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Oral Session O22 – Dental Anxiety and Behavioural Management 1

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Oral Session O22/Dental Anxiety and Behavioural Management 1

O22–159

Suitability of articain with reduced epinephrine content for local anesthesia in pediatric dentistry

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Introduction: Articainhydrochloride with added epinephrine is a well-suited medicinal product for local anesthesia in children. However, the generally long-lasting anesthetic effect frequently promotes bite lesions. In the course of the present investigation it should be clarified whether a reduced epinephrine concentration may lead to comparable results in anesthetic efficacy and has an impact on the duration of soft tissue anaesthesia.

Materials and methods: Three private practices and one dental school for Pediatric Dentistry were involved, 45 patients received documented treatment (mean age 9.1 (4–16) years; 24 male, 21 female) of 10 operators. Local anesthesia was performed using Ubistesin 1/400.000 for infiltration, block, and intraligamentary injections. The questionnaire involved the parameter 'region', 'indication', 'concomitant medication', 'kind of anesthesia', 'additional injections', 'efficacy' 'duration of treatment', and 'duration of effect'.

Results: Mean timespan between injection and treatment were 8 min, to the end of treatment 24 min. Patients reported approximately 2 h of anesthetic effect in 92% of cases, anesthetic effects were sufficient or complete for conducted measures (cavity preparation $n = 29$, extraction of primary teeth $n = 11$, endodontic treatment $n = 4$, frenulectomy $n = 1$). In 3 cases, an additional injection was required. Both concomitant medication (Midazolam or nitrous oxide/laughing gas) and technique has a significant effect on efficacy (chi-square-test, $P < 0.05$).

Conclusion: The epinephrine-reduced Ubistesin 1/400.000 seems to be suitable for simple therapeutic measures in Pediatric Dentistry. A sufficient anaesthetic effect during dental treatment has been achieved.

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Repeated sessions of rectal midazolam-sedation for dental treatment in children

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Introduction: The aim was to evaluate if repeated use of rectal midazolam sedation changed the degree of sedation, acceptance to treatment, duration of sedation or amnesic effect. Patients and methods: Twenty-three children (10M, 13F) aged 5.1 ± 1.1 (3.4–8.7) years with a mean weight of 18.8 ± 3.0 (10–24) kg, who had dental treatment carried out at two appointments within a 2-month period under rectal sedation with a dose of 0.3 mg midazolam/kg body weight were included. The pediatric dentist evaluated the patient's degree of sedation and the patient's acceptance of treatment. Parents evaluated the duration of sedation and amnesic effect. Permission was obtained from the ethical committee at Linköping University, and the parents gave informed consent to participation. Paired *t*-test was used for statistical analysis.

Results: 79.0 ± 10.1 (65.2–91.3)%, and 76.1 ± 15.7 (47.8–91.3)% were calm at the first and second treatment, respectively. Treatment was accepted without problems in 15 (65%) and 14 (61%) of the patients at the first and second appointment, respectively. Acceptance to treatment improved in three (13%) and impaired in five (22%) of the patients. Treatment acceptance did not improve if the child had severe difficulty accepting treatment at the first appointment. Duration of sedation did not differ ($P = 0.257$) between the first [2.2 ± 0.8 (1.0–3.5) hours] and second [2.0 ± 0.8(1.0–3.5) hours] appointment. 21 (91%) and 20 (87%) of the children had amnesia after the first and second appointment, respectively.

Conclusion: Repeated use of rectally administered midazolam in children did not influence the level of sedation, treatment acceptance, duration of sedation or the amnesic effect.

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Pre-operative analgesics for additional pain relief in children having dental treatment

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Introduction: Use of pre-operative analgesics in children undergoing dental treatment either with or without LA has the potential to reduce post-operative discomfort. In addition it might also reduce intraoperative pain. Therefore the aim of this systematic review was to investigate the efficacy of pre-operative analgesics for pain relief in children and adolescents undergoing dental treatment.

Materials and methods: A systematic review of randomised controlled clinical trials (RCT's), was performed for: children and adolescents aged up to 17 years having dental treatment. We excluded children and adolescents having dental treatment under sedation or general anaesthesia. *Types of interventions:* test group (where analgesics given before dental treatment), control group (placebo or no analgesia). *Primary outcomes:* Completion of treatment (Yes/no) and Differences in pre-operative and postoperative pain measures between test and control groups. Electronic literature search of scientific papers from 1950 up to second week of January 2009 was carried out on the MEDLINE, EMBASE databases using specific key words.

Results: The combined search resulted in 962 articles at the first stage. After exclusion by abstract, only 3 papers were included. These studies were limited to orthodontic treatment.

Conclusion: Clinical trials are required to look at the use of pre-operative analgesics in children having dental treatment under local anaesthetic.

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Oral and rectal administration of midazolam in pediatric dentistry

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Introduction: In children in whom adequate compliance with respect to dental treatment cannot be achieved, ambulatory treatment under conscious sedation constitutes an alternative to general anesthesia. The objective of the present study was to evaluate the efficacy of midazolam following oral or rectal administration to pediatric patients undergoing dental treatment.
Patients and methods: Subjects in this study were 83 children (age ranging from 1.6–7.8 years; mean 4.8 years) who received dental treatment under conscious sedation. Midazolam (Dormicum) 0.5 mg/kg was administered orally in 14 children (group A) and rectally in 69 children (group B). All children had had their regular meals prior to midazolam administration. Continuous monitoring of respiratory and cardiac function by pulse oximetry was performed in all children. The efficacy of midazolam after oral or rectal administration was evaluated using the following classification.
Class I – a sedative effect was not achieved and patients remained unwilling to undergo any dental procedures
Class II – a limited sedative effect was achieved facilitating limited therapeutic interventions
Class III – complete sedation was achieved facilitating adequate therapeutic interventions.
Results: In group A 71.4% of the patients ($n = 10$) showed a class I, i.e., a dissatisfactory effect, whereas in group B class I efficacy was only encountered in 5.8% ($n = 4$) of the children. In group A 7.1% of the patients ($n = 1$) showed a class II, whereas in group B class II was observed in 18.8% ($n = 13$) of the children. Children with full sedation being achieved in 21.4% ($n = 3$) in group A and 75.4% ($n = 52$) in group B. Hence, rectal administration resulted in a significantly greater efficacy (Mann – Whitney U test $P < 0.0005$) compared to oral administration. Pulse oximetry values ranged from 84% to 100%.
Conclusions: Rectal administration yielded a high sedative efficacy and thus appears to be an excellent alternative to general anesthesia thereby facilitating treatment of noncompliant children in an ambulatory setting.

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Evaluation of osteocentral (trans-septal) anaesthesia in children and adolescents

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Introduction: Osteocentral (trans-septal) anaesthesia aims at injecting the anaesthetic solution within the spongy bone, the needle of the syringe getting through the septum to reach it. The goal of this retrospective study was to assess its efficacy in children and adolescents and evaluate how young patients appreciate it.
Materials and methods: This study was performed by trained operators at the dental hospital of Rennes. Anaesthesia with 4% articain and 1:200,000 epinephrine was performed in patients of the department of Paediatric Dentistry, using the computer-assisted Quick Sleeper ™ system (DHT, Cholet, France). The efficacy was evaluated as previously described [Sixou et al, 2008]. The pain as evaluated by the patients was recorded on a faces pain scale, FPS, scored 1 (no pain) to 6 [Hicks et al, 2001] and on a visual analogue scale, VAS, scored 0 to 10. Practitioners were also asked to evaluate pain during penetration and injection.
Results: Efficacy was close to that usually found with intraosseous anaesthesia. No difference was noted whatever the treatment performed. Most of VAS scores given by children were below 4 and FPS scores of 1 (no pain) or 2 (mild discomfort) were most frequently chosen by patients. In most of children, computer-assisted osteocentral anesthesia was found as or more comfortable than classical infiltration methods.
Conclusion: This study confirmed the efficiency of computer-assisted osteocentral anesthesia in young subjects. This technique seems therefore to be a good alternate to infiltration techniques or intraosseous anaesthesia for trained specialists in paediatric dentistry.

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Outcome measures used for dental sedation in children and adolescents

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Introduction: Previous work has indicated that there are many different outcome measures used to assess behaviour during sedation for dental treatment in children (Matharu L and Ashley PF, 2007). This lack of consistency makes it difficult to compare the efficacy of different interventions. Therefore the aim of this study was to evaluate behaviour rating scales used with regards to design and assessment of validity.
Patients and methods: MEDLINE and EMBASE databases were searched for papers reporting on the use of sedation for dental treatment in children using specific keywords. The following inclusion criteria were used: all children and adolescents up to 17 years of age having any dental treatment under sedation; any design method; any method of sedation via any route; any method of measuring behaviour.
Results: The search yielded 1755 articles at the first stage, this yielded 117 relevant articles. Houpt, Frankl and OSBRS were the most often used behaviour scales. Little information was available regarding their development or assessment of their validity.
Conclusion: Currently used methods of behaviour assessment during sedation may not have been well designed. Consideration should be given to development of valid and repeatable scales.

