Scientific Article

Factors Related to Postoperative Discomfort in Young Children Following Dental Rehabilitation Under General Anesthesia

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Abstract: ***Purpose:*** *This study, conducted in ambulatory surgical centers, was a response to queries from pediatric dentists who wondered if postoperative discomfort in their patients treated for early childhood caries under general anesthesia was related to specific dental procedures. The purpose of this study was to identify factors related to the occurrence and severity of postoperative discomfort.* ***Methods:*** *Subjects were children younger than 7 years old. The faces, legs, activity, cry, consolability pain assessment tool measured discomfort immediately postoperatively; the dental discomfort questionnaire (DDQ-8) measured discomfort preoperatively and after treatment. Data was analyzed with bivariate tests and hierarchical linear multiple regression.* ***Results:*** *Of the 160 participants (52.9±15.0 months old), approximately 51% had preoperative dental discomfort (DDQ-8 score=>3). The proportion with discomfort had significantly decreased to 27% by days 2 to 5. Immediate discomfort in recovery was influenced by number of crowns and space maintainers and inversely by the length of postoperative sleep. Dental discomfort in the first week postoperatively was predicted by amount of preoperative discomfort, length of sleep in recovery, and not resuming a regular diet on Day 1.* ***Conclusion:*** *In these children, discomfort after treatment was mild, decreased over time, and, other than immediately postoperatively, was not related to specific dental procedures. (Pediatr Dent 2011;33:321-6)* *Received December 4, 2009 / Last Revision May 24, 2010 / Accepted June 14, 2010*

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A better understanding of the factors that influence postoperative discomfort in young children following dental rehabilitation under general anesthesia (**DRGA**) is essential to enable more effective pain management. Our study was undertaken in response to queries from local pediatric dentists who frequently do extensive DRGA on children suffering with early childhood caries (**ECC**). They questioned if the level of postoperative discomfort in their young patients was related to the specific types of dental procedures.

The scope of early studies on DRGA was primarily focused on a description of the occurrence and characteristics of pain after the procedure.[1-6] Moreover, as summarized by Needleman et al., comparing these studies is problematic. Variations in sample size, age of participants, specifics of operative settings, and approaches to statistical analysis complicate a systematic comparison of the results.[5] Indeed, only a few of the studies[3,5] used large samples that allow a complex multivariate analysis to assess the combined effects of multiple variables.

Two previous studies attempted to explain the factors that influence postoperative discomfort in children. Morbidity data was collected for 121 children (who were at least 5 years old) up to 1 week after their DRGA in a day-stay dental hospital.[3] Using multilevel multivariate modeling for outcome data, the odds of experiencing pain were found to be reduced in patients who received local anesthesia but were elevated with an increasing number of surgical procedures.[3] Morbidity related to general anesthesia was found to be less of a problem than morbidity related to the dental procedures. Children in this study, however, were older than those who are customarily treated for early childhood caries. In a later hospital-based study[5], 95% of 90 children (median age = 4-years-old) had moderate postoperative pain, which ceased by days 4 to 5. Those children, who had extractions or were at least 4 years old and had more than 12 procedures, experienced the most pain. This study included young children with ECC; pain was measured by the faces, legs, activity, cry, consolability pain assessment tool (**FLACC**).[5,7]

Recently, a scale called the dental discomfort questionnaire (**DDQ-8**) has been specifically developed and validated for measuring dental discomfort in young children[6,8,10]; however, it has not yet been applied in the early postoperative period to a group of young children who have undergone DRGA. Application of this scale to children treated for ECC under DRGA may provide new insights into their postoperative course.

Given that the impetus for this research came from clinical practice, it was reasonable to involve practicing pediatric dentists in the study. Practice-based studies are done in "real-world" settings and involve average clinicians who treat their own patients in their own practices.[11] Patients have to consent to be part of the study, but the conditions of daily practice

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prevail. While it may be argued that such practice-based studies lack the rigor of controlled studies, they have a recognized and constructive place in dental clinical research.[12] Furthermore, because of the shift that is occurring from primarily hospital-based dental general anesthesia treatment to ambulatory surgical center and office-based general anesthesia (**GA**), the study is timely.

Therefore, the purpose of this study was to identify the factors related to the occurrence, extent, and severity of postoperative discomfort in young children following DRGA in an outpatient, ambulatory setting. Of specific interest was the influence of various routine pediatric dental procedures on a child's postoperative course.

Methods

Sample. This prospective study included children younger than 7-years-old undergoing DRGA at either of 2 ambulatory general anesthesia clinics in British Columbia, Canada, over a 5-month period. Children were included if they: had no reported developmental delay; were ASA physical status I; and had parents who communicated well in English. It was estimated that a minimum sample size of 126 children was required to achieve 80% power at the P=.05 level of significance (1-sided). This calculation was based on information from a previous study[5] in which 26% of children younger than 4 years old had measurable postoperative pain. The Behavioral Research Ethics Board of the University of British Clumbia, Vancouver, Canada approved the study protocol. Informed consent was obtained from parents prior to the data collection.

Data collection. A preoperative questionnaire, completed at the time of the DRGA appointment by an accompanying caregiver, included information on demographic characteristics, previous GA experience, recent use of medications for a dental problem, the DDQ-8, and history of toothache. One of the study's investigators recorded all data related to the immediate postoperative period during the child's stay in the postanesthetic recovery room (**PAR**). Just prior to discharge home, the child's discomfort was measured using FLACC. Information about the specific dental procedures performed was transferred from the dental chart.

Postoperative data was collected by the same trained investigator who contacted caregivers by phone and/or e-mail (according to parental preference) at 4 postoperative times: 1, 2, 7, and 30 days after the DRGA. When a participant could not be reached on the scheduled day, the information was collected on the nearest subsequent day. The postoperative assessment included: the DDQ-8 and an inquiry about the use of medications; the child's ability to eat a regular diet; and "mouth-related" complaints other than dental discomfort. As the examiner was not blinded to treatment provided during surgery, either a standardized script was used to question the parents during follow-up telephone calls or standardized e-mail messages were sent, depending on the parent's choice of communication.

Dental discomfort was assessed in this study by 2 scales: the FLACC[7] (Table 1) and the DDQ-8[6] (Table 2).

FLACC pain assessment tool. The FLACC scale was originally developed to quantify postoperative pain in infants from 2 months old to children up to 7-years-old.[7] This scale assesses 5 aspects of behavior: (F) facial expression; (L) leg movement; (A) activity; (C) cry; and (C) consolability. The range for the total score is from 0 (no pain) to 10 (intense pain). The examiner was standardized to use of the FLACC by a PAR nurse who was experienced in scoring pain with this scale.

DDQ-8. The DDQ-8 has proven to be a reliable instrument to assess dental pain or discomfort in children (Cronbach's alpha=0.75).[6] The instrument consists of 8 questions that inquire about different behaviors. The range for total score is from 0 to 16; a score of 3 or higher has been determined to predict tooth-related discomfort in children.[8]

Dental general anesthesia protocol. A caregiver accompanied a child into the dental surgical suite for induction of GA, which was primarily by intravenous route. For those few children where the intravenous insertion proved difficult, sevoflurane inhalation was used for induction. A total of 8 pediatric anesthetists administered the anesthesia using a variety of agents, always including an opioid. Dental treatment was provided by 10 certified pediatric dentists. Infiltration local anesthesia (2% lidocaine with epinephrine 1:100,000) was used for some children requiring extractions or crowns. Following completion of treatment, children were extubated in the surgical suite by the anesthesiologist and immediately admitted to the PAR in the care of the PAR nurse. The protocol was to discharge children shortly after they woke up and were stable. Postoperative verbal and written instructions were provided to caregivers.

Statistical analysis. All analyses were conducted using SPSS Statistics 17.0 (SPSS Inc, Chicago, Ill). Differences over

Table 1. THE FACE, LEGS, ACTIVITY, CRY, AND CONSOLABILITY (FLACC) PAIN ASSESSMENT TOOL[7]

Categories	Scoring		
	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant frown, clenched jaw, quivering chin
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid, or jerking movements
Cry	No cry (awake or asleep)	Moans or whimpers, occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging, or talking to; distractible	Difficult to console or comfort

time in the DDQ-8 and in comparisons of children with or without discomfort in relation to the factors of interest were evaluated with bivariate analyses: Student's independent *t* test, paired sample *t* test, and analysis of variance with Bonferroni's adjustment. For all tests, the threshold for statistical significance was set at $P<0.05$.

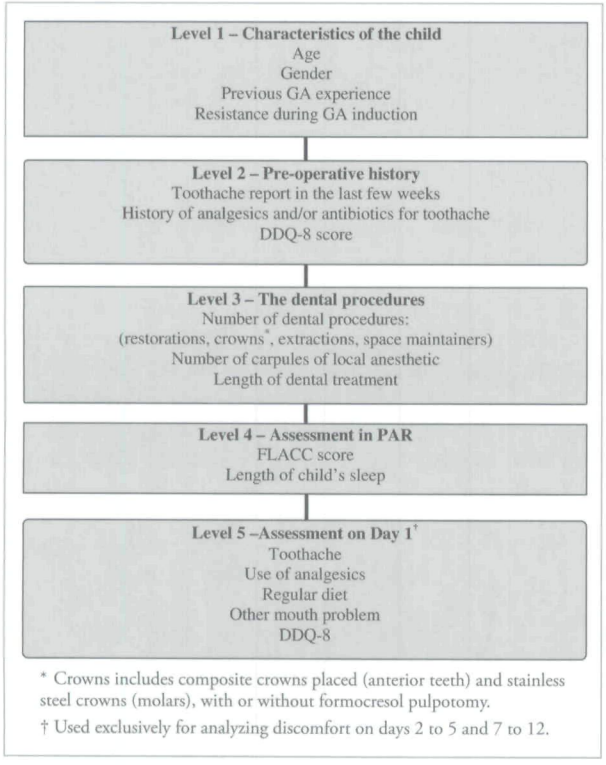
The outcome measures were the FLACC score in PAR and the DDQ-8 scores at subsequent postoperative time intervals. Information about explanatory variables was collected before, during, and after the DRGA. These discomfort-related variables expressed their influence at different times over the course of the GA treatment "experience." Therefore, they were grouped into "levels" or "hierarchies." For the "multilevel" assessment, we chose hierarchical multiple regression and classified our explanatory variables into 5 different levels or hierarchies (Figure 1). For the first step in the hierarchical analysis, we included all variables related to the first level, but only variables showing significant associations with an outcome at previous levels were transferred into a subsequent level.

Table 2. THE DENTAL DISCOMFORT QUESTIONNAIRE (DDQ-8) ITEMS[5,8]

Is your child:*

1. Biting things with back instead of front teeth
2. Putting away something sweet to eat
3. Crying during meals
4. Having problems brushing upper teeth
5. Having problems brushing lower teeth
6. Having problems chewing
7. Chewing on 1 side
8. Grabbing his/her cheek during eating

* Answers=never (score 0), sometimes (score 1), often (score 2).



* Crowns includes composite crowns placed (anterior teeth) and stainless steel crowns (molars), with or without formocresol pulpotomy.

† Used exclusively for analyzing discomfort on days 2 to 5 and 7 to 12.

Figure 1. Levels or hierarchies used in the regression analysis.

Results

General characteristics. The participating 160 children ranged from 16- to 83-months-old (mean=52.9±15.0). Of all, 55% were boys and 45% were girls. Accompanying caregivers were approximately 71% mothers, 28% fathers, and 1% grandmothers. Caregivers preferred to be contacted for follow-up by telephone (~44%) or e-mail (50%) or had no preference (~6%). There were 131 respondents on day 1 after surgery, 137 on days 2 to 5 and 141 on days 7 to 12 and 30 to 44. Data were analyzed separately for each time period; therefore, cases with missing data at other time periods were never excluded. Descriptive data for different follow-up periods are reported in Table 3.

GA protocols were similar, but not identical, among the anesthetists. These varied anesthetic regimens, however, did not demonstrate any relationship to length of sleep in PAR ($P=.98$) or to FLACC scores ($P=.93$). In addition, a comparison of children's postoperative discomfort scores for each anesthetist revealed no statistically significant differences (Pearson chi-square; $P>.05$). Postoperative discomfort scores were also tested comparing the pediatric dentists; no statistically significant differences were found ($P=.50$). In fact, their approaches to treatment were quite comparable.

Postoperative discomfort. Only 45% of children had a FLACC score greater than 0 at the time of discharge; however, 29% had a score of 3 or more. The mean ±SD FLACC score was 1.5±2.2 (95% CI=1.1-1.8). Thus, while FLACC scores were low, there was some variability.

Over half (~51%) of children had preoperative dental discomfort measured by the DDQ-8. The mean ±SD baseline (preoperative) DDQ-8 was 3.1±2.8 (95% CI=2.6-3.6); this score was compared to mean scores at the 4 time intervals after the DRGA (paired student *t* test; Figure 2). The

Table 3. CHARACTERISTICS OF STUDY CHILDREN (N=160)

Variables	N (%)
Preoperative	
Previous general anesthetic	22 (14)
Toothache report in the last few weeks	76 (48)
Antibiotics recently for toothache	24 (15)
Analgesics recently for toothache	26 (16)
Intraoperative	
No crying or resistance during induction	82 (51)
Local anesthetic administered	58 (36)
	Mean±(SD)(range)
Length of dental treatment (minutes)	69.8±21.4 (15-123)
Number of dental procedures (per child)	
Restorations*	3.0±2.6 (0-10)
Crowns†	5.7±3.0 (0-16)
Extractions	1.2±2.2 (0-11)
Space maintainers	0.2±0.6 (0-3)
Immediate postoperative in postanesthetic recovery room	
Length of sleep (min)	28.8±12.3 (5-54)
Total length of child's stay (min)	42.3±11.1 (18-72)

* Class I, II, or III amalgam or composite restorations.

† Crowns include composite crowns place on anterior teeth and stainless steel crowns placed on posterior teeth, with or without formocresol pulpotomy.

mean ±SD score by day 1, 1.5±2.1 (95% CI=1.2-2.0) was significantly lower than preoperatively (P<.001). There was no statistically significant change by days 2 to 5 (P=.37); the mean DDQ-8 score further decreased over days 7 to 12 (P=.04) and days 30 to 44 after the DRGA (P=.001) to 0.8±1.3 (95% CI=0.6-1.0). Multivariate analyses were performed for the various postoperative times, except for the final time interval (30-44 days), as discomfort was rarely reported at this time period.

Dental discomfort in the immediate postoperative period in PAR was assessed by the FLACC scale. These scores were significantly associated with 2 variables from level 3 (no. of crowns and space maintainers) and 1 variable from level 4 (length of sleep in PAR) (Table 4). These 3 variables explained approximately 25% of the variation in the FLACC scores.

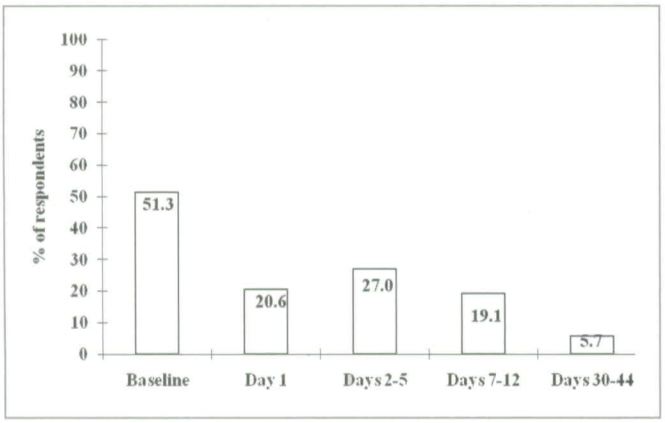


Figure 2. Proportion of children with dental discomfort at different time intervals; discomfort represented by DDQ-8 scores of >3.

Table 4. FINAL MODEL FROM THE HIERARCHICAL LINEAR REGRESSION ANALYSIS FOR DISCOMFORT AFTER DENTAL TREATMENT OF YOUNG CHILDREN UNDER GENERAL ANESTHESIA

Variable	β	SD (β)	5	*P*-value	95% confidence interval
Early postoperative discomfort (main outcome: FLACC score)*					
No. of crowns	0.13	0.05	0.19	.01	0.03 – 0.24
No. of space maintainers	1.25	0.27	0.33	<.001	0.72 – 1.77
Length of child's sleep (min)	-0.09	0.01	-0.39	<.001	-0.09 – 0.04
Overall adjusted R^2=0.254 (P<.001)					
Postoperative discomfort in the first week (main outcome: DDQ-8† score on days 2-5)					
Preoperative DDQ-8 score	0.14	0.06	0.18	.01	0.03 – 0.25
Length of child's sleep (min)	-0.03	0.01	-0.17	.02	-0.06 – -0.00
Child eating regular diet (day 1)	-0.84	0.34	-0.18	.02	-1.52 – -0.15
DDQ-8 score (day 1)	0.49	0.09	0.47	<.001	0.32 – 0.65
Overall adjusted R^2=0.393 (P<.001)					
Postoperative discomfort after the first week (main outcome: DDQ-8 score on days 7-12)					
Child eating regular diet (day 1)	-0.66	0.32	-0.18	.04	-1.30 – -0.03
Child had analgesics (day 1)	-0.57	0.22	-0.24	.009	-0.00 – -0.14
Child had other mouth problems (day 1)	0.31	0.14	0.19	.02	0.04 – 0.58
DDQ-8 score (day 1)	0.24	0.08	0.28	.003	0.08 – 0.39
Overall adjusted R^2=0.176 (P<.001)					

* FLACC: Faces, legs, activity, cry, consolability pain assessment tool. † Dental discomfort questionnaire.

Observed patterns were confirmed in both the bivariate and multivariate analysis. The median number of crowns (with or without pulpotomy) placed per child was 6. The mean ±SD FLACC score for children who had fewer than 6 crowns was 0.8±1.6 (95% CI=0.4-1.2), which was significantly lower (P<.001) than that recorded for children who had 6 crowns or more 2.1±2.5 (95% CI=1.5-2.6). The mean FLACC score for children who had no space maintainers was 1.3±2.0 (95% CI=0.9-1.6), which was significantly lower (P=.002) than the mean score for those children who had space maintainers placed 2.8±2.7 (95% CI=1.6-4.0). In addition, an independent sample t test demonstrated that children who had a FLACC score of 0 just before discharge slept for an average of 31.7 minutes ±10.4 (95% CI=29.5-33.9), which was significantly longer (P=.001) vs those with FLACC scores of 1 or higher and slept 25.1 minutes ±13.5 (95% CI=22.0-28.3).

Dental discomfort over the longer postoperative time periods was measured by the DDQ-8. The regression model for day 1 after DRGA produced an overall model that was not statistically significant; none of our explanatory variables contributed to explaining the variation in the DDQ-8 (adjusted R^2=0.002; P=.42). Approximately 39% of the variation (adjusted R^2=0.39; P=.00) in DDQ-8 scores on days 2-5 after DRGA, however, was explained by a final model that included explanatory variables from different levels: preoperative DDQ-8 (level 2); length of sleep in PAR (level 4); child's diet and DDQ-8 score on day 1 (level 5; Table 4). Children reporting discomfort on days 2 to 5 (DDQ-8 ≥3) had significantly higher previous DDQ-8 scores compared to children with no discomfort (DDQ-8 <3) both at baseline (mean=4.1 vs 2.7, P=.009) and on day 1 after DRGA (mean= 3.2 vs 0.9, P<.001).

The final regression model for postoperative discomfort on days 7 to 12 (Table 4) included only variables from day 1: child's diet; use of analgesics; having other mouth problems; and the DDQ-8 score. Together, these variables accounted for approximately 18% of the variation in DDQ-8 score. Variables from days 2 to 5 were excluded from the final regression analysis to avoid multicollinearity problems.

Discussion

This study demonstrated that discomfort after the DRGA in young children was relatively mild, of short duration, and decreased over time. In fact, as measured by the scales used in the study, few children experienced serious postoperative discomfort. Children who were treated by these dentists and whose anesthesia was managed by this group of pediatric anesthetists generally had a favorable postoperative course.

The 2 measures of postoperative discomfort, FLACC and DDQ-8, were chosen for the present study because they have been tested in previous similar studies.[5,6,8-10] The FLACC scale was originally developed as an observational tool to measure pain in young children shortly after surgery while in the PAR.[7] Because children were to be followed-up for as long as 30 days in our study,

however, the FLACC was used only in the immediate postoperative period. The median FLACC score reported by Needleman et al. was 5; the scores were highest in PAR and were 0 by day 5.[5]

It is noteworthy that the mean and median FLACC scores recorded in our study in PAR were lower than the scores of the aforementioned study. One of the explanations for this difference might be that our study employed the FLACC scale just prior to the child's discharge (ie, the assessment of discomfort in the present study may have been performed at a later time than in the other study).[5] Consequently, a difference in time of recording might result in the lower scores observed in our study. Unfortunately, the time when the FLACC score was recorded is not stated in the study of Needleman et al. Another explanation of the difference with the aforementioned study may be that the anesthetist did not administer intraoperative analgesia.[5] The anesthetists in our study routinely used intraoperative analgesia; these systemic analgesics likely diminished the pain in the immediate postoperative period.

Longer-term discomfort over time was monitored with the DDQ-8 scale. Nevertheless, the DDQ-8 proved to be problematic on day 1 after surgery, because many of the 8 questions simply could not be answered by our study participants so soon after the DRGA. For example, assessing the ability to bite, chew, and eat sweets with the DDQ-8 scale was challenging, as one of the home care instructions was to refrain from hard food during the first 24 hours postoperatively. Thus, assessments with this scale on day 1 after DRGA were problematic. This problem with the DDQ-8 scale measurement in this early postoperative period may help explain our inability to have a statistically significant explanatory model for day 1.

Hierarchical linear multiple regression was chosen to analyze the data from this study to assess the determinants of postoperative discomfort at different time periods. This analysis allowed the sequential analysis of groups of variables hypothesized to be operating at different times. This approach was considered to be a more realistic representation of the clinical situation compared to ordinary linear regression, where all variables are assessed as equally direct effects, thus ignoring the time sequence of their operation. Although our final regression models had statistical significance, the coefficients (adjusted R^2) were not large, meaning that variables tested in the present study were insufficient to explain the variation in study outcomes. Similarly, the rather small magnitude of the regression coefficients is not surprising, because most children in the study, as reported by their parents, did not have much postoperative discomfort and, for the most part, had a positive and untroubled postoperative course.

Prevalence of discomfort in the postoperative period in our study was lower and less intense than that reported by other studies.[1,3] A partial explanation for this difference might be the fact that our study included quite young children; also, it is known that observational measurements of pain are influenced by a child's stage of development.[13] In addition, different scales for pain measurement were used in these previous studies.[1,3] Another study which included children of similar age to those in our study also reported negligible postoperative pain after the DRGA.[4] These investigators, however, used a 1-time assessment of pain based on children's self-reports immediately before discharge. Thus, prudence is advised in making comparisons between studies.

Our study demonstrated that DDQ-8 scores were predictive of postoperative discomfort. DDQ-8 scores preoperatively and on day 1 were significantly related to discomfort experienced on days 2 to 5. Similarly, discomfort on day 1 was associated significantly with discomfort on days 7 to 12. Thus, dentists can expect that children who report more preoperative discomfort may also experience more discomfort in the first week after DRGA, supporting their need for more potent analgesic strategies. It is likely that children who had higher preoperative DDQ-8 scores also required more invasive dental treatment, including extractions and crowns. It has previously been reported that, following such treatment, these children have problems with chewing and biting continuing into the postoperative period.[9,10] In the present study, however, no significant relationship was observed between extractions and the DDQ-8 scores, in contrast to other studies that observed an association of these procedures with pain after GA.[5] The ability of the DDQ-8 to explain pain or discomfort related to specific dental procedures warrants further investigation in much larger practice-based research studies.

The length of sleep in the PAR was another factor related to higher postoperative scores of discomfort. This factor remained significantly related to discomfort even on days 2 to 5 (ie, those children who woke up quickly also reported more discomfort over the longer term than the ones who slept longer). Perhaps children wake up more quickly in PAR because they were simply sensitive to sensations of pain in their mouths or discomfort in general. The pain is upsetting and it wakes them up. Seemingly, children who wake up in fewer than 30 minutes may need additional analgesia from PAR nursing staff. This sensitivity to discomfort in the mouth seems to continue well into the postoperative period.

The placement of space maintainers (band and loop or lingual arch) and crowns of any sort was also associated with early postoperative discomfort, but did not appear to influence discomfort over subsequent days. Possibly, in the immediate postoperative period, a space maintainer caused pressure on the teeth at the site of a tooth extraction. Another explanation for this finding might be that children found the shape and sensation, especially of space maintainers, to be troublesome. A clinical implication of this finding is to consider additional analgesia during the immediate postoperative period when a space maintainer is placed at the time of tooth extraction. Although the placement of a space maintainer was always coincident with a tooth extraction, extractions alone were not associated with discomfort at any time during the postoperative period.

Not surprisingly, those children who had not yet returned to a normal diet within a day of surgery also recorded higher DDQ-8 scores on days 2 to 5 and 7 to 12. Children who felt timid about resuming a normal diet on day 1 were likely to avoid their "normal" foods in later periods. It is interesting that children who were given analgesics on day 1 appeared to have less pain after the first week; however, analgesia on day 1 was not an explanation for discomfort during the first week. We cannot say, however, whether these children were given analgesics on day 1 prophylactically (ie, to prevent pain or because they actually had pain). Whatever the reason, children who received over-the-counter analgesics from their parents on day 1 had less pain after the first week. Given that a high

DDQ-8 score on day 1 contributes to discomfort after the first week, one could perhaps assume that the analgesics given on day 1 were because a child complained of discomfort. Similarly, those children who complained of other problems in their mouths on day 1 (eg, sore throat, discomfort caused by crowns or sutures) also had higher DDQ-8 scores on days 7 to 12. It is worth reiterating that variables tested in the present study were unsatisfactory in explaining the observed variation in outcomes.

This study was unable to demonstrate a relationship between specific "operative" factors (ie, dental procedures and postoperative discomfort), other than at the immediate time in PAR when space maintainers and, to a lesser degree, crowns influenced the FLACC score. Our inability to demonstrate a relationship is perhaps not surprising, because so many other factors contribute to postoperative discomfort in children, including the child's: anxiety[14]; distress[15]; temperament; "pain-catastrophizing"; and family factors.[1] Furthermore, pain is not directly proportional to the tissue injury.[16] The multidimensional, multifactorial nature of pain helps explain why we could not easily resolve the determinants of postoperative discomfort.

As previously stated, conducting research in the "real-world" of dental practice[11,12] does not allow the same control of confounding variables as might be achievable in a large-scale, randomized controlled trial. Indeed, future studies involving a greater number of children treated at a larger number of ambulatory general anesthetic clinics are recommended.

Even though any reported postoperative morbidity usually disappeared within 1 week of treatment, timely and appropriate pain management and parental counseling about postoperative sequelae are certainly recommended. Hopefully, these results should reassure concerned parents and practitioners about the benefits of treatment and the positive postoperative course experienced by young children after comprehensive dental treatment under general anesthesia in an ambulatory setting.

Conclusions

In this group of young children who had general anesthesia for dental rehabilitation (**DRGA**) for early childhood caries the following are supported by the findings of this investigation:

1. After DRGA, dental discomfort was mild and decreased significantly within the first week postoperatively.
2. Immediate postoperative discomfort in recovery was related to number of crowns and space maintainers and inversely to the length of time the child slept in the recovery room.
3. Dental discomfort in the first week postoperatively was not predicted by any specific operative procedures but was predicted by discomfort before the DRGA, length of sleep in recovery, and not resuming a regular diet by day 1.

Acknowledgments

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