

Pediatric Pain Letter

Abstracts and Commentaries on Pain in Infants, Children, and Adolescents

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G. Allen Finley M.D. FRCPC
Dalhousie University and IWK Grace Health Centre
Halifax, Nova Scotia, Canada

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Editorial

Families

The commentary by Chambers and Craig on parents' rating of children's pain highlights the need for pediatric pain research to focus on families. Families form an important part of the matrix in which pain is experienced. As clinicians dealing with pain, we are constantly interacting with families and dealing with the way they impact on and are influenced by their children's pain. For this reason, the *Pediatric Pain Letter* has had several commentaries on families. In the first issue (volume 1, number 1) Allen Finley covered parental management of children's postoperative pain. In volume 1, number 5 Carl von Baeyer reviewed the data on parents being with their children during painful procedures and in volume 2, number 3, Christine Lilley examined whether chronic and recurrent pain is passed down in families. However, when I survey the available literature in the journals, I am surprised that the research on families is so scant.

Chambers' commentary makes it clear that more needs to be known about parents' rating of their children's pain. However, we also know virtually nothing about how parents influence children's disability from pain. Is disability from pain transmitted in families? In what way?

Although there are some studies on aggregation of pain in families, there is little on the mechanisms by which this occurs.

Clinically, it seems that families are important in teaching children how to manage their pain. But we know little about it. For example, we do not know how coping strategies are learned in the family.

As clinicians, we advise parents to give medications for pain. Oftentimes this requires judgement on the part of the parents. We know almost nothing about how they make these decisions. As well, are attitudes about medication learned in the family?

Many children's health centres have made considerable efforts to improve families' involvement in their children's care. Does this improve pain management? What types of lobbying, advocacy, or involvement by parents changes pain management?

In what ways can parents assist their adolescent children to learn psychological methods for managing pain such as headache? Are there family interventions that would assist in management of pain problems? Do some styles of parental behaviour increase reaction to painful events?

Unfortunately, when we speak of families in pain research, we often mean only mothers acting alone. Fathers and siblings and the interactions among members of the family have been entirely ignored. We need more data because we see the issues in the clinic and on the wards every day.

Abstracts

Parents as judges of their children's pain: Are they accurate?

Bellman, M.H. & Paley, C. (1993). Parents underestimate children's pain. *BMJ*, 307, 1563.

Objective. To determine the potential usefulness of a children's self-report questionnaire in assessing post-operative pain.

Design. Survey.

Setting. Royal National Throat and Ear Hospital, London.

Participants. Sixty-six children and 57 parents.

Tonsillectomy, adenoidectomy and insertion of grommets accounted for 95% of the children's operations.

Main Outcome Measures. Children and parents were given separate questionnaires assessing various aspects of the hospital (e.g. play facilities, food), particularly pain and pain management. The questionnaire used for the children was short and simple with answers to be indicated on cartoon illustrations and space was provided for children to add their own drawings.

Results. Parents tended to underestimate their children's pain; "a lot of pain" was reported by 51% of the parents compared to 62% of the children. Seventy-six percent of the children were able to indicate the site of their pain (e.g. throat, nose, ears) as expected from their surgical procedures.

Conclusion. Although children are capable of describing their pain, parents tend to underestimate the extent of their children's pain. Increased awareness among healthcare workers regarding the presence of post-operative pain in children, their ability to describe that pain, and their parents' tendency to underestimate that pain is a fundamental component in maximizing pain management.

Bennett-Branson, S.M. & Craig, K.D. (1993). Post-operative pain in children: Developmental and family influences on spontaneous coping strategies. *Canadian Journal of Behavioural Sciences*, 25(3), 355-383.

Previously abstracted in Pediatric Pain Letter, Vol.1, No.1; p.2.

Chambers, C.T., Reid, G.J., Craig, K.D., McGrath, P.J. & Finley, G.A. (1998). Agreement between child and parent reports of pain. *The Clinical Journal of Pain*, 14, 336-342.

Objective. To determine agreement between child- and parent-rated pain measures following minor surgery.

Design. Repeated measures survey.

Setting. Tertiary care children's hospital.

Participants. One-hundred and ten parents and their children (56.4% male; mean age=9.4 years, SD=1.8 years). Children had undergone minor surgical procedures such as tonsillectomy, adenoidectomy, eye muscle repair, circumcision and myringotomies. Inclusion criteria required that parents provided post-operative care for the 3-day study period, children did not have chronic medical conditions and were not developmentally delayed.

Main Outcome Measures. Parents provided demographic information and socioeconomic status (SES) was calculated using the Hollingshead Index. Both children and parents recorded pain using a 7-point Faces Pain Scale. Ratings were completed for the time period between supper and bedtime on the day of surgery. For the two days post-surgery, ratings were completed for one of three randomly assigned time periods; between breakfast and lunch, between lunch and supper or between supper and bedtime.

Results. Pearson correlations and inter-class coefficients (ICCs) between children's and parents' reports for each of the three days were both high in magnitude and statistically significant (Pearson $r=0.68-0.76$, $p<0.001$; ICCs= $0.66-0.76$, $p<0.001$), however, parent and child agreement was low (Kappa values, range= $0.18-0.32$, $p<0.001$). Paired sample t-tests indicated that parents tended to underestimate children's pain on the day of and day after surgery (day 1, $t(103)=1.71$, $p<0.10$; day 2, $t(103)=1.87$, $p<0.05$), but not on the second day following surgery. For each of the 3 days children's and parents' pain ratings were collapsed into 2 groups; a low pain/no pain group and a clinically significant pain group. Kappa statistics indicated fair to good agreement for children and parents within these 2 groups (range= $0.40-0.61$).

Conclusion. Correlations between children's and parents' reports of pain do not accurately represent the relationship between pain ratings. Although parents can identify non-clinical pain in their children, many parents cannot identify clinically significant pain. As a result, pain ratings by parents tend to underestimate clinically significant pain in children. Parental reports of children's pain should not be taken alone, instead they should be augmented with the child's self-report of their pain. However, assessing agreement between child and parent reports of pain is a complex issue that requires sensitivity to statistical techniques as well as sample characteristics. Future research should investigate factors that influence parent and child agreement of pain experience.

Manne, S.L., Jacobsen, P.B. & Redd, W.H. (1992). Assessment of acute pediatric pain: Do child self-report, parent ratings and nurse ratings measure the same phenomenon? *Pain*, 48, 45-52.

Objective. To identify the factors associated with child, parent and nurse ratings of pediatric pain/distress during venipuncture.

Design. Survey using observational ratings.

Setting. Pediatric division of a cancer centre.

Participants. Eighty-five parents (67 mothers, 18 fathers) and their children (43 boys; mean age= 6.2 years, $SD=2.1$; range: 3-10 years). Children were cancer patients undergoing venipuncture to obtain blood samples, administer chemotherapy and/or start an intravenous line.

Main Outcome Measures. Measures employed were obtained from 4 sources; independent raters, parents, children and nurses. Prior to venipuncture, parents rated their own anxiety using the Trait Anxiety Inventory and a visual analogue scale (VAS). Parents also rated children's level of fear and the amount of pain they felt their children would experience in the upcoming procedure. Following the venipuncture, parents completed another VAS to rate the observed pain/distress exhibited by the child. The Procedure Behavior Rating Scale (PBRs), completed by independent raters, was used to assess distress behaviors exhibited by the child during venipuncture. Following venipuncture children rated their pain/distress during the procedure using a 5-point facial scale. Nurses also rated child's vein accessibility and intensity of pain/distress during the procedure using 5-point Likert scales.

Results. Correlations between pairs of pain/distress measures were significant ($p<0.05$), however, the magnitude of correlations between parent ratings and other measures were not as great as the correlations among nurse, independent rater and child ratings. Regression analysis indicated age and observed distress were the best predictors of child self-reported pain/distress. For nurse ratings, observed distress, age and number of previous venipunctures were the best predictors of child pain/distress. For parent ratings, difficulty of venous access and observed distress were the best predictors of child pain/distress. Additional predictors accounting for variability in parents' ratings of their child's pain/distress were their ratings of expected pain and their own anxiety ratings both before and after venipuncture.

Conclusion. Although behavioural coding and child, parent and nurse ratings were significantly correlated, regression analysis indicated that different ratings may reflect different perspectives. Nurses appear to rely on overt distress, parents' ratings reflect subjective perceptions of children's pain, and children's self-report of pain/distress are associated most strongly with age. Conclusions about the effectiveness of pain management will vary as a function of the person conducting pain assessment, however, nurses' ratings may be the most clinically objective.

Miller, D. (1996). Comparisons of pain ratings from postoperative children, their mothers and their nurses. *Pediatric Nursing, 22*(2), 145-149.

Objective. To determine how accurately nurses and mothers assess children's postoperative pain intensity when compared with children's self-report of their pain.

Design. Survey.

Setting. Pediatric teaching hospital.

Participants. A non-random convenience sample

Outcome Measures. A 100mm Visual Analogue Scale (VAS), anchored by "no hurt" and "biggest hurt you could ever have" was completed by children, mothers and nurses to assess the postoperative pain experienced by the child. Measures were taken at 3 times during the 40 hour postoperative period. Intervals ranged from 4-20 hours depending the child's condition. Nurses were also asked what they considered to be the most important indicators of pain in postoperative children.

Results. Pearson Product Moment Correlations were used to examine the relationship between pain perceptions by child/mother, child/nurse and mother/nurse pairs. For the child/mother dyad, correlations over 3 observations were strong to weak with significant relationships at observations 1 and 2 ($r=0.71$, $p=0.005$; $r=0.83$, $p=0.0001$ respectively). Child/nurse correlations were moderate to weak over the 3 observations, and were significant for observations 1 and 2 ($r=0.50$, $p=0.02$; $r=0.83$, $p=0.01$ respectively). For mother/nurse dyads correlations were moderate to weak across 3 observations with significance obtained only for observation 1 ($r=.55$, $p=0.01$). Indicators of pain used by nurses included behavioural cues (89%), verbal cues (74%), facial expressions (58%), physiological cues (47%) and parental perceptions (21%).

Conclusion. Based on the relationships observed, mothers appear to be highly aware of particular behaviors exhibited by their children when experiencing pain in the postoperative setting. This may be a function of shared views toward pain and the mothers' understanding of nonverbal indicators of pain. On the other hand, nurses' perceptions of pain in the postoperative setting may be a reflection of expectations of pain and expected duration of pain based on prior experience. Although nurses' assessments are congruent with children's, mothers' perceptions of their children's pain are also important and nurses should encourage mothers to participate in pain assessment.

West, N., Oakes, L., Hinds, P.S., Sanders, L., Holden, R., Williams, S., Fairclough, D. & Bozeman, P. (1994). Measuring pain in pediatric oncology ICU patients. *Journal of Pediatric Oncology Nursing, 11*(2), 64-68.

Objective. To identify a clinically feasible and accurate method of measuring pain intensity in pediatric oncology patients. Specifically, objectives included comparing ratings on three pain measurement tools, comparing patients' and parents' ratings on two pain scales, comparing patients' and parents' ratings on two pain scales with nurses ratings on a behavioural observational tool, to assess the clinical feasibility of using these tools in the ICU and to determine patients', parents' and nurses' preferences among these tools.

Design. Survey using observations and ratings.

Setting. Pediatric oncology ICU.

Participants. Thirty ICU patients (18 female; median age=9 years), who were not on terminal care or in a life-threatening situation, and their parents (28 mothers, 2 fathers). Patients had been in the ICU for 1-4 days (median=3 days). Admission reasons were post-operative care ($n=15$), respiratory distress ($n=4$), septic shock ($n=4$) and high white blood count ($n=3$).

Main Outcome Measures. Pain was rated by both the patient and the parent using the Faces Pain Scale (FPS) and the Poker Chip Tool (PCT). The FPS is a 5-point scale which uses faces to represent "no pain" to "hurts as much as you can imagine"; the PCT uses 4 poker chips to quantify the amount of pain experienced. The patients' ICU nurse completed the Objective Pain Scale, prior to administering the FPS and PCT, which assesses the behavioural and physiological parameters of pain.

Results. Patients' ratings on the FPS were significantly correlated with parents' ratings ($p=0.002$), however ratings did not correlate on the PCT. Nurses' ratings on the OPS correlated with the patients' FPS rating ($p=0.02$), but not with PCT ratings. Patients, parents and nurses all preferred the FPS as a pain measurement tool.

Conclusion. High inter-rater agreement and overall preference for the FPS suggest clinical feasibility of this tool in the ICU population. However, this tool is useful in assessing pain only in those children who are capable of self-report.

Commentary

Parents are often called upon to provide reports of their children's pain when self-reports are difficult, if not impossible, to obtain, (e.g. when the child is below 5 years of age, neurologically impaired or sedated). Parent reports are also often relied upon when the credibility of children's ratings is doubtful. The use of parental assessments assumes that parents' ratings accurately reflect their children's subjective pain experiences. Accuracy of parents' reports is important as they are frequently used in diagnostic and treatment decisions. Fortunately, several studies have examined the relationship between parents' and children's reports of pain.

The studies reviewed provide a conflicting picture about the accuracy of parent pain reports. On one hand, for example, the studies by Bennett-Branson and Craig (1993), Miller (1996), and Schneider and LoBiondo-Wood (1992) report significant correlations, ranging from 0.32 to 0.83 between parents' and children's ratings. Moreover, Bennett-Branson & Craig, (1993) and Schneider & LoBiondo-Wood, (1992) found no significant mean differences between parents' and children's ratings. On the other hand, Bellman and Paley (1993), Chambers et al. (1998) and Manne et al. (1992) found poor agreement between parent and child pain reports, with parents generally underestimating the intensity of their children's pain

What might account for the differences in these findings? Accuracy could vary with characteristics of the child, the parents, the setting, measurement instruments used, and the nature of the child's medical and other problems. For example, it is likely that the accuracy of parental pain reports would vary as a function of the type and severity of pain being rated (e.g., postoperative pain, needle pain). Parental accuracy might also differ depending on the type of measure used to elicit the pain reports. For example, West et al. (1994) concluded that parents were accurate estimating children's pain when using a faces scale, but not when using the Poker Chip Tool. Chambers et al. (1998) suggested that the inconsistency in the findings across studies might be attributable to different statistical techniques and recommend that kappa statistics (which adjust for chance agreements) be used (Fleiss, 1981). We believe that the use of Kappa statistics would have resulted in finding smaller relationships between parent and child ratings than occur with correlations. Correlations do not assess precise agreement, but rather the extent to which parent and child scores go up or down

together.

It is not surprising that parents are often inaccurate in their reports, because they lack access to the child's subjective experience and base their assessments on observable behaviour. Parents have low accuracy in their reports of other inner emotional states (Achenbach et al., 1987). Parents' reports represent a different perspective on their children's pain. In the tradition of using self-report as a "gold standard", studies of parent-child concordance assume that the child's report is a better index than that of the parent. Children's reports can be distorted because of response biases that may exaggerate or minimize experienced pain (Chambers & Craig, 1998). However, children's self-reports can work well. We have found that parents' pain reports tend to be less reliable than their children's, the reliability of children's pain reports increases with age, and the reliability of parents' reports tends to decrease with the child's increasing age (Chambers & Craig, 1999).

Future research using appropriate statistics is needed to examine parental accuracy across different pain contexts (e.g., acute pain, chronic pain), using different types of rating scales (e.g., faces scales, analogue scales). Further, the factors that improve accuracy should be investigated. Parents who need assistance in assessing their children's pain might then be identified.

Whose report should be relied upon to provide a comprehensive pediatric pain assessment for diagnosis and treatment? In child psychiatry, research has found ways of aggregating discrepant reports of child symptoms from multiple informants (Bird et al., 1992) but these have not been developed for pain. Clinically, we would suggest obtaining pain reports from children whenever possible, and supplementing these with parent reports (keeping in mind their tendency to underestimate children's pain), particularly when there are concerns about the validity of the child's report (e.g., due to the child's age).

Christine T. Chambers, M.A. &
Kenneth D. Craig, Ph.D.
Department of Psychology
University of British Columbia
Vancouver, B.C.

References

- Achenbach, T.M., McConaughy, S.H. & Howell, C.T. (1987). Child/adolescent behavioural and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin*, 101, 213-232.
- Bird, H.R. (1992). Aggregating data from multiple informants in child psychiatry epidemiological research. *Journal of the American*

Academy of Child and Adolescent Psychiatry, 31, 78-85.

Chambers, C.T. & Craig, K.D. (1999). Children's and parents' reports of pain: Are they reliable? Paper to be presented at the Annual Meeting of the Canadian Psychological Association, Halifax, N.S.

Chambers, C.T. & Craig, K.D. (1998). An intrusive impact of anchors in children's faces pain scales. *Pain*, 78, 27-37.

Fleiss, J.L. (1981). *Statistical methods for rates and proportions*. New York: Wiley Press.

Recent Articles

Anderson, B.J., McKenzie, D.R., Persson, M.A. & Garden, A.L. (1998). Safety of postoperative paediatric analgesia. *Acute Pain*, 1, 14-20.

Objective. To examine the efficacy and safety of various pediatric analgesic techniques.

Design. Retrospective medical chart review.

Setting. Children's hospital.

Participants. Medical records of 1002 children referred to the hospital's acute pain service between 1994-1996 were reviewed and included for study.

Main Outcome Measures. Descriptive statistics were compiled reflecting the frequency of use of various analgesic techniques. Further descriptive analyses were carried out in order to evaluate the benefits and problems associated with these techniques.

Results. Patient satisfaction scores reflected satisfactory management of pain (mean score=8/10, sd=1/10). Problems without sequelae occurred in 5.1% (51/1002) of patients. In patients whose primary analgesic source was continuous epidural analgesia, there was a 21% (81/382) failure rate (primarily due to ineffective blockade). This group of patients also had a 4.5% (17/382) rate of complications or organisational incidents. Patients using patient controlled analgesia (PCA) pumps had a 4.4% (15/343) rate of significant incidents. Children whose primary analgesic source was opioid infusions had a 7.5% (19/252) rate of significant incidents. Respiratory depression was observed in 1.7% (10/595) of children who received opioid infusions. Groups particularly at risk for respiratory depression due to opioid infusion were infants under three months of age, children given additional sedatives, and children whose diseases were associated with a decrease in opioid clearance. Problems due to errors in analgesic administration decreased over the course of the period of study as experience and educational awareness in staff members increased.

Conclusions. Although mortality or long-term morbidity was not seen in this population, it was clear that differences in pharmacokinetic, anatomical, and physiological attributes of children substantially increase the potential for analgesia-related complications in pediatric populations. Epidural failures seemed to occur at a relatively high rate compared to other analgesic techniques and complications were comparative in frequency to those of opioid analgesic techniques. For these reasons and the labour intensive nature of the technique, the risks and benefits of pediatric epidural analgesia must be carefully assessed.

Christiano, B. & Tarbell, S.E. (1998). Brief report: behavioral correlates of postoperative pain in toddlers and preschoolers. *Journal of Pediatric Psychology*, 23 (2), 149-154.

Objective. To assess parent and child preoperative behaviors that may be associated with postoperative pain in toddlers and preschoolers.

Design. Observational.

Setting. Pediatric surgical ward.

Participants. Seventy-four pediatric patients (59 boys; mean age=33.7 months, SD=14.7) scheduled for inguinal hernia or hydrocele repair, and their parents.

Main Outcome Measures. The Behavioral Observation Scale (BOS) completed by a trained observer. The BOS assesses 5 child behaviors (attachment, exploration, nonpain-related behavioural distress, self-comforting and social-affiliative play) and 5 parent behaviors (attachment, distraction, informing, reassurance and restraint). Observations were conducted at 6, 5-minute intervals during the preoperative period. Postoperative pain and pain behaviors were measured with the Toddler-Preschooler Postoperative Pain Scale (TPPPS) which measures vocal, facial and bodily pain expressions. Trained observers completed the TPPPS for a 30 minute postoperative period.

Results. There was a significant negative correlation between postoperative pain and Parent Informing ($r=-0.34$, $p=0.004$). A trend toward a positive relationship was found between pain and nonpain-related behavioural distress ($r=0.29$, $p=0.02$). The relationship between Parent Informing and pain scores was not related to anesthesiological or surgical variables.

Conclusion. Parents' provision of information in the preoperative period was associated with lower pain scores. This finding has implications for the development of preoperative interventions that provide toddlers and

preschoolers with information about surgery in order to minimize the postoperative pain experience.

Gauthier, J.C., Finley, G.A. & McGrath, P.J. (1998). Children's self-report of post-operative pain intensity and treatment threshold: determining the adequacy of medication. *Clinical Journal of Pain*, 14, 116-120.

Objective. To directly examine the presumption that children are undermedicated for postoperative pain by assessing subjective threshold for treatment.

Design. Self-report survey.

Setting. A general surgery/otolaryngology/plastic surgery unit at a children's hospital.

Participants. Sixty-three children (32 girls), between the ages of 6 and 16 years (mean age=9.7 years) who had undergone minor, uncomplicated surgery (e.g. tonsillectomy, adenoidectomy). Inclusion criteria required that all children: were English-speaking and of normal cognitive development; were expected to spend no more than 3 days in the hospital; were expected to have no serious ongoing health problems; and had not undergone surgery for malignancy or surgery for which intensive care was required. A subgroup of 48 children (26 girls; mean age=9.8 years) were asked to complete a refined survey.

Main Outcome Measures. Children completed the Faces Pain Scale to report: their pain intensity at the time of the interview (2-6 hours after surgery); the intensity of the worst pain experienced since the surgery; and the minimum pain intensity they believed warranted pharmacological intervention (treatment threshold). The subgroup was also asked to indicate pain intensities representing the upper limit of mild and moderate pain and the lower limit of severe pain on the Faces Scale.

Results. At the time of the interview, children's mean pain rating was 1.9 (sd=1.7) and mean worst postoperative pain was 3.8 (sd=1.8). Mean treatment threshold was 3.2 (sd=1.8). The subgroup of children indicating scale intensities representing mild, moderate and severe pain reported respective mean scores of 2.2 (sd=1.0), 3.2 (sd=0.9) and 4.8 (sd=0.9). Gender differences were evident on this item with girls' responses lower than boys'. Forty-six percent of the subgroup reported worst postoperative pain which equalled or exceeded their indication of severe pain. Forty-eight percent chose a pain intensity requiring pharmacologic intervention that was within 1 point of their indication of moderate pain. By subtracting each child's worst postoperative pain from their treatment threshold it was determined that 51% of the children were under

medicated.

Conclusions. Children undergoing minor, uncomplicated surgery experience significant post-operative pain, often times, above their treatment threshold. These results indicate that optimal pain management might best be achieved by treating pain before it reaches moderate or worse intensities and by using the individuals' estimates of moderate pain and treatment threshold to define the clinical significance of pain.

Kazak, A.E., Penati, B., Brophy, P. & Himelstein, B. (1998). Pharmacologic and psychologic interventions for procedural pain. *Pediatrics*, 102, 59-66.

Objective. To compare the effectiveness of a Combined Intervention (CI; parent-centered psychologic plus pharmacologic regimen), a Pharmacologic Only (PO) protocol and a cross-sectional control (CC) in decreasing childhood distress during treatment procedures for leukemia (e.g. lumbar puncture and bone marrow aspiration). Predictors of child procedural distress were also assessed.

Design. An 18-month prospective, randomized, controlled intervention study.

Setting. University affiliated pediatric oncology treatment centre.

Participants. Children and adolescents newly diagnosed with leukemia and their parents. Participants were stratified by age and randomly assigned to one of two conditions: CI (n=47, mean age=5.42 years, sd=4.39 years) or PO (n=45, mean age=5.75 years, sd=4.66 years). The matched control group (CC) was comprised of 34 children (mean age=5.90 years, sd=4.13 years) receiving treatment in a first remission prior to the implementation of the pharmacologic protocol and their parents.

Intervention. Premedications used for diagnostic procedures were the same for both the CI and PO groups and included injectable 1% lidocaine, midazolam and morphine sulfate. For the CI group, parents were trained to assume a primary role and interventions were individualized based on the child's age and cognitive ability. Children <6 years old and their parents engaged in externally oriented play (e.g. bubbles, video games). Children ≥6 years old engaged in external and/or abstract interventions (e.g. guided imagery, counting, breathing).

Main Outcome Measures. Distress was measured using two parental self-report scales: the Perception of Procedures Questionnaire (PPQ); and the Pediatric Oncology Quality of Life Scale (POQOLS), which

measures frequency of patient's daily activity during a 2-week period. As well, parent and staff ratings of child and parent distress and staff ratings of procedural difficulty (e.g., dose and number of needles) were recorded.

Results. At 18 months following diagnosis, mothers and nurses in the CI group reported significantly lower levels of child distress than in the PO group. However, compared to the CC group, both the CI and PO groups showed significantly lower parent and staff ratings of child and parent distress. Overall, distress decreased with time and younger children reported higher levels of distress than older children did. As well, child distress was significantly associated with staff reports of technical difficulty and age, but not with medication doses.

Conclusion. Systematic interventions, whether pharmacologic, psychologic, or a combination, are efficacious methods of lowering distress and increasing quality of life in childhood leukemia. Moreover, the results indicate that adding a psychologic intervention to the pharmacologic protocol is even more effective than medication alone, especially for older children. However, further research into the development of efficacious approaches for younger children is warranted.

Krilov, L.R., Fisher, M., Friedman, S.B., Reitman, D. & Mandel, F.S. (1998). Course and outcome of chronic fatigue in children and adolescents. *Pediatrics*, 102, 360-366.

Objective. To describe the epidemiology, symptoms and psychosocial characteristics, and to determine the course and outcome of chronic fatigue in children and adolescents.

Design. Retrospective chart review and telephone follow-up.

Setting. Hospital pediatric department.

Participants. Fifty-eight children and adolescents (71% female; mean age=14.6 years) experiencing symptoms of chronic fatigue.

Main Outcome Measures. Information extracted from hospital charts from initial evaluations and a semi-structured telephone interview designed to determine the course of patients' condition which was conducted 1 (n=34), 2 (n=18), 3 (n=8), and 4 years (n=3) after initial presentation.

Results. Half of the participants indicated they had experienced fatigue for 1-6 months at the time of presentation and half had experienced fatigue for 7-36 months. For 50% of the patients, fatigue had begun with the onset of acute illness; 40% could not pinpoint the onset

of fatigue. Commonly reported symptoms included headache, sore throat, and abdominal pain. Seventy percent of the participants indicated good school performance and 73% indicated regular school attendance. At follow-up, 43% of families considered their child "cured", and 52% considered their child "improved". The percentage of patients who were "at their best" increased from 15% soon after first visit to 41% the first summer after they were seen. Participation in general and social activities also significantly improved the summer after first visit. School days missed decreased from year 1 (81% missed >20 days) to years 2 and 3 (29% missed >20 days). Demographic variables and clinical characteristics at initial evaluation were not related to course or outcome.

Conclusions. This study provides evidence that many children and adolescents with chronic fatigue show improvement over time. However, because it is based upon parental report, the possibility that children habituated to their symptoms cannot be eliminated.

Lewindon, P.J., Harkness, L. & Lewindon, N. (1998). Randomised controlled trial of sucrose by mouth for the relief of infant crying after immunisation. *Archives of Disease in Childhood*, 78, 453-456.

Objective. To determine the efficacy of sucrose solution, given orally, in reducing infant crying and distress during immunisation.

Design. Randomised, double-blind, placebo-controlled trial.

Setting. Immunisation clinic in South Australia.

Participants. One-hundred and seven healthy infants (56 boys; mean age=17.1 weeks, SD=8.0) receiving 2, 4 or 6 month immunisations.

Main Outcome Measures. Infants were randomised to receive orally either 2ml 75% sucrose solution or sterile water immediately prior to injection in the thigh. Both parents and nurses were blind to the condition and nurses encouraged all parents to employ the usual soothing techniques (i.e. cuddling the infant while the nurse made a low-pitched rattling noise). Infant crying was audio-taped and later assessed across 3 dimensions; first cry (the duration of the first audible cry from onset until a cry-free interval of 5 seconds or more), total sum (duration of audible crying within the first 3 minutes of onset) and duration (total time from start of first cry until end of last cry, to a maximum of 3 minutes). Crying was measured using seconds. A subjective measure of infant distress was also employed. The Oucher chart (a visual analogue scale

from 0, representing no distress to 100, representing the worst possible distress for the infant) was filled out by both the nurse and the parent.

Results. When compared to the control group, sucrose solution decreased first cry from 42 to 29 seconds ($p < 0.0003$), total sum of cry from 59 to 36 seconds ($p < 0.000008$) and duration of cry from 69 to 43 seconds ($p < 0.00002$). Observed distress ratings by nurses were lower for infants receiving sucrose solution than controls ($p < 0.02$). Distress ratings by parents were also lower for the infants receiving sucrose solution, however the relationship only approached significance ($p < 0.1$).

Conclusion. Administration of 75% sucrose solution prior to immunisation injections decreased infant crying times by approximately 40% and decreased parents' and nurses' perceptions of infant distress. Sucrose solution appears to be effective for relief of infant crying in the immunisation clinic. Future research should address a broader age range.

Smedbråten, B.Kr., Natvig, B., Rutle, O. & Bruusgaard, D. (1998). Self-reported bodily pain in schoolchildren. *Scandinavian Journal of Rheumatology*, 27, 273-276.

Objective. To examine the incidence, distribution and localisation of musculoskeletal complaints in childhood and to examine the effects of self-reported body pain on children's everyday life and functioning.

Design. Cross-sectional survey.

Setting. Primary schools in Ullensaker, Norway.

Participants. Five-hundred and sixty-nine students (287 girls) from the fourth form (mean age=10.5 years), seventh form (mean age=13.5 years) and ninth form (mean age=15.5 years) of 13 primary schools in the area.

Main Outcome Measures. Participants were administered a questionnaire based on questions from a survey of the adult population in the area and the WHO Collaborative Study on health behavior in schoolchildren. Participants noted pain on a body map naming 12 body parts and also responded to questions about the effects of pain complaints on their everyday life.

Results. Girls reported more pain than boys in both the fourth and seventh form ($p = 0.001$ and $p = 0.003$ respectively), however there were no significant differences in reported body pain between boys and girls in the ninth form. Boys showed an increased prevalence of pain with increased age, reporting knee pain most frequently (32%). Among girls, headache pain was most common (36%). In general, girls reported more pain with symptoms from more body parts than boys. When compared to boys, girls

appeared to be more affected by their pain, indicating greater disturbances in concentration ($p = 0.015$), particularly as a result of head, shoulder, and neck pain. However, girls did not stay home from school, use medication, or seek professional medical help more often than boys. There was a marked increase in the consequences of pain with increasing number of affected body parts. Such consequences included absence from school, medication use, frequency of pain, difficulty in concentration and seeking medical help.

Conclusion. Results suggest that musculoskeletal complaints exist in childhood and may be the beginning of a life-long course of similar patterns of musculoskeletal pain in adulthood. Patterns of pain in children were shown to resemble adult musculoskeletal complaints, particularly with respect to gender differences and localisation. Follow-up studies are necessary to determine if children who experience musculoskeletal pain are more likely to have pain in adulthood and to determine risk factors that might be targeted for preventative strategies.

Review Articles

The *Pediatric Pain Letter* briefly notes the following recent review articles:

Taddio, A., Ohlsson, A., Einarson, T.R., Stevens, B. & Koren, G. (1998). A systematic review of lidocaine-prilocaine cream (EMLA) in the treatment of acute pain in neonates. *Pediatrics*, 101(2), e1.

Zacharias, M. & Watts, D. (1998). Pain relief in children: doing the simple things better. *BMJ*, 316(7144), 1552.

Book Review

Drotar, D. (Ed.) (1998). *Measuring health-related quality of life in children and adolescents: implications for research and practice.* Mahwah, NJ: Lawrence Erlbaum Associates, 372 pp. ISBN 0-8058-2479-0 (Paperback: \$68.90 CDN; 39.95 US; also available in hardcover)

Dennis Drotar, a well known pediatric health psychologist, has assembled 20 chapters by a distinguished group of authors on health related quality of life in children and adolescents. The book is divided into 5 sections. The first section deals with historical and conceptual basis for health related quality of life. The second focuses on population based measures and the third on specific disease based measures. Part four concentrates on the extensive literature on quality of life in children with growth and endocrine problems. The book is the result of a meeting held in October 1996.

Only one chapter, by Lynn Walker, is specifically about pain (recurrent abdominal pain), however, there are chapters on childhood disorders in which pain plays an important role, namely cystic fibrosis, AIDS, and cancer. In spite of the coverage of painful disorders, pain is not in the subject index and there is little discussion of pain as a significant factor in quality of life in these disorders.

Overall, this is an excellent review of the current state of theoretical and empirical work on health related quality of life. It is more thoughtful than most treatments and has excellent sections on the conceptual underpinnings, ethical problems and limitations of quality of life measures. The coverage of pain is weak and reflects the lack of research on pain and quality of life. I would highly recommend this book as the best resource available to anyone designing outcome measures or studies of the efficacy of interventions. Clinicians seeking a way to measure quality of life in pain problems might be disappointed in this volume both because most measures are not included in the book and because the science has not developed well enough to provide clear indications of the right measures to use.

Patrick J. McGrath Ph.D.
Dalhousie University and IWK Grace Health Centre
Halifax, Nova Scotia

Film Review

No Fears, No Tears - 13 Years Later
Children Coping With Pain

Directed by Lawrence McDonald

Produced by Margit Nance Productions Inc.

Executive Producer: Leora Kuttner

No Fears, No Tears, 13 Years Later is an exceptional video which explores, with compassion and sensitivity, the experiences and memories of eight children who had lived with childhood cancer and its treatment 13 years previously. The survivors recall with intricate detail their experiences with painful procedures as young children. The viewer is afforded a powerful reminder of the enormous impact childhood cancer and its treatments have on the lives of survivors, not only as they journey through the active stages of their treatment, but also as they continue to live their lives long after the completion of all treatment.

There are many important contributions made to the care of children and the management of their pain by this unique video. It is rare that professionals and parents are permitted to hear from survivors on such a personal level as they discuss openly and honestly with Dr. Kuttner their reactions to pain and their perceptions of their ability to manage it.

An interesting flashback technique is utilized throughout the video as clips of the original *No Fears, No Tears* are interspersed to demonstrate the actual responses of the child at the time he or she experienced the painful procedure. These original clips show the effectiveness of Dr. Kuttner's techniques in helping the child and parents gain control over the pain.

Myths that adults have perpetuated concerning childhood pain are dispelled through the honest dialogue of the survivors. For example, the myth that children don't remember painful experiences is clearly debunked as each of the survivors recalls, with intricate detail, the painful experiences they had 13 years prior.

The second long time myth that is dispelled is that talking to a child about how to control his or her pain doesn't help. It becomes abundantly clear that children who have been coached, and had support in learning techniques and skills to control their pain, were able to employ them effectively. They have also learned a lifelong skill.

The third myth states that children who are able to

manage their pain probably didn't experience real pain in the first place. On the contrary, these children were able to master their very real pain through the techniques of interaction and play. Pain management became integral to their care, well being and quality of life throughout their cancer experience.

From the survivors themselves there emerged what could be termed as an interesting new myth. Most of the survivors felt they were able to control any physical or emotional pain encountered as adults; the taking of medication to alleviate pain represented a sense of failure.

This video should be carefully viewed by professionals, parents and children with cancer. For professionals it is an exquisite resource clearly demonstrating that children do experience very real pain and that they can manage their pain when provided with the opportunity to learn the necessary skills and techniques. In the process they have learned a lifelong skill which in turn they use to alleviate the pain and suffering of others.

Professionals also need to hear from these survivors that distractions such as too many people in a room, not taking the time to permit the child to gain mastery over his or her pain using the learned techniques, or exposing the child to pain that was unexpected have lasting effects and are clearly burned into the memories of the survivor.

Parents will benefit from viewing this video because the survivors speak openly and honestly about the unequalled importance of having their parents (for each of these survivors it was the mother) present and involved in the support and pain management techniques for the child during treatments.

Children with cancer who watch this video will reap untold benefits because they will be able to see first hand from experienced survivors that their pain can be managed. They can learn how to be in control.

There is, as well, a very special aspect of this video. Each of the survivors spoke openly about the experience with childhood cancer and how it affected his or her personal philosophy of life. Each talked of the fragility of life, of the importance of living each day as if it were a gift, of strength and compassion, and of respect for life and other people. Each commented, in his or her own manner, that having lived through the treatments of childhood cancer made every day a special one.

One can only conjecture what the impact of childhood cancer and its treatment would have been on each of these children and young adults had they not had Dr. Leora Kuttner by their side to teach them and their parents the special techniques and skills to help them manage and cope

with their pain and discomfort.

Eleanor G. Pask, R.N., M.Sc.N., Ed.D.
The Childhood Cancer Foundation ~ Candlelighters
Toronto, Ontario, Canada

For further information contact Dr. Leora Kuttner, (fax) 604-294-9986, email: leora-kuttner@sfu.ca.

Announcements

Meetings

May 13-16, 1999: *Annual Meeting of the Canadian Pain Society (IASP Chapter), St. John's, Newfoundland, Canada.* For further information, contact S. Lefort (fax)709-753-6266, Internet: <http://www.medicine.dal.ca/gorgs/cps>.

August 18-19, 1999: *Rheumatic Pain Treatment; Annual Meeting of the IASP Special Interest Group on Rheumatic Pain Satellite Symposium of the 9th World Congress on pain in Vienna, Friburg, Germany.* The scientific program will include plenary sessions and workshops on various topics in the field of rheumatic pain/pain treatment. Introductory courses in special pain treatments will also be offered. For further information contact Prof. Dr. J. Chrubasik, Schöneckerstr.13, 79104 Freiburg, (tel) 0171-4000567 or 0761-33123, (fax) 0761-286528, e-mail: chrubasi@ruf.uni-freiburg.de.

August 22-27, 1999: *9th World Congress on Pain, Vienna, Austria, the triennial scientific meeting of the International Association for the Study of Pain.* The Congress is open to those working in or interested in any aspect of pain, including research and treatment, and features leading world experts in each field. For further information contact the IASP, 909 NE 42nd Street, Suite 306, Seattle, Washington, 98105, USA, (tel) 206-547-6409, (fax) 206-547-1703, e-mail: IASP@locke.hs.washington.edu, Internet: <http://www.halycon.com/iasp>.

September 2-4, 1999: *IV International Congress on Headache in Childhood and Adolescence, Turku, Finland.* For further information contact the Congress Office/HCA,

University of Turku, Lemmink@isenkatu 14-18 B, FIN-20520 Turku, Finland, (tel) +358-2-333-6345, (fax) +358-2-333-6410, e-mail: cescon@tkk.utu.fi.

October 21-24, 1999: *18th Annual Scientific Meeting of the American Pain Society, Fort Lauderdale, Florida.* The American Pain Society (APS) is a multidisciplinary society composed of physician specialties and subspecialties, nursing specialties and subspecialties, psychologists, physical therapists, occupational therapists, dentists, neuroscientists, clinical investigators, and others interested in pain. Presentations of a multidisciplinary nature are strongly encouraged. For further information contact the APS Education Department at (847) 375-4715 or the APS web site at <http://www.ampainsoc.org/>.

November 12-14, 1999: *3rd International Comprehensive Cancer Care Conference (ICCCC), New York, NY.* This conference is intended for an interdisciplinary audience of all providers of cancer care. The ICCCC is an international initiative intended to establish an ongoing forum to promote an integrative approach to cancer care. Continuing education objectives include: identification/implementation of palliative care principles and practices; assessment and treatment of pain; integration of psychiatric, psychosocial, spiritual, legal and ethical issues; advances in supportive care; and controversies/challenges in end of life care. For more information contact the conference secretariat: (tel) +32-2346-5301, (fax) +32-2346-5435 or 3637, e-mail: duncan@options.com.cy, Internet: www.options.com.cy.

June 18-21, 2000. *5th International Symposium on Pediatric Pain* to be held in London, UK. This meeting is sponsored by the Special Interest Group on Pain in Childhood. For further information, please contact Dr. A. Goldman, Symptom Care Team, Great Ormond Street Hospital for Children, Great Ormond Street, London, WC1N 3JH, United Kingdom, (fax) 44-171-813-8588, email: a.goldman@ich.ucl.ac.uk.

September 28 - October 1, 2000. *3rd Biennial International Forum on Pediatric Pain*, White Point Beach Resort, Nova Scotia, Canada. The topic of the meeting will be acute pain. More information can be obtained from Kate Finlayson of Conventional Wisdom at (tel) 902-453-4664, (fax) 902-423-5232, email: katefin@chebucto.ns.ca.

Short announcements on pediatric pain events will be published free of charge.

If you would like to participate

Your participation in abstracting and writing commentaries for the *Pediatric Pain Letter* is welcomed. Please send submissions according to the specifications outlined in our Author's Kit. An Author's Kit can be obtained from Jill Hatchette, Managing Editor, Pediatric Pain Letter, Psychology Department, Dalhousie University, Halifax, Nova Scotia, B3H 4J1; email jhatchet@is.dal.ca; requests can be made in writing or by email. Abstracts and commentaries on any aspect of pain in infants, children, and/or adolescents are appropriate. We will attempt to use abstracts and commentaries but the editors reserve the right to edit or reject contributions.

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Contributors to this issue: Deanna Braaksma, Bruce Dick, Jill Hatchette, Allan Hennigar, Racqel Kokaram and Karin Wallace.