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Personal thoughts on training in general anaesthesia and in research methods in dentistry in South Africa

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SUMMARY

This paper suggests that training in general anaesthesia in the South African dental curriculum be replaced by training in life-support techniques and in nitrous oxide-oxygen sedation. Secondly, a more formal training in research methods should be available.

OPSOMMING

In hierdie referaat word daar voorgestel dat die onderrig in algehele narkose in die Suid-Afrikaanse tandheelkunde leerplan deur onderrig in lewensteuntegnieke, asook in stikstofoksiedsuurstof verdowing vervang word. Vervolgens word daar voorgestel dat 'n meer formele onderrig in navorsingsmetodes daargestel behoort te word.

TRAINING IN GENERAL ANAESTHESIA

It has been traditional, for many years, at our dental schools, to train undergraduate dental students in the administration of general anaesthesia. This training almost exactly parallels the training received by medical students and is usually provided by departments of anaesthesia at our medical schools.

At the School of Dentistry of the University of the Witwatersrand this parallel training is such that medical and dental students even write the same examination paper in anaesthetics.

Is this training in general anaesthesia really necessary? If so, should it be continued as it is at present or should it be enlarged or modified? If the training is not necessary in its present form then what should be substituted in its place? These are questions that are passing through my mind at present.

If there is a need for training in general anaesthesia I believe it must be because of frequent administration of general anaesthesia by the dentist. Observation suggests to me that today very few dentists in South Africa administer general anaesthetics. General anaesthetics in South African dental practice are usually administered either by specialist anaesthetists or by general medical practitioners. This being the case it does appear that there is not a need for training in general anaesthesia.

What is needed then? Let's consider the type of treatment related to general anaesthesia being given in the dental surgery today. There is no doubt at all that nitrous oxide-oxygen sedation is being used on a large scale in South Africa. Not only is it obvious that this is the sort of technique in which the undergraduate dental student must be trained but this has been requested by the South African Medical and Dental Council.

Allied to inhalation sedation, is intravenous sedation of one or other type. Training in the use of intravenous sedation methods is, to me, more controversial, bearing in mind that two practitioners must be present during the procedure. Because of this, the techniques would appear to have little advantage over a conventional general anaesthetic and probably then do not need to be taught.

It would seem to me that the most important form of training that is required is training in resuscitation; in the mangement, for example, of allergic reactions, cardiac catastrophies and, in today's troubled times, civil and military emergency situations. Certainly in the field of resuscitation a definite need exists.

My trend of thought at present then would be to replace the general anaesthetic training, in its present form, with what, for want of a better name, one could call training in life-support techniques.

How should these life-support techniques be taught and by whom? I think one should consider this under three broad headings: the training of undergraduate students,

the training of postgraduate students and the training of general dental practitioners.

UNDERGRADUATE STUDENTS

The course should be short and intensive and I believe it should begin early in the dental curriculum, in either the first or the second year. At this stage some form of introduction could be given, for example in cardiopulmonary resuscitation. This improves the student as an individual and enables him to play a more fulfilling role in society. All too often, when there is an emergency situation, if a medical or dental student is present, these are the people that are landed with the problem and, I am sorry to say, at the present time, they are usually completely untrained and unprepared for the responsibility that they are about to have.

The main training should be in the fifth year, after completion of basic courses in pharmacology, medicine and surgery. I would include in a life-support course the maintenance of the airway under various circumstances, cardiopulmonary resuscitation, the handling of allergic reactions, sudden collapse in the dental surgery, the treatment of shock and similar catastrophies.

POSTGRADUATE STUDENTS

At a postgraduate level, interested practitioners could attend a more advanced course in life-support techniques which would include training, as before, in the various emergencies but would also include experience of acute trauma and acute emergency situations, for example, in a hospital intensive care unit or in an accident service.

GENERAL DENTAL PRACTITIONERS

A slightly different approach is needed here. I think what is most important is a carefully designed, short, intensive course at regular intervals. In other words, there should be regular refresher courses in basic resuscitation techniques. Perhaps these should even be compulsory as part of some form of medical audit. This type of training should include group training, that is training of entire practice units together, namely receptionists, the chairside assistants and so on, so that each of these people are well drilled in their particular role in an emergency situation; for example, that the receptionist must call a doctor immediately, that the chairside assistant must aid in cardiopulmonary resuscitation. The chairside assistant, for example, would do mouth-to-mouth resuscitation and alternate performing external cardiac massage with her dentist employer. The receptionist, having called medical assistance, would then come to help both of them with external cardiac massage while the dentist would begin drug therapy. I think it is most important that all the members of staff in the dental practice realise the importance of these refresher courses and, not only that, that they appreciate the importance of repeated emergency situation drills within the practice. One only has to experience emergency situations to know that when they occur they are very sudden and very intense and, it is only when one has practised the procedure that must be used to reverse them, that one is able to do it adequately in a short enough period to achieve adequate results.

TRAINING IN DENTAL RESEARCH

What about training in research? My basic philosophy here is that research training improves an individual's logical deduction and assessment, teaches one to separate fact from fallacy and so perhaps in clinical practice to reject clinical impressions in favour of facts. Often one may be shocked to discover how untrue one's impressions are when these are tested by careful analysis. There would appear to be two levels of training needed.

UNDERGRADUATE LEVEL

The undergraduate curriculum today is already very crowded and I am not at all sure that training in research methods should be provided within this curriculum, except, perhaps, for interested groups such as students doing elective periods in research or, for example, B.Sc. candidates undertaking projects.

What is necessary, I feel, is guidance in the reading and appreciation of scientific literature; in how to read an article; what parts of the article to read if one is in a hurry; how to assess whether in fact the article reports data adequately; that the data have been well documented and variables adequately controlled; that the data have been well assessed and that valid conclusions have been drawn. I think it is most important too that the individuals be given training in the use of the library; in the methods of looking up literature within such libraries and on how to write case reports.

POSTGRADUATE LEVEL

At the postgraduate level I believe that training in research methods should be compulsory. It should include all that has already been given to undergraduate students and, must also have in great detail, protocol design. This type of training is well described in the course *Research Approaches in Oral Biology* given by Dr. Juan Navia of the University of Alabama in Birmingham (1977). Navia includes the following in his course:

(i) Understanding of the research problem; the scientific method and its use in problem solving and empirical versus insight approaches in research.

(ii) The research protocol; background information, including the statement of objectives; the experimental procedures; the time schedule and the preliminary outline of expected results. Some details too, on the statistical analysis to be used and, most important, the estimated cost; the conduct of research, the keeping of laboratory notebooks and reports; the writing up of the research report and, including in this too, the choice of coauthors right at the beginning of the experiment.

(iii) The use of laboratory animals in dental research, including the humane use of such animals. Then, perhaps, this might include some specific research examples but, most important, right at the end of the course should include the drawing up of an ac-

tual research protocol and criticism of the protocol by the person's peers and superiors.

To this I would add training in epidemiological methods to enable research to be carried out in clinical practice. Not only would this advance dental knowledge but provide a means for practitioners who complain of a lack of articles of general practitioner interest in this journal, to rectify the situation.

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