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

P Cleaton-Jones

Dental Research Unit of the South African Medical Research Council and the University of the Witwatersrand, Johannesburg

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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.

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 management, 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 circum­
cumstances, cardiopulmonary resuscitation, the handlin­
g 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 tech­
niques 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, in­
tensive course at regular intervals. In other words, there
should be regular refresher courses in basic resuscita­
tion techniques. Perhaps these should even be compul­
sory 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
chairsid assistant 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 chairsid assist­
tant must aid in cardiopulmonary resuscitation. The
chairsid assistant, for example, would do mouth-to-
tooth resuscitation and alternate performing external
cardiac massage with her dentist employer. The recep­
tionist, 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 appreci­
te the importance of repeated emergency situa­
tion drills within the practice. One only has to ex­
perience 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 adequate­
ly 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 train­
ing 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 ex­
ample, 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 con­
clusions 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 in­
clude 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 Birming­
ham (1977). Navia includes the following in his course;

(i) Understanding of the research problem; the scien­
tific method and its use in problem solving and em­
pirical versus insight approaches in research.

(ii) The research protocol; background information,
including the statement of objectives; the experi­
mental 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 con­
duct of research, the keeping of laboratory note­
books 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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REFERENCES