

Medical Emergencies in Dental Practice in the Fiji Islands

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Abstract: Medical emergencies in dental clinics are atypical however they do occur with potentially serious consequences. A postal questionnaire survey of all seventy-seven dentists in Fiji regarding occurrence of medical emergencies, their possession of emergency drugs and equipment and whether further training was required in the management of medical emergencies was conducted in 2004. The response rate was 85.7%. The most common medical emergencies were fainting (27.9%), postural hypotension (23.5%), hypoglycaemia (19.5%), epileptic fits and seizures (11.1%) and asthma (8%). The most commonly kept emergency drugs and equipment were disposable needles, oral glucose, disposable syringes, sphygmomanometer, adrenaline, first aid kit, tourniquet and oxygen. Additionally, the vast majority of the dentists (98.5%) expressed a need for some form of further training or refresher course in this area. It is hoped that the respective stakeholders in Fiji islands and that it forms baseline information and guidelines in addition to stimulating future prospective studies.

Key words: Dental practice; Medical emergencies, Emergency drugs and equipment, Continuing Dental Education; Fiji Islands. (PHD 2004 Vol 11 No 1 Pages 55 - 58)

Introduction

There is no information on the occurrence or in the competence of dentists in managing emergency events in dental practices in Fiji Islands. There is also no information regarding emergency medications in dental clinics. In other areas of the world there have been limited studies in this field. Atherton et al concluded that medical emergencies in general dental practice in Great Britain are rare events, occurring with an average frequency of between one in 3.6 and 4.5 practice years, or, on average, between nine and eleven emergency events per practicing lifetime of 40 years. The most commonly experienced events were fits and seizures. An aspirator, airway device, oxygen, adrenaline and injectable steroid were possessed by 90% of respondents and glucose, glyceryl trinitrate and a salbutamol inhaler by 80%. Almost all respondents expressed a need for further training in the management of medical emergencies.^{1,2,3} Though rare, life-threatening medical emergencies can and do occur in the dental environment. As health care providers, it is mandatory for dentists to be prepared to recognize and properly manage acute medical emergencies in the dental office.

As there is no information available regarding medical emergencies in the Fiji Islands the aim of the study was to ascertain the occurrence of such events, possession and maintenance of emergency drugs and equipment in dental practices and what training in this area practitioners aspired to.

Methods

A non-interventional type of study based in the form of a postal questionnaire, which was sent to all 77 dentists Fiji-wide in mid 2004. Prior to the commencement of the

study approval from the Fiji School of Medicine, School of Oral Health Research Committee was obtained. The questionnaire sought information on:

- How long the dentists had been practising
- Whether they were in the private, government or in the academic sector
- Whether they provided treatment under general anaesthesia (GA), intravenous sedation (IV), inhalation sedation (IH) or local anaesthesia (LA).
- The nature of medical emergencies experienced over a ten year period, or for long as they had been practising if less than this
- The emergency drugs and equipment possessed
- How they ensured that the emergency drugs were maintained within their 'use by' date
- Whether their undergraduate training had prepared them well to manage medical emergencies
- How competent they considered themselves currently to manage a medical emergency
- Whether they felt further training or refresher course was required
- How they felt their readiness to manage medical emergencies could be improved

Data were analysed using the Epi 2002 Info Statistical Program.

Results

Sixty-six replies were received providing a response rate of 85.7%.

The dentists were engaged in the following work sectors; government (n=44), private (n=17) and the academic (n=5) and the total duration of experience represented by them were 470 years (208, 225 and 37 years for the respective sectors).

The proportion of respondents carrying out treatment under LA, GA, IVS, and IHS is shown in Table 1.

Medical Emergencies

There were 226 emergency events recorded giving a mean of 3.42 events per respondent, per ten years. Figure 1 shows the number and type of emergencies experienced over a ten year period. Fainting accounted for 27.9% (n=63) of events, postural hypotension 23.5% (n=53), hypoglycaemia 19.5% (n=44), epileptic fits and seizures 11.1% (n=25), asthma 8% (n=18), angina pectoris 5.3% (n=12), inhaled foreign objects 2.2% (n=5), cardiac arrests 1.8% (n=4), respiratory obstruction 0.4% (n=1) and anaphylactic reaction 0.4% (n=1). In Fiji islands there were 226 events reported over 470 years, on average one event approximately every 2 years. There was only a single occurrence of respiratory obstruction that was associated with general anaesthesia.

Emergency drugs and equipment

The majority of the respondents possessed disposable needles 97% (n=64), oral glucose 95% (n=63), disposable syringes 94% (n=62), sphygmomanometer 94% (n=62), adrenaline 92% (n=61), first aid kit 71% (n=47), tourniquet 58% (n=38), oxygen 40% (n=26), ambu bag 16.7% (n=11), bronchodilator 15% (n=10), glyceryl trinitrate 12% (n=8), hydrocortisone 7.8% (n=5), antihistamine 6.1% (n=4), glucagon 6.1% (n=4), glucose for injection 4.5% (n=3) and benzodiazepine 3% (n=2).

Half of the respondents relied on inventories to check their medications use by dates, while 47% (n=31) relied on making regular checks on the expiry date of drugs in their emergency kits and 3% (n=2) relied on clinical managers in clinics for stock taking and maintenance.

Undergraduate training

Approximately 82% (n=54) and 6.1% (n=4) of the respondents felt they were either 'fairly well' or 'very well' prepared to manage a medical emergency upon receiving under-graduate training, respectively. Whereas 7.6% (n=5) and 6.1% (n=4) of the respondents reported that they were more likely to feel 'not very well' or 'not at all' prepared to manage a medical emergency upon receiving under-graduate training.

Current perceptions of preparedness to manage medical emergencies.

The respondents' perception to manage medical emergencies currently had slightly changed from their perception upon graduation. There had been a slight

shift upwards in self rated capability from 6.1% (n=4) who felt themselves 'very well' prepared at graduation to 9.1% (n=6) at the time of the survey. Whereas 'not at all' prepared to manage a medical emergency at graduation decreased from 6.1% (n=4) to 0% at the time of the survey.

Expressed need for further training

Enquiry was made as to whether respondents considered that there was a need for further training or refresher course regarding the management of emergencies. The vast majority, 98.5% (n=64), expressed a need for some form of further training or refresher course in this area, whereas 1.5% (n=2) felt no need. A total of 79% (n=52) of all respondents expressed a desire for 'hands-on' lectures, with 15% (n=10) expressing a wish for lectures through internet and additional comments were invited, which stated that regular in-practice emergency routines were the best way to maintain preparedness. The 1.5% (n=2) who felt no need to improve their ability to manage medical emergencies was found more likely to feel either 'well prepared' or 'fairly well prepared' to manage a medical emergency.

Discussion

Dental practitioners in the Fiji Islands are likely to experience a medical emergency on average once every 3 practice years. The seriousness of medical emergencies in dental practice is a subject, which has received scant attention in the literature during the past 20 years the relatively high response rate of 85.7% of all dentists indicates that the data from the study

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may be considered a realistic reflection of the situation in the Fiji Islands. Recollection of memory, especially in recalling less major events, will almost certainly lead to inaccuracies in the information presented.⁵ The occurrences of medical emergencies in the Fiji Islands were quite different when compared with a national survey of 1250 Australian General Dental Practitioners (GDPs) and the 1500 British GDPs. Comparing a similar career span of Australian GDPs and British GDPs, the occurrence of the following events in a 40 year career were on average 0.63, 1.52, 2.8 of fits and seizures, 0.03, 1.01, 0.9 of angina pectoris and 0.1, 0.08, 0.1 of cardiac respectively.^{1, 6} It is unknown why medical emergencies occur less frequently in the Fiji Islands. Even though emergency events are relatively uncommon, their seriousness can not be underestimated with potentially grave consequences. It is suggested that there is a need for dental professionals to be prepared to manage a medical emergency and it requires the need for a whole dental team (for e.g. reception staff, nurses, hygienists, as well as dentists)

to be trained in management of these events.¹

According to the findings of this study, the number of dentists in Fiji Islands possessing a number of emergency drugs and items of equipment compares favourably with the Australian and the British surveys⁶, 2 however only 40% possessed oxygen and 17% had an ambu bag which could be considered mandatory items. Fits and seizures accounted for more than 10% of emergencies, however only a mere 3% carried benzodiazepines. In designing an emergency kit, the American Dental Association suggests that the following drugs be included as a minimum: epinephrine 1:1000 (injectable), histamine blocker (injectable), oxygen with positive pressure administration capability, nitroglycerin (sublingual tablet or aerosol spray), bronchodilator (asthma inhaler), glucose and aspirin.⁷

There is a definite need for guidelines on precisely what drugs and equipment for the management of medical emergencies in the dental clinic should be possessed, not least as this may save the expenses of stocking and updating drugs which will never be used, with the accompanying and appropriate training required in the usage of any drugs and equipment purchased. Training in the management of medical emergencies is an important component of the under-graduate curriculum. The majority of the respondents felt they were prepared to deal with a medical emergency upon receiving under-graduate training or at the current time of survey. Recent graduates were more likely to recall training received at under-graduate level and felt were able to manage any medical emergencies which may be

a reflection of the curriculum of their dental school. On the other hand there was a marked tendency towards those who had been in practice for longer to report that they were more likely to feel 'not very well' or 'not at all' prepared to manage a medical emergency upon receiving under-graduate training. There is a need for effective under-graduate training but also for continuing vocational or general professional training in this field, which may provide an opportunity to review and further enhance their skills and confidence in this vital area of practice. Various dental, medical or allied health care personnel are able to provide such ongoing education. The vast majority of the respondents (98.5%) expressed a need for some form of further training or refresher course in this area and they expressed a desire for 'hands-on' lectures, with 15% desiring a wish for lectures through the internet and additional comments elucidated that regular in-practice emergency routines were the best way to maintain preparedness. Similar results were obtained in Great Britain; where over 95% of the respondents expressed a need for further training.³

With the information gathered, it is hoped that the data will become available to all the respective stakeholders in Fiji islands and that it forms baseline information for the creation of standards and guidelines that do not currently exist in the Fiji Islands and this may be an area where stakeholders such as the Fiji Medical Association, Fiji Dental Association, The Ministry of Health, Fiji School of Medicine etc may wish to examine. There is a need for further investigation particularly in the form of prospective studies.

		LA	LA&GA	LA&IV	LA&IH	LA, GA, IV
Dental treatment provided under:	FSM	80.0% (n=4)	nil	nil	20.0% (n=1)	nil
	GOVT	15.9% (n=7)	47.7% (n=21)	4.5% (n=2)	nil	31.8% (n=14)
	Private	82.4% (n=14)	11.8% (n=2)	nil	5.9% (n=1)	nil

Table 1. Proportion of respondents in Fiji Islands who indicated that they provided treatment under general anaesthesia (GA), local anaesthesia (LA), inhalation sedation (IHS) and intravenous sedation (IVS).

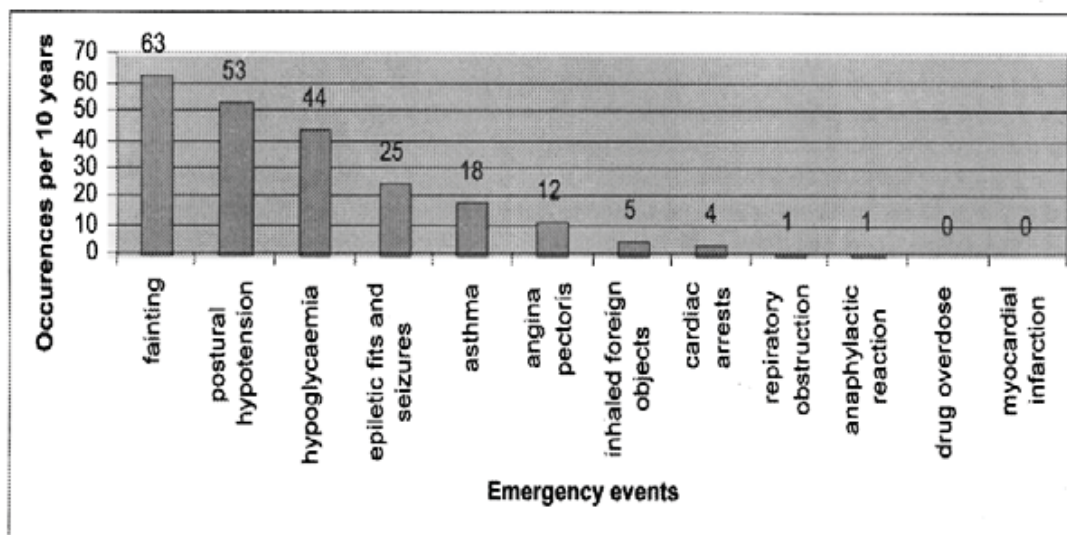


Figure 1. Emergency events reported in association with local anaesthesia in the past 10 years.

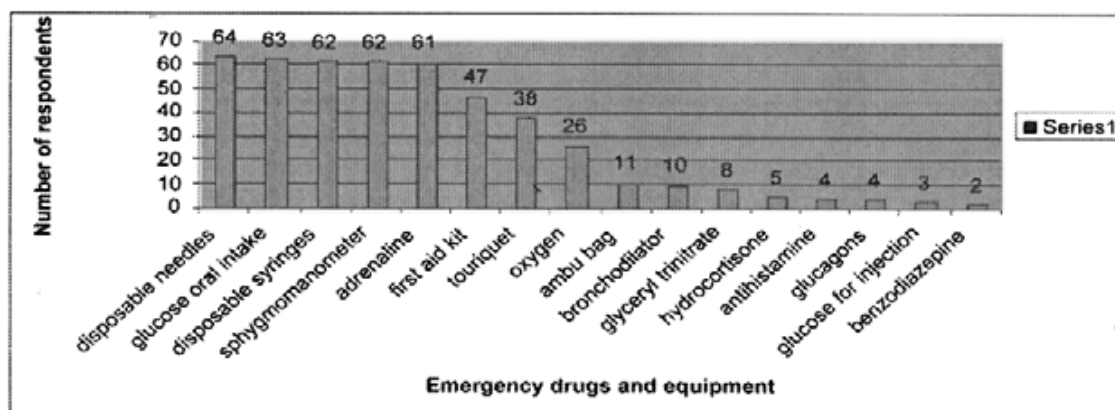


Figure 2. Number of respondents possessing specified emergency drugs and equipment.

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