

East African Medical Journal Vol. 77 No. 10 October 2000

TESTING A CONSENSUS CONFERENCE METHOD BY DISCUSSING THE MANAGEMENT OF TRAUMATIC DENTAL INJURIES IN TANZANIA

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ABSTRACT

Objectives: To test the recommended consensus conference methods in Tanzania by discussing the management of traumatic dental injuries, and to reach consensus on the feasibility of the treatment modalities of traumatic dental injuries recommended in western countries in the Tanzanian situation.

Study participants: Fifteen dentists as representatives of the profession and two lay people as representative of potential consumers.

Interventions: Presentation of treatment modalities for traumatic dental injuries recommended in western countries.

Main outcome measure: Consensus on the feasibility of the recommended treatment modalities of traumatic dental injuries in the Tanzanian situation.

Results: For most types of injuries, consensus on the feasibility of the recommended treatment methods for Tanzania was reached immediately. More time was spent to discuss management of some injuries where the members felt that the recommended management regimes for these injuries are not feasible in the current Tanzanian situation. Panel members made three recommendations. First, parents and teachers should be provided with guidelines or instructions about self-care following trauma. Second, teaching on the management of traumatic dental injuries at training institutions should be emphasised and third, dental practitioners at dental clinics in the country should get continuing education about the management of traumatic dental injuries.

Conclusion: The methods for achieving consensus were useful in the Tanzanian dental situation, therefore it is recommended that the methods be adopted to reach consensus on other oral health issues.

INTRODUCTION

Consensus development conference methods are used as tools for solving problems in health and medicine. Their main purpose is to define levels of agreement on controversial subjects(1-3). Consensus conference methods were developed by the National Institute of Health (NIH) in the United States in 1977(4) and have been adopted and modified by a number of countries(5). Several conferences have been conducted to discuss different health issues(1). With respect to oral health, to our knowledge, only a few consensus conferences have been held to discuss oral health issues(6-8). Although a large number of conferences have been conducted, Fink(1) reported that several questions have been raised regarding the strength of consensus methods. Some questions inquire on whether the support of consensus is warranted, whether results of consensus are valid, and to what extent the consensus

statements issued are disseminated. Finally, inquiries are on whether the changes in physician behaviour are associated with consensus statement. Despite these queries, Fink(1) reported that the use of consensus appears to be increasing. Steps to be set before staging the consensus conference include selection of the problem(s), selection of panel members, presenters, chairman and preparation of background information(1,5,9).

According to the NIH-consensus method, it is recommended that a consensus conference begins with a plenary session, during which experts or representatives of task forces present information on the state of the science(9). Questions and comments follow presentation. The panel then convenes to reach consensus on the answers to the questions being addressed and produces a report incorporating the conclusions reached by working groups. At the final plenary session, the consensus statement is presented to the audience for comments and endorsement. After staging the conference, organisers should obtain

professional and political support, and disseminate results of the conference to relevant bodies.

The current consensus conference was organised in response to the findings of a previous study that investigated initial treatment for traumatic dental injuries provided by dental practitioners in Tanzania(10). In this study dental practitioners frequently reported to extract the injured teeth and to prescribe antibiotics. Furthermore, the reported treatments were rated into "correct", "unnecessary" and "wrong", based on recommendations advocated in western countries. The results of this rating showed that one third of the reported treatment options were correct, one third were unnecessary and the other third were wrong. Bearing in mind that the success in the management of traumatic dental injuries depends among other things on the knowledge, experience and dedication of dental practitioners, the findings of this study stimulated the investigators to organise a consensus conference. Although there is a lot known about consensus conference, there is no information as to whether a consensus conference has been conducted in the African setting. The aim of this conference was therefore to test the recommended methods in Tanzania by discussing the management of traumatic dental injuries and to reach consensus on how far the treatment modalities of traumatic dental injuries recommended in western countries are feasible in the Tanzanian situation. In this paper the methodology as used is described and the experiences are analysed.

MATERIALS AND METHODS

Pre-panel process: Most countries spend between six months and one year planning for a consensus conference. Six months were spent to prepare the current conference in selecting information and to find the optimal setting.

Selection of the topic: The current topic was selected after observing the treatment modalities of traumatic dental injuries among dental practitioners of which one third was wrong and one-third unnecessary(10). In another study(11), few injuries to hard dental tissues were being treated at the University teaching hospital, giving a speculation that most injuries to hard dental tissues are left untreated. Due to the above reasons, the prevailing situation on management of oral-dental injuries was thought to require improvement. The topic was considered appropriate and of potential importance to dental public health in Tanzania.

Selection of panel members: It has been recommended that principal participants of a consensus conference should be representatives of the profession or have power to implement the findings and that whenever possible, potential consumers should be included(1,2,9). The panel of the current conference was therefore formed by Regional Dental Officers, Heads of Dental teaching institutions, and two lay persons as representatives of caretakers for future patients (a parent and a primary school teacher). Twenty five individuals were invited to the conference of which, fifteen dentists, and the two lay people attended the conference. The fifteen dentists comprised the Chief Dental Officer, ten Regional Dental Officers, three heads of Dental Schools, and a co-ordinator of the Paedodontics course at the Faculty of Dentistry.

Selection of facilitators/presenters/chairman: There were two conference facilitators. A specialist in paediatric dentistry,

Dr. W. Berendsen (WB) and a specialist in endodontics, Dr J. P. Bressers (JPB) from the University of Nijmegen in the Netherlands. The chairman was identified in accordance to recommendations(1,3) that the qualifications of panel chair should be fairly general: stature as a scientist and leadership, and that he/she must have no established opinions on the technology under consideration. Consequently, the Chief Dental Surgeon in Tanzania (Dr. HJ Mosh) was selected to chair the conference.

Information for participants: An invitation letter and literature concerning recommended treatment methods of traumatic dental injuries were mailed to all panel members, one month before the conference (the material is available from the first author).

Consensus panel meeting (conduct of the conference): The conference was conducted at Muhimbili University College of Health Sciences, in Dar es Salaam on 2nd and 3rd March 1998. A day before the conference, the facilitators, the chairman of the conference and the organisers held an executive session to discuss the logistics of the conference. A draft of a table to record the discussion as prepared by the organisers (FKK and MKN), was presented together with a conference programme. The draft and programme were reviewed and finalised.

The conference adopted the recommended steps(1,3,9). On the first day, the first facilitator (WB) presented the classification, aetiology, epidemiology and examination of traumatic dental injuries. Later, the second facilitator (JPB) gave a presentation on the recommended treatment methods of injuries to the hard tissues, soft tissue injuries and of injuries to the supporting structures in the permanent dentition. Panel members discussed the presentation and recommended treatment methods for each type of injury, and their feasibility in the Tanzanian situation.

On the second day, the first facilitator (WB) presented the treatment methods of traumatic injuries in the primary dentition. Panel members discussed the presentation and recommended treatment methods for each traumatic injury in the primary dentition and their feasibility in the Tanzanian situation. After the presentation and discussion, a draft of recommended treatment for traumatic dental injuries (in primary and permanent dentition) as well as the suggested treatment methods feasible for Tanzania was printed and distributed to all panel members. The draft was equivalent to what is presented in Table 2. Panel members were given time individually to read the recommendations and prepare their final contributions. After individual reading, members convened again and made final recommendations of treatment methods for traumatic dental injuries feasible in Tanzania.

RESULTS

Treatment modalities feasible in Tanzania: For most types of injuries, consensus on treatment methods feasible for Tanzania was reached immediately. However, panel members spent more time to discuss management of some injuries where the members felt that the recommended management regimes for these injuries are not feasible in the current Tanzanian situation (Table 1). The main reasons for this perspective were mainly unavailability of materials and equipment required to treat the injuries, and lack of community awareness. Other reasons were said to be lack of or unreliable electricity supply (Table 2). Most panel members felt that it was necessary to give antibiotics as a preventive measure against secondary infection. After a long discussion, it was agreed that antibiotics are necessary only for medically compromised patients.

Table 1*Types of injury ranked according to ease of reaching consensus on their management*

Injury	Immediate consensus	Relatively easy to reach consensus	More time needed to reach consensus
Enamel fracture	X		
Crown root fracture of deciduous teeth	X		
Uncomplicated crown-root fracture of permanent teeth	X		
Complicated crown-root fracture of permanent teeth	X		
Root fracture of deciduous teeth	X		
Concussion	X		
Sub-luxation (loosening)	X		
Avulsion of deciduous teeth	X		
Lateral luxation of deciduous teeth	X		
Lateral luxation of permanent teeth		X	
Intrusive luxation of deciduous teeth		X	
Extrusive luxation of deciduous teeth		X	
Alveolar fracture		X	
Soft tissue injuries		X	
Enamel infraction			X
Uncomplicated enamel dentine fracture			X
Complicated enamel dentine fracture			X
Horizontal root fracture of permanent teeth			X
Intrusive luxation of permanent teeth			X
Extrusive luxation of permanent teeth			X
Avulsion of permanent teeth			X

Table 2*Table 2a: Recommended treatment for crown and root fractures*

Injury	Recommended management in western countries*	Management recommended for Tanzania	Limitations/constraints
Enamel infraction	No treatment is required. Control X-ray to rule out other fractures and complications	Diagnostic X-ray and follow up Advise parents and teachers about possible complications	Not perceived as a problem Lack of X-ray equipment
Enamel fracture	Smoothen sharp irritating edges	Smoothen sharp irritating edges	
Uncomplicated enamel dentine fracture	Permanent teeth-restore with composite	Permanent teeth: Small part of dentine round it up Big part of dentine. i. restore with composite or GIC or refer ii. Diagnostic X-ray and follow-up	Composite is not always available
	Deciduous teeth - Grinding, fluoride varnish, composite restoration	Deciduous - grinding, glass ionomer or composite, diagnostic X-ray and follow up	
Complicated enamel dentine fracture	Permanent: Small exposure seen soon after injury – restore with composite or reattach fragment	No delay, no bleeding, seal with calcium hydroxide and restore with glass ionomer cement or composite	
	Small exposure (delayed treatment) - remove an inflamed pulp then restore with composite or reattach fragment	Late comer and bleeding	
	If pulp necrosis occurs: Teeth with open apex - do apexification	Open apex: Remove part of inflamed pulp apply calcium hydroxide and restore	Poor patient compliance with follow-up
	Teeth with closed apex – do endodontic treatment immediately	Closed apex: Endodontic treatment	
Complicated enamel dentine fracture	Deciduous – Pulpotomy or Extraction	Deciduous-extraction	
	Permanent: Small exposure seen soon after injury – restore with composite or reattach fragment	No delay, no bleeding: seal with calcium hydroxide and restore with glass ionomer cement or composite	
	Small exposure (Delayed treatment) – remove an inflamed pulp then restore with composite or reattach fragment	Late comer and bleeding	Poor patient compliance with follow-up
	If pulp necrosis occurs	Open apex: Remove part of inflamed pulp apply calcium hydroxide and restore	
	Teeth with open apex – do apexification	Closed apex: Endodontic treatment	
	Teeth with closed apex – do endodontic . treatment immediately		
	Deciduous – Pulpotomy or extraction	Deciduous-extraction	
Crown root fracture of deciduous teeth	Extraction	Extraction	None
Uncomplicated crown root fracture of permanent teeth	Small part involved - restore a fractured crown, leave alone a fractured root segment	Small part involved restore - restore a fractured crown, leave alone a fractured root segment	Lack of equipment
	Big part of the root involved, control bleeding then restore a fractured fragment otherwise, extract the tooth	Big part involved - extract the tooth	
Complicated crown root fracture of permanent teeth	If bleeding can be controlled, endodontic treatment and restoration with composite. In most cases extraction	Extraction	Lack of materials.

Table 2b

Recommended treatment for root fractures and luxation injuries

Injury	Recommended management in western countries*	Management recommended for Tanzania	Limitations/constraints
Root fracture of deciduous teeth	Extraction of coronal part	Extraction of coronal part	None
Horizontal root fracture of permanent teeth	No mobility - rigid splint x-ray is essential	No mobility - no treatment, control x-ray and follow up	Uncertainty in availability of materials
Concussion	In case pulp necrosis occurs do endodontic treatment of coronal part and extract the apical part	Mobility present - splint the tooth with composite or cold cure. Control x-ray and follow up	
Sub-luxuation (loosening)	No treatment is required. Advise good oral hygiene, follow up No treatment is required. Advise good oral hygiene, follow-up. In case of occlusal interference, relieve occlusion. Follow up	No treatment is required. Advise good oral hygiene, follow up No treatment is required. Advise good oral hygiene, follow up. In case of occlusal interference, relieve occlusion. Follow up.	None
Lateral luxation of deciduous teeth	Usually no treatment is required if the crown is displaced lingually and apex displaced labially. If the tooth is displaced into the tooth germ, extraction is the treatment of choice. Follow up.	Extraction	Lack of X-ray machine.
Lateral luxation of permanent teeth	Reposition the tooth. In case of complications, do endodontic treatment	Reposition the tooth. In case of complications, do endodontic treatment	None
Intrusive luxation of deciduous teeth	No permanent tooth germ involvement, await re-eruption in two months. If intruded towards the germ, extract the tooth. Follow up	No permanent tooth germ involvement, chlorhexidine mouthwash for four days. If intruded towards the germ, extract the tooth. Follow-up	
Intrusive luxation of permanent teeth	Await for spontaneous re-eruption. If it does not occur in one and a half months, do orthodontic extrusion Closed apex do endodontic treatment Open apex do follow up	Extrude the tooth with a forceps, apply a flexible splint for 7 to 10 days (using available materials e.g. manila, fishing line or iron wire), do endodontic treatment before removing the splint	It is difficult for patients to come back for follow-up on routine appointments. Lack of thin wire, plastic string and composite.
Extrusive luxation of deciduous teeth	Extraction	Extraction	None
Extrusive luxation of permanent teeth	Reposition the tooth. Flexible splinting for 7 to 10 days. In case of pulp necrosis do endodontic treatment*	Reposition the tooth. Flexible splint (using available materials e.g. manila, fishing line or iron wire) for 7 to 10 days. In case of pulp necrosis do endodontic treatment.	Lack of thin wire, plastic string and composite.

*References (12-15)

Table 2c

Recommended treatment for avulsion, alveolar fractures and soft tissue injuries

Injury	Recommended management in western countries*	Management recommended for Tanzania	Limitations/constraints
Avulsion of deciduous teeth	No treatment is required and re-plantation is contraindicated	No treatment is required and re-plantation is contraindicated	None
Avulsion of permanent teeth	Information to teachers and parents Get the tooth; Gold it on the crown. Do not touch the root; put it back in the socket. If the tooth fell down in dirty, clean it with milk or normal saline Otherwise, put a tooth in a glass of milk or normal saline or into the child/parent's vestibule and go to a dentist At the dental clinic Replant the tooth; apply a flexible splint for 7 to 10 days. Teeth with closed apex - do endodontic treatment after one week. Teeth with open apex - follow up the patient. In case of pulp necrosis do apexification	Create awareness both among professionals and general public Recommended transport media Child/parent's vestibule, normal saline or child's saliva At the dental clinic Replant the tooth; apply a flexible splint (using available material) for 7 to 10 days. Teeth with closed apex - do endodontic treatment after one week. Teeth with open apex - follow up the patient. In case of pulp necrosis do apexification.	Dental professionals are not conversant with steps involved in the management of avulsed teeth. The general public is not informed on possible treatment measures of avulsed teeth Milk is not readily available. Lack of thin wire and plastic string.
Alveolar fracture	Refer the patient to oral surgery department	Re-position a fractured fragment, apply a rigid splint and stitch the wound.	No oral-surgeons upcountry.
Soft tissue injuries	Clean the wound. Stitch when necessary. Advise good oral hygiene	Clean the wound. Stitch when necessary. Advise good oral hygiene	None

*References (12-15)

Ratification of a consensus statement: The consensus statement was submitted to the Chief Dental Surgeon (CDS) for ratification. In Tanzania dental clinics and a large workforce is owned by the Government and thus under the administration of the CDS. Therefore, ratification from him was considered adequate. A statement of ratification was received from the Chief Dental Surgeon.

Dissemination of a consensus statement: After ratification, the consensus statement was distributed to all dental practitioners in Tanzania and was made available in the Library of the Faculty of Dentistry. In addition, it is planned that the statement will be presented during one of the scientific conferences of the Tanzania Dental Association. To investigate the willingness to use the consensus statement, all 209 dental practitioners were provided with the consensus statement and were requested about their willingness. Fifty seven per cent (57%) of the dentists responded and indicated their intention to use the consensus statement.

DISCUSSION

This conference was the first consensus meeting to be held in Tanzania to discuss an oral health problem. Fifty eight per cent of invited members attended the conference. It was learnt that the main reason for non-attendance was communication problems. The conference lasted for two days, the duration recommended by founders of consensus methodology(1-4). Panel members participated actively in the discussion and consensus was reached. Most panel members perceived the conference as a continuing education session. This provides a difference between the current conference and previous conferences conducted elsewhere whereby experts of a certain specialty meet to resolve a controversy issue.

During the discussions, dental practitioners revealed that most Tanzanians would not perceive crown fractures as a medical/dental problem especially when there are no soft tissue injuries. Therefore lack of awareness may contribute to delay in seeking dental consultation. Members reported lack of equipment and materials as well as limited knowledge and experience to be stumbling blocks in early management of traumatic dental injuries. These problems together with lack of community awareness influence the choice of treatment.

Although an obvious gap was observed between the facilitators' knowledge and experience, and that of panel members, a calm discussion prevailed and consensus was reached. The difference in knowledge may have influenced the validity of the consensus statement since Tanzanian dental practitioners had a limited contribution. Therefore a follow up investigation seems inevitable.

In addition to reaching consensus, panel members made three recommendations to facilitate proper management of traumatic dental injuries. The first recommendation was that parents and teachers should be provided with guidelines or instructions about self-care following trauma. Accordingly, guidelines for school

teachers were prepared and distributed to primary schools in one region. The effectiveness of these guidelines will be assessed. Using results from this assessment, a wider coverage of the country will be planned. Guidelines for parents will be prepared later. A second recommendation was that teaching on the management of traumatic dental injuries should be emphasised at training institutions, namely, the Faculty of Dentistry and the Assistant Dental Officers' School. Implementation of this recommendation has started at the Faculty of Dentistry while efforts will be made to emphasise teaching at the Assistant Dental Officers' School. The third recommendation was that Dental practitioners at dental clinics in the country should get continuing education about the management of traumatic dental injuries. The Chief Dental Officer is planning a continuing education workshop for dental practitioners.

The methods in the current consensus conference followed recommendations derived from literature(1,3,9), with the exception that the seminar participants were not experts in the area under study. Instead, they were the professional administrators who will be influential in supporting dissemination of the consensus statement and the related recommendations. This variance was due to the fact that the controversy issue on the management of dental trauma was reported by investigators, unlike in literature where controversy arises from the practitioners themselves. Besides, in Tanzania there are no experts in the management of dental trauma. Despite this deviation, the outcome of the conference shed light on the reasons behind the treatment choices provided by Tanzanian dental practitioners and the apparent difference for the recommendation from the treatment modalities recommended in western countries.

The consensus statement (Table 2) was made available to all relevant parties. Therefore, it is expected that the statement will influence dental practitioners' choice of treatment modalities. However, changing of any behaviour requires constant reinforcement. Besides, the authors can not guarantee the actual use, instead they will continue to motivate practitioners to refer to the consensus statement whenever a patient with trauma seeks dental consultation at their clinics. A follow up study to assess the effectiveness of the dissemination is recommended.

The methods for achieving consensus used in the current conference were found to be useful for the Tanzanian situation. It is recommended therefore that the methods be adopted for other oral health issues requiring a solution. However, it is proposed that in future, organisers of a conference should prepare a list of controversy issues, send the list to potential participants to give them an opportunity to participate in selecting a topic for discussion.

ACKNOWLEDGEMENTS

The authors thank Dr H.J. Moshia for chairing the conference, Dr W. Berendsen and Dr J.P. Bressers for facilitating the conference and all panel members for their participation. The University of Nijmegen through the WHO Collaborating Center for Oral Health Planning and future scenarios sponsored the conference.

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