and non-pharmacological interventions are rarely tested on children due to ethical issues: it is difficult to obtain informed consent from a patient who is not deemed to have capacity or autonomy. The guidelines state: *For therapeutic research, a competent child or person with parental responsibility can give consent. For non-therapeutic research, the procedure cannot go ahead if the child withholds consent, irrespective of their age and of the views of those with parental responsibility*¹⁰. Parents will often not give consent to research as they believe it may be harmful to the child physically and psychologically, or they may withdraw their

child from research early due to it not giving the desired effect. It is therefore difficult for medical staff to base their management of paediatric pain on evidence as would usually be done for adults. Paediatric pain management is therefore mainly based on experience of the professional and feedback from the parent and child.

Assessment

An obvious difficulty in the management of pain in children is in assessing its severity and location especially in the non-verbal child. There have been many techniques developed for the assessment of pain in children, as describe above, yet the prevalence of pain is still increasing³. This shows that these methods may not be serving the purpose. It has been identified that children aged between five and nine and a half years would use several unusual words to describe their pain, including 'yucky', 'dizzy', 'snow', and 'sausage'¹¹. This finding in verbally incompetent children suggests that health professionals need to become more familiar with childhood language and how to interpret it. It was also found that verbal children may choose not to reveal their pain, as they may be fearful of the intervention; for example, a large needle for a nerve block or nausea from opioid use. As with adults, intensity of pain is subjective, yet with children using a pain scale is difficult as they have less experience of pain. For example a child who has never had a very painful experience may put a 'stubbed toe' at pain level 10, as it is indeed the worst pain ever felt to them. If analgesia were given based on this assessment it would be too strong, and the side effects would far outweigh the benefit of the pain relief. In very young children, the same assessment tools cannot be used, as they cannot point at a 'smiley face' or tell you where the pain is or how much it hurts. This leaves the assessment to be done by the health care worker using their own experience of the child and pain, the parents' opinions and the body language of

the baby. Problems arise when parents perceive that their child is in more pain than they actually are, and therefore the child is given analgesia higher on the WHO ladder¹².

Parents

As a younger child is almost always accompanied by a parent who makes decisions on their behalf this can lead to problems in both assessing and managing the pain. The issue of the parents' perception of their child's pain is outlined above. Whilst speaking to a paediatric anaesthetist, I was made aware that although most children are sent away from hospital after surgery with analgesia; a lot is just left in the cupboard and not actually given to the child. This is because the parents are wary of side-effects - addiction, nausea or drowsiness - or because the child does not ask for the medication. Again, the opposite problem can occur, where the child stays on pain relief for longer than necessary as the parent continues to give it to them due to their own perception that the child should be or is still in pain when this is not the case. A specialist nurse to whom I have spoken described a problem encountered when children are given morphine PCA pumps to use. As outlined in the management section, a PCA has a safety net to prevent overdose if the patient falls asleep. The nurse informed me that some parents with good intentions continue to push the button for the child when they are asleep so that they do not wake up in pain not realising that this can lead to significant toxicity.

To overcome the problems that occur with parents, education about their child's condition and management should be given by the staff involved in their care. If the parents are educated about how the PCA works and told that only the child should push the button, toxicity could be avoided. If the parents are given a training session on how to assess their child's pain and to continue asking them how they are feeling, medication will be given only when necessary,

and the child's care will be better suited to their needs.

Distraction

Many clinicians use distraction therapy as a way of managing pain in children. This is done by using play, colouring, stories, music, etc. to push the child's pain to the peripheries of their awareness. This, however, can pose a problem as health care professionals and parents can perceive that a child who is playing and sleeping is not in pain¹¹. The child who is playing all day to push their pain to the periphery of their awareness can sleep due to exhaustion and still be uncomfortable. This leads to children not being given the correct analgesia to manage the pain that is still troubling them.

This is a difficult problem to overcome, as to remove the distraction therapy can be more harmful to the child both psychologically and physically. If the distraction therapy is indeed taking away the child's pain, it should be continued, but the child should be asked regularly if they are in pain and if they would like something to take it away. The main aim is to manage the pain, whichever way works best for the patient, but this is experimental and subjective for each child. The underlying pain should not be ignored just because the child appears to be comfortable.

PRN Dosing

It has been suggested that children may not realise that there is an alternative to experiencing pain¹¹.

A problem arises when the child just 'puts up with' the pain rather than asking for help. The trouble with children is they are dependent on adults for their needs to be taken care of, including the management of pain. The issue with prn dosing is that the child has to ask for the pain relief to be given it by nurses or parents. In a child who has been dependent on their parents

feeding them, sending them to bed, and bathing them at set times instead of when hungry tired or dirty, they are likely to expect to have the analgesia given to them instead of having to ask for it. Therefore if nobody gives them pain relief, they may just continue being in pain as they are unaware that they can ask!

A way to overcome this is by using PCA, and explaining to the child that if they are in pain they either need to push the button or tell someone. If explained correctly, and with experience, the child will begin to understand the procedure of making the pain go away. By using interval dosing instead of prn if the child does not ask for relief, their pain will be managed more effectively. If this is used with an assessment tool to make sure that the child is not using analgesia when it is unnecessary, the child's quality of life could be improved.

Conclusion

In an ideal world we would be able to manage a child's pain without complication, and no child would be in pain unnecessarily. However this is not true in real clinical practice. There are many more limitations to pain management in children than in adults due to their limited ability to verbalise pain, their anxiety, fear and dependence on parents and caregivers. Furthermore most children in pain are also ill, so their biological markers are skewed. Using simple measures such as educating children, health care professionals and parents, and communicating effectively with these people can help to overcome some issues faced by clinicians. But there are still many problems yet to be defeated. In future I would hope that the rates of childhood pain will decrease and that pain can be assessed correctly and therefore managed effectively. By conducting further research, and carefully monitoring the current patients, we can move closer to the pain management goals we would like to achieve.

References

1. IASP. *IASP Taxonomy*. http://www.iasp-pain.org/AM/Template.cfm?Section=Pain_Definitions (accessed 04/02/2013).
2. McCaffery M. *Nursing practice theories related to cognition, bodily pain, and man-environment interactions*. 1st ed. Los Angeles. UCLA Student's Store; 1968
3. IASP. *Chronic Pain in Children and Adolescents Becoming More Common*. http://www.iasp-pain.org/AM/Template.cfm?Section=Media_Office&Template=/CM/ContentDisplay.cfm&ContentID=15003 (accessed 04/02/2013).
4. Patrick J McGrath. Pain Measurement in Children. *Pain, Clinical Updates*.1995;3(2)
5. Behrman R. Pain Management in Children. In: Fletcher, Krehling (eds.)*Textbook of Paediatrics*. 16th ed. Pennsylvania: W.B. Saunders; 2001. p192-197
6. Walker G, Arnold R. *Paediatric Pain Assessment Scales*. http://www.eperc.mcw.edu/EPERC/FastFactsIndex/ff_117.htm (accessed 05/02/2013).
7. I Shavit, M Kofman, M Leder, et al. Observational Pain Assessment versus Self-Report in Paediatric Triage. *Emergency Medicine Journal*.2008;25:552-555
8. Chawla P, Kochar M. Effect of pain and nonsteroidal analgesics on blood pressure. *WMJ*.1999;98(6):22-25
9. Lawrence J, Alcock D. *The development of a tool to assess neonatal pain*.. www.cebp.nl/vault_public/filesystem/?ID=1426 (accessed 06/02/2013).
10. Lynch J. *Consent to Treatment*. 1st ed. UK. Radcliffe Publishing; 2011
11. Thomas V. *Pain, Its Nature and Management*. 1st ed. London. Bailliere Tindall; 1997
12. WHO. *WHO's Pain Ladder*. <http://www.who.int/cancer/palliative/painladder/en/> (accessed 06/02/2013).

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