MASTEROPPGAVE

Behavior Guidance Techniques in Dentistry to prevent the need of General Anesthesia

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Content

1. Introduction

In the 7th semester of the master in odontology at University of Tromsø (UiT), we spent 4 months in external practice in The Public Dental Service in Tromsø. During that period we once had the opportunity to observe dental treatment under general anesthesia (GA) at the University Hospital of North Norway (UNN). At that time we started questioning this type of treatment on patients with dental anxiety. The dental treatment under GA seemed to us quite dramatic compared to treatment in the dental office, because the patient is totally unconscious and intubated. In addition it requires drugs, specially educated staff (anesthesiologist, nurses, dentist and dental nurse) and advanced equipment, which increases the costs for the service provider (1). Even though GA used in dentistry is claimed to be safe when administrated by trained personnel (2, 3, 4, 5), the patients dental anxiety is not paid attention to or treated. Perhaps the use of behavior guidance techniques (BGT) in the dental office can treat the dental anxiety and prevent the need of GA in dental treatment.

When deciding on the topic for our master thesis, we contacted a specialist on pedodontics at Tannhelsetjenestens kompetansesenter i Nord-Norge (TkNN). She was concerned about the lack of follow-up of patients treated under GA. Did the patients receive any treatment for their dental anxiety? We received some articles, and one of them concluded that the dental care and follow-up for children undergoing dental treatment under GA can be improved (6). According to this article, no guidelines describing the follow-up for children treated under GA could be found.

1.1. Problem

In this thesis we wanted to find out:

"Are there guidelines on the use of behavior guidance techniques in dentistry to prevent the need of GA?"

1.2. Reviews of guidelines

Paul Glassmann published a review in 2009, searching for guidelines for sedation, anesthesia and alternative interventions for people with special needs (7). He found that few guidelines

included BGT. Many guidelines contain mainly descriptions on the use of sedation, nitrous oxide and GA to facilitate dental treatment. The guidelines often include information on required qualification of staff and equipment (8, 9, 10, 11).

1.3. Definitions of terms

According to American Academy of Pediatric Dentistry (8), the definition of guidelines are; "Systematically developed recommendations to assist practitioner and patient decisions about appropriate healthcare for specific clinical circumstances. These recommendations may be adopted, modified, or rejected according to clinical needs and constraints. Guidelines are not intended as standards or absolute requirements and their use cannot guarantee any specific outcome".

Behavior guidance techniques (BGT) in dentistry are psychological and/or pharmacological techniques used by dentist/hygienist to control pain and anxiety. The major outcomes with these techniques are to gain a co-operative and satisfied patient, who allows dental treatment in the dental office with minimal discomfort and without expressed fear (12, 13, 14, 15).

General anesthesia (GA) is defined as a drug induced unconsciousness, where the patients lose reflexes fully or partially (8). It provides relieve from anxiety and pain (16).

Dental anxiety is fear or anxiety that prevents dental treatment (15). In serious cases the patient avoids dental treatment even if he/she suffers from great dental pain. Some patients experience the whole situation of being in a dental office as frightening. Other patients get anxious by specific things/situations in the dental office, such as smell, noise, bur and needles (17). To be able to treat the dental anxiety it is important to define intermediate and final aims of the treatment (15). In Norway 5-10% of the adult population avoids seeing the dentist regularly because of dental anxiety (17).

1.4. Hypothesis and aims

Our hypothesis was that there are no guidelines describing BGT that should be attempted to prevent GA in dental treatment for patients with dental anxiety.

If there were no guidelines, the aim was to construct a guideline. If there were existing guidelines, the aim was to study whether the clinical cases were treated according to them.

2. Method

In the search for guidelines, systematically and unsystematically searches for literature were done. Observations and interviews were performed to get an impression of dental treatment under GA, and to have the possibility to compare local clinical cases with existing guidelines.

2.1. Systematic and unsystematic search for literature

Searches for literature were done to identify for the purpose relevant articles. Databases were searched systematically for literature and informants were contacted by e-mail to find international, national and local guidelines on the use of BGT in dentistry to prevent the need of GA.

Unsystematic literature-searches in Google and various databases were also conducted. Parts of the unsystematic searches were based on the references in the articles identified as relevant in the systematic search.

Articles and feedback from the informants were excluded if they did not meet the inclusion criteria described below.

2.1.1. Criteria for selecting guidelines

The main objective of the guideline should be treatment of the dental anxiety by using BGT in a certain order. The guidelines therefore had to contain precise and stepwise BGT suitable for patients with dental anxiety. The guidelines must describe when the BGT should be performed (before referring to GA, when waiting for GA and after GA) and who is responsible for treating their dental anxiety, by using BGT.

We excluded guidelines on how to use GA to facilitate the delivery of dental treatment, guidelines on how to refer to dental treatment under GA and guidelines on how to perform dental treatment under GA. Articles that were not in English or Nordic language were also excluded.

2.1.2. Search for international guidelines

In the systematic search for literature the databases Cochrane, EMBASE, ISI Proceedings, MedLine, PubMed and SveMed+ were selected. The MeSH-Database in PubMed was used to pick out the search-queries.

The search-queries were:

1. practice guidelines as topic
2. guidelines
3. practice guideline
4. dental anxiety
5. anesthesia

The search-queries were combined as following:

- *(Practice guidelines as topic OR guideline OR practice guideline) AND dental anxiety AND anesthesia.*

In addition to the literature-search, World health organization (WHO) was contacted twice by e-mail in the search for international guidelines.

2.1.3. Search for Norwegian national guidelines

In the search for Norwegian national guidelines an e-mail was sent to The Norwegian Directorate of Health and the Departments of Clinical Dentistry at UiT, University of Oslo (UiO) and University of Bergen (UiB) and to a former Chief of Tromsø Tannlegeforening.

2.1.4. Search for local guidelines in Norwegian counties

The Chief-Dentist of each county in Norway was contacted (n=19) by sending a standard e-mail, asking for local guidelines. The e-mail was sent up to three times, with one week in-between, to those who did not answer. In addition, an oral surgeon at TkNN, a specialist in oral and maxillofacial surgery at UiT and the Hospital Dentist at TkNN, were contacted.

2.2. Observations of dental treatment under GA

The specialist in Pediatric Dentistry and Hospital Dentist at TkNN were contacted and asked for permission to attend dental treatment under GA. It was required that dental anxiety caused

the choice of dental treatment under GA. Pre-school children were excluded. Two patients, one adolescence and one adult, met the inclusion criteria, and were observed. The patients were informed and approved the observation before the treatment, and their records were studied.

2.3. Interview of the dentists

The dentists who carried out the treatment under GA were interviewed after the observations. The interview was based on the information from the observations and articles. The interview guide was semi-structured (Appendix 1). Questions were allowed to be brought up spontaneously during the interview, as a result of what the interview-objects said. The BGT suggested by the dentist to prevent GA in dental treatment have been highlighted in the result.

3. Result

3.1. Systematic and unsystematic search for literature

Our hypothesis was confirmed, there are no international, national or local guidelines available that fulfilled the inclusion criteria.

3.1.1. International guidelines

The systematical searches in databases resulted in an output of 12 articles from Pub Med and 2 articles from Cochrane, 14 in total (Table 1). All articles were excluded.

Author(s)	Title	Publisher	Reference number	Assessment
American Academy on Pediatric dentistry council on clinical affairs.	Guideline on appropriate use of nitrous oxide for pediatric dental patients.	Pediatr Dent. 2008-2009;30(7 suppl); 140-2. PubMed	18	Excluded. This is a guideline on the use of Nitrous oxide in dentistry.
American Academy on Pediatric dentistry council on clinical affairs committee-Behavior management subcommittee.	Guideline on behaviour guidance for the pediatric dental patient.	Pediatr Dent. 2008-2009;30(7 suppl); 125-33. PubMed	12	Excluded. The guideline has stepwise BGT, but was excluded because it had not specified when the BGT should be performed (before referring to GA, when waiting for GA or after GA) and who's responsible of performing the BGT.
Glassman, P. et al.	Special care dentistry association consensus statement on sedation, anesthesia, and alternative techniques for people with special needs.	Spec Care Dentist. 2009 jan;29(1);2-8; quiz 67-8 PubMed	19	Excluded. This is a description of modalities that can be used to help individuals with special needs to receive dental treatment. It does not describe stepwise BGT and when they should be performed.
Roelofse, J.	Sedation corner 22. Conscious sedation in dentistry. Part 1.	SADJ. 2008 feb;63(1):040-1 PubMed	20	Excluded based on title.
Craig, DC. et al.	Conscious sedation for dentistry; an update.	Br Dent J. 2007 Dec 8;203(11);629-31. PubMed	21	Excluded. This is a guide on the use of conscious sedation in dentistry.
Merin, RL.	Adult oral sedation in California: What can a dentist do without a special permit or certificate from the Dental Board of California?	J Calif Dent Assoc. 2006 Dec;34(12):959-68. PubMed	22	Excluded based on the title.
Jones, S.	Dental Sedation Teachers Group Annual Symposium. Royal College of Surgeons.	SAAD Dig. 2006 May;22:24-6. PubMed	23	Excluded based on the title.
American Academy on Pediatric dentistry; American Academy of Pediatric dentistry Committee on sedation and Anesthesia.	Guideline on the elective use of minimal, moderate, and deep sedation and general anesthesia for pediatric dental patients.	Pediatr Dent. 2005-2006;27(7 suppl);110-8. PubMed	8	Excluded. It describes only the use of sedation and GA.

Author(s)	Title	Publisher	Reference number	Assessment
Pike, D.	Letter from the Secretary.	SAAD Dig. 2001 Oct;18(4):22-3. PubMed	24	Excluded based on the title.
General Dental Council.	GDC new guidelines for sedation.	SAAD Dig. 1999 May; 16(2);17-9; discussion 16. PubMed	10	Excluded. This is a guideline on the use of conscious sedation.
Grainger, JK.	Intravenous sedation—can you practise with it? Can you practise without it?	Ann R Australas Coll Dent Surg. 2000 Oct;15:316-8 PubMed	25	Excluded. It describes the use of intravenous sedation.
Committee on Research, Science and Therapy, the American Academy of Periodontology.	Guidelines; In-office use of conscious sedation in periodontics.	J Periodontol. 2001 Jul;72(7);968-75. PubMed	26	Excluded because these guidelines are intended for periodontists in the in-office use of enteral, inhalation, and/or parenteral conscious sedation in the delivery of care.
Mohammad, OS. Et al.	Replacement versus repair of defective restorations in adults: amalgam	February 2010 Cochrane reviews	27	Excluded based on the title.
Mohammad, OS. Et al.	Replacement versus repair of defective restorations in adults: resin composite	February 2010 Cochrane reviews	28	Excluded based on the title.

Table 1: Result from the systematic search for international guidelines on the use of BGT in dentistry to prevent the need of GA. All articles were excluded.

One international guideline (12) from our searches contained precise and step-wise BGT suitable for patients with dental anxiety. This guideline had not specified whether the interventions should be performed before referring to GA, when waiting for GA or after GA. It therefore did not fulfill the inclusion criteria and was initially excluded. But because this guideline almost met the inclusion criteria we decided to present the guideline in more detail.

This guideline was published by the American Academy of pediatric dentistry (12) and the objective was “to educate health care providers, parents and other interested parties about many behavior guidance techniques used in contemporary pediatric dentistry.” The target population was infants, children, adolescents and persons in the need of special health care undergoing dental procedures. This guideline is based on scientific literature and experts in the field. The guideline describes BGT in detail, including indications and contraindications for the different methods. The major goal by this guideline is to get a co-operative patient-behavior and a satisfied patient.

This is a short summary of the behavior guidance techniques described in the article (12):

1. *Obtaining informed consent:*
    - The parents must be informed and understand the dentist's recommendations of the use of behavior guidance techniques, to be able to make a decision on how their child should be treated.
2. *Patient communication:*
    - Communicative management and appropriate use of command to establish a relationship with the child and allow successful completion of dental procedures.
3. *Tell-show-do technique:*
    - Explain and demonstrate the procedures to the patient, so the patient can be familiarized with the dental setting and be able to complete the procedure.
4. *Voice control:*
    - The dentist's control of voice volume, tone or pace.
5. *Nonverbal communication:*
    - Behavior guidance through appropriate contact, posture, facial expression and body-language.
6. *Positive reinforcement:*
    - To reward desired behavior through positive voice modulation, facial expression, verbal praise and appropriate physical demonstrations. The objective is to strengthen the recurrence of wanted behavior.
7. *Distraction:*
    - Distract the patient from unpleasant procedures to decrease the perception of unpleasantness.
8. *Parental presence/ absence:*
    - The parents' presence or absence can influence the patient's co-operation for treatment.
9. *Nitrous oxide/oxygen inhalation:*
    - A safe and effective technique to reduce anxiety and enhance effective communication.
10. *Protective stabilization:*

- Restriction of patient's freedom of movement. This method can lead to serious consequences for the patient, both physical and/or psychological and should be used carefully.

11. *Sedation:*
    - A method to control anxiety, minimize psychological trauma and maximize the potential for amnesia.
12. *General anesthesia:*
    - Reduce unwanted movement and reaction to dental treatment, and eliminate the patient's pain response.

Despite several inquiries, WHO did not respond to our e-mails, therefore there is no information available whether they have international guidelines or not.

From the unsystematic search for literature 20 articles relevant to our study were found (Table 2). None of the articles met our inclusion criteria.

Author(s)	Title	Publisher	Reference number	Included/excluded
Vargas-Roman , MP. et al.	Dental treatment under general anesthesia: A useful procedure in the third millennium?	Mendicina Oral 2003;8:129-35	29	Excluded because this is not a guideline, but more cautions when using GA.
Foster, T. et al.	Recurrence of Early Childhood Caries after Comprehensive Treatment with General Anesthesia and Follow-up	Journal of Dentistry for Children-73:1,2006.	30	Excluded based on the title.
Raadal, M. et al	Pasienter med tannlegeskrekk- hvordan planlegger man behandlingen?	http://www.tannlegetidende.no/index.php?seks_id=48710	15	Excluded. No guideline.
Chief dentist Eva Edblad, pedodontist	Odontologisk behandling under narkos	Eva Edblad	31	Excluded because this contains mainly indications for referring to GA.
Socialstyrelsen in Sweden	Nationella riktlinjer for vuxentandvård	http://www.socialstyrelsen.se/riktlinjer/nationellariktlinjer/tandvard	32	Excluded because it is not a guideline concerning GA.
Dental fear central	General Anaesthesia	http://www.dentalfearcentral.org/general_anesthesia_dental.html	33	Excluded. No guideline.
Slåttelid Skeie, M.	Karies I det primære tannsett-betydning for oral og generell helse.	http://www.tannlegetidende.no/index.php?seks_id=221329	34	Excluded. No guideline.
Stalin UH. et al.	Hur går det sedan för våra narkospatienter? Uppföljing av tandbehandling under narkos utförd på barn.	Barntandlækarbladet 2 - 2008/årgång 21	6	Excluded. No guideline.

Author(s)	Title	Publisher	Reference number	Included/excluded
Glassmann, P.	A review of guidelines for sedation, anesthesia, and alternative interventions for people with special needs.	Spec Care Dentist 29(1):9-16, 2009.	7	Excluded because it is not a guideline, but a review of guidelines.
Ashley, PF. et al	Sedation versus general anaesthesia for provision of dental treatment in under 18 year olds (review).	The Cochrane collaboration, 2009, issue 1.	1	Excluded. No guideline.
Tsai, CL. et al	A retrospective study of dental treatment under general anesthesia of children with or without a chronic illness and/or disability.	Chang Gung Med J Vol. 29 No.4 July-August 2006.	35	Excluded. No guideline.
Joaquin de Nova Garcia, M. et al	Criteria for selecting children with special needs for dental treatment under general anaesthesia.	Med Oral Patol Oral Cir Bucal. 2007 Nov1;12(7):E496-503.	36	Excluded. No guideline.
Council on clinical affairs	Policy on the use of deep sedation and general anesthesia in the pediatric dental office.	American academy of pediatric dentistry V32/NO6 10/11.	37	Excluded. No guideline.
Hosey, MT.	UK National Clinical Guidelines in Paediatric Dentistry: Managing anxious children: the use of conscious sedation in paediatric dentistry.	International Journal of Paediatric Dentistry 2002; 12:359-372.	38	Excluded because it is a guideline on conscious sedation.
Manley, M. C. G. et al	Dental treatment for people with challenging behaviour: general anaesthesia or sedation?	British dental journal, Volume 188, NO 7, April 8 2000.	5	Excluded. No guideline.
Messieha, Z et al	Five year outcomes study of Dental Rehabilitation Conducted Under General Anesthesia for Special Needs Patients.	American Dental Society of Anesthesiology 2007.	4	Excluded. No guideline.
American Dental Association policy statement	The use of conscious sedation, deep sedation and general anesthesia in dentistry.	American Dental Association 2005.	3	Excluded. No guideline.
American Dental Association	Policy statement: The use of Sedation and General Anesthesia by Dentists.	American Dental Association 2007.	2	Excluded because it is a guideline on the administration of sedation and GA.
American Dental Association: 2007	Guidelines for the Use of Sedation and General Anesthesia by Dentists.	American Dental Association: 2007.	9	Excluded because it is a guideline on the administration of sedation and GA.
Helsedirektoratet	Tannlegeskrekk	www.helsedirektoratet.no	17	Excluded. No guideline.

Table 2: Result from the unsystematic search for guidelines on the use of BGT in dentistry to prevent the need of GA. All articles were excluded.

3.1.2. Norwegian national guidelines

No national guideline was found in Norway.

The Norwegian Directorate of Health answered that there are no national guidelines on interventions that should be done before GA (Appendix 2). The former Chief of Tromsø Tannlegeforening confirmed that there were no national guidelines, neither describing behavior guidance techniques before dental treatment under GA, while waiting for GA nor after.

One of the three Departments of Clinical Dentistry in Norway had well established guidelines but not in a written form. Of the other two departments, one forwarded the e-mail to the Public Dental Service in their county and the other forwarded the e-mail to their specialist in pediatric dentistry.

3.1.3. Local guidelines in Norwegian counties

All 19 counties of Norway were contacted by e-mail. Of these 13 (68%) replied. Five of them answered that they had no such guideline. Eight answered that they had written guidelines. Five of the 8 written guidelines were mainly referral routines to GA, not really guidelines, and were therefore excluded. The other three written guidelines had stepwise behavior guidance techniques, but not precise. One of them did not mention behavior guidance techniques that should be performed when waiting for GA and after GA. The three guidelines did not match our inclusion criteria, and were therefore excluded. Table 3 shows a summary of the result from the search for local guidelines. Many of the Chief Dentists forwarded the e-mail to get someone else in the organization to answer our question.

Reply by e-mail	No reply
13 Counties (68%) 5 Counties had no guideline 8 answered that they had written guidelines • 5 Counties had referral routines to GA • 3 Counties had written guidelines	6 Counties (32%)

Table 3: Distribution of local guidelines in Norwegian counties.

In Table 4 three local guidelines are presented, because they were the guidelines closest to our inclusion criteria from the searches for local guidelines in Norwegian counties. The availability and use of the local guidelines were uncertain.

The oral surgeon at TkNN and the specialist in oral and maxillofacial surgery at UiT did reply by e-mail, but did not answer the questions.

County	BGT performed before referring to GA	BGT performed while waiting for GA	BGT performed after GA
1	• Adaption to regular dental treatment. • Delay of treatment until the patient is more mature and able to co-operate. • Premedication • Change of treating dentist	• Regular follow-up and prophylaxis, while waiting for dental treatment under GA.	• Regular follow-up and prophylaxis soon after dental treatment under GA, to gain adaption to regular dental treatment.
2	• Extensive adaption to regular dental treatment shall be done. • Premedication • Nitrous oxide	• Regular visits for adaption, oral hygiene instructions and Duraphat. • Observation of interaction between parent and child and documentation of the observed. • Observation and documentation of the parent's co-operation and follow-up of their child.	• More frequent visits, minimum 3-4 times each year the first 2 year after dental treatment under GA. • Focus on oral hygiene, adaption and interaction. • Referring dentist must report to the child welfare if it's indicated.
3	• Adaption with the treating dentist/hygienist. Only two visits are allowed for adaption. • If adaption is not succeeded; o Premedication o Change of treating team o Nitrous oxide or GA	Not mentioned	Not mentioned

Table 4: BGT in three selected local guidelines.

3.2. Observations of dental treatment under GA

Two patients with dental anxiety undergoing dental treatment under GA were observed. Before the observations information was collected from the patients' records. The patients were observed just before they were anesthetized, during the dental treatment under GA and after the treatment when awakened from general anesthesia.

Information collected from the record of patient 1:

Anamnesis:

- Girl born in1998
- Registration on health was updated in 2008: coeliac disease
- Very anxious in the situation of treatment
- Poor oral hygiene
- In the need of extensive dental treatment (caries and chronic apical periodontitis) already from the first visit in 2003

The patient's record was created in 2003. She received dental treatment under GA in 2007 and 2010. After dental treatment under GA the record showed that communication was established between the referring dental clinic and TkNN. For the referring dental clinic it was unclear who was responsible for the follow-up of the patient. According to the record, no epicrisis had been sent to the referring dentist.

Table 5 shows a summary of BGT done before referring the patient to GA, when waiting for GA and after treatment under GA according to the patient's record. Prophylaxis and Oral Hygiene Instructions (OHI) were included as BGT.

BGT performed before referring to GA	BGT performed while waiting for GA	Year for GA treatment	BGT performed after GA
2003: • Oral hygiene instructions (OHI) and prophylaxis (Professional cleaning and/or fluoride varnish) 2004: • Prophylaxis • Prophylaxis • Premedication- no good effect • Prophylaxis	Sept 2006 -2007: • Prophylaxis • Premedication – no good effect • Tell-show-do, communication and prophylaxis	2007	2007: • OHI and prophylaxis • OHI and prophylaxis 2008: • OHI and prophylaxis • Premedication- no good effect • Referred to specialist in pedodontics • Stepwise exposure and gradual approach – no good effect • Tell-show-do and Nitrous oxide –good effect
2009: • Communication, OHI and prophylaxis. • Communication. • Nitrous Oxide- good effect. The first reported conservating treatment in consciousness was done. • OHI • OHI • Diet guidance and prophylaxis. • OHI and prophylaxis. • Nitrous oxide. Started treatment of chronic apical periodontitis.	March 2010- May 2010: • No BGT done according to the journal.	2010	2010: • Control after dental treatment under GA • Examination at the referring clinic; OHI and prophylaxis. New caries reported. • OHI and prophylaxis

Table 5: BGT done before referring the patient to GA, when waiting for GA and after treatment for patient 1.

Information collected from the record of patient 2:

Anamnesis:

- Male born in1963
- Registration of Health updated in 2010:
  - Psoriasis (takes medications for psoriasis)
  - Claustrophobic- the patient is not able to have instruments in his mouth
- Has done dental treatment under GA before
- In the need of extensive dental treatment (caries and chronic apical periodontitis)

This patient was referred to GA by a private general dental practitioner and therefore nothing was registered in the patient's record of the public dental service before 2010.Thus no information of behavior guidance techniques done before dental treatment under GA was available on this patient.

3.3. Interview of the dentists

The Specialist in Pedodontics and the Hospital Dentist were interviewed after they had done the dental treatments under GA. Type of BGT the dentists suggested to prevent GA in dental treatment have been highlighted from the interview.

In summary, the dentist who treated the adult patient thought that it was important to inform the patient of potential risks and disadvantages of dental treatment under GA. He also thought that the patient should attend regular follow-up at the referring dentist while waiting for dental treatment under GA and after. The pedodontist emphasized the importance of trying "everything", such as tell-show-do techniques, sedation, nitrous oxide and change of dentist. According to him, GA should be the last option. But he also thought that dental treatment under GA should be done at an early stage if the patient is very anxious and has an extensive need of dental care. In his opinion this could make the adaption to the situation of treatment easier later on. While waiting for dental treatment under GA and after, there should be regular follow-up by the dental hygienists.

Both dentists had the opinion that there should be guidelines describing behavior guidance techniques that should be attempted to prevent the need of GA in dental treatment.

4. Discussion

Our hypothesis was confirmed, thus there are no guidelines describing BGT that should be used to prevent GA in dental treatment for patients with dental anxiety.

The aim of this thesis was to make a guideline, but making such a guideline requires further searches for literature. Evidence-based data on the different BGT that can be used in treatment of dental anxiety has to be collected. Instead we have chosen to discuss what we think the guideline should contain based on the information collected in the searches for literature, observations and interviews.

According to the inclusion criteria, the guideline's main objective must be treatment of dental anxiety by using psychological and pharmacological techniques in a certain order. Therefore, it had to contain precise and stepwise BGT suitable for patients with dental anxiety. The guideline must describe when the BGT should be performed (before referring to GA, when waiting for GA and after GA) and who is responsible for treating their dental anxiety, by using BGT. Precise BGT makes it easier for the intended users of the guideline to know exactly how to perform the BGT, and there is no need for own interpretation. Even though the guidelines are not intended as standards or absolute requirements, the patients are then more likely to receive a treatment grounded on evidence-based knowledge. If the BGT are stepwise it is more likely that the BGT are done in a proper order, to gain optimal progression in treating both the dental anxiety and the dental problem. To ensure that the patient's dental anxiety is the primary focus and is taken care of even when the dental treatment is finished, the guideline must describe when the BGT should be performed and who is responsible.

The guideline presented by the American Academy of pediatric dentistry contains precise and stepwise BGT suitable for patients with dental anxiety (12). The BGT are described in detail, with objectives, indications and contraindications. Obtaining informed consent, patient communication, tell-show-do technique, voice-control, nonverbal communication, positive reinforcement, distraction and parental presence/ absence are in this guideline categorized as basic behavior guidance techniques. These techniques should be used as basic management methods by the dentist and should be tried out before using advanced behavior guidance, such as GA, sedation and protective stabilization. The guideline was published in 2000 and revised

in 2008, and is therefore relatively new. The evidence supporting the recommendations in the guideline is scientific literature and experts in the field.

The local guidelines also have stepwise BGT, but they are not precise. The terms “regular visits” and “follow-up” are often used in the guidelines, but they do not describe how often “regular” is or what “follow-up” involves. All three of the presented local guidelines use the term adaption to regular dental treatment, but they have not specified what adaption involves. In our opinion this is not descriptive or precise enough to be used as a guideline.

According to the record of Patient 1, the treatment is not stepwise and not precise. The record is insufficient and the interventions are not precisely described. Intermediate and final aims are not defined and it is therefore difficult to make a stepwise treatment-plan. There has not been any systematic use of BGT and it seems quite random what has been done. The only BGT used before referring to GA in 2007 are OHI, profylaxis and sedation. In 2005 the record does not report any BGT at all. It seems as though pharmacological techniques are used before trying out several different psychological techniques.

The guideline presented by the American Academy of pediatric dentistry does not describe when the BGT should be performed, and who is responsible for treating both the dental anxiety and dental problem. The intended users of the guideline are allied health personnel, dentists, health care providers, nurses, patients and physicians, but the guideline does not specify who is responsible for doing the different BGT. The guideline is not a guideline written specific to prevent the need of GA in dental treatment and is to general. It could be a useful tool in dentistry to get a co-operative patient behavior and a satisfied patient, but we assume that a guideline intended to prevent the need for GA has to specify exactly who’s responsible for the interventions and at what time.

The three selected local guidelines have specified when the BGT should be performed, but one of them did not mention BGT performed while waiting for GA and after GA. None of them has specified who’s responsible for the interventions.

By using a guideline describing when the BGT should be performed and by who, the patients are more likely to get immediate follow-up. After referred to GA March 2010 patient 1 waited 3 months for the treatment. The patient did not receive any treatment for her dental anxiety

while waiting, and it seems like the clinic responsible had given up on treating her dental anxiety. According to the record no epicrisis had been sent to the referring dental clinic after dental treatment in GA. The dentist there was uncertain of the responsible of the follow-up after treatment under GA. Attending immediate follow-up appears to reduce the likelihood of a recurrence of caries, according to Foster et al (30). The follow-up should contain postoperative evaluation and reinforcement of oral hygiene and dietary counseling.

The specialist in pedodontics and the Hospital Dentist were interviewed after they had done the dental treatments under GA. The dentist who treated the adult patient thought that patients should attend regular follow-up at the referring dentist while waiting for dental treatment under GA and after. The pedodontist emphasized the importance of regular follow-up by the dental hygienists while waiting for dental treatment under GA and after. In his opinion the treatment of the dental anxiety could give better results after treatment under GA if the patient is in need of extensive dental care. After eliminating the extensive dental problem the patient and the dentist may focus on the dental anxiety, without patient being in pain or discomfort. Both dentists thought there should be guidelines describing behavior guidance techniques that should be attempted to prevent the need of GA in dental treatment.

Because of the lack of relevant references no guideline could be constructed. But perhaps other key-words and search-queries had produced other results. Further, the large drop-out of the e-mail responses made the interpretation of the result uncertain. Despite this, we are of the opinion that the result reflects the reality.

5. Conclusion

There are no guidelines describing BGT that should be used to prevent GA in dental treatment for patients with dental anxiety. Patients with dental anxiety and dental practitioners could benefit from having a guideline with systematic developed recommendations in order to gain appropriate health care. Even if the guideline cannot guarantee any specific outcome it could be a useful tool in dentistry to get a co-operative patient behavior and a satisfied patient. We assume such a guideline may lead to fewer patients with dental anxiety in the need of dental treatment under GA. For those who must undergo dental treatment under GA, this kind of guideline may lead to better treatment of their dental anxiety.

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Intervju av behandler i forbindelse med tannbehandling i narkose

1. Hvilke tiltak bør være utprøvd før det innvilges narkose?
2. Hvilke tiltak bør gjøres i ventetida før narkose? (psykologisk oppfølging, hygiene, tilvenning)
3. Er det spesielle mennesketyper med odontofobi som ender opp med narkose? (samarbeidsvilje, typisk trekk, overgrep, tilleggsdiagnoser)
4. Kunne man med bedre tverrfaglig samarbeid bidratt til redusert behov for tannbehandling under narkose? (psykolog, lege/barnelege, terapeut, skole, helsesøster)
5. Hvordan oppleves pasientens/ foreldrenes motivasjon for å unngå narkose?
6. Har foreldre/pasient realistiske forventninger til behandling under narkose? (løsning på problemet, egen innsats framover, lettvint løsning, kortsiktig vs. langsiktig)
7. Hvordan gjøres oppfølging i etterkant av tannbehandling under narkose? (Hvordan er det og hvordan bør det være)
8. Bør det være retningslinjer for krav til tilvenning i forkant av narkose og evt. oppfølging? (odontofobi pasienter).

Spørsmål direkte til tannbehandlingen under narkose.

1. Kvaliteten på behandlingen? Hadde beh. vært gjort annerledes i normal beh. situasjon? (okklusjon, puss/polering, mangel på utstyr, etterkontroll av utført arbeid, ekstraksjon vs. endo).
2. Samarbeid med henvisende tannlege?
3. Hva tenker du om risikoen for behandling i narkose?
4. Hvordan er det som tannlege å arbeide med pasient i narkose? (meningsfylt, føles det riktig)
5. Hvordan ser du for deg framtiden til narkosepasienten? Slik systemet er i dag (engangstilfelle eller gjentakende narkose, hvor lang tid før neste behandling i narkose (mønster?), sammenheng narkose som barn og narkose som voksen).