

THE WORLD AS IT IS

AUSTRALIA AND NEW ZEALAND HYPERBARIC MEDICINE GROUP

STATEMENT ON THE USE OF HYPERBARIC OXYGEN THERAPY AT SITES OTHER THAN PUBLIC HOSPITALS

1 Preamble

Periodically, and usually for indications not generally accepted by hyperbaric medical practitioners, enthusiasm is generated in the community for the use of Hyperbaric Oxygen Therapy (HBOT) in locations other than mainstream hospital or Naval facilities. The compression of patients for therapeutic purposes in such out of hospital locations exploits the current situation by which the administration of oxygen is not governed by the therapeutic goods administration acts currently in force in Australia and New Zealand. It is the opinion of the Australia and New Zealand Hyperbaric Medicine Group (ANZHMG) that the practice of HBOT requires regulation to maintain the current standards of safety and appropriate use in the best interests of the community.

This statement outlines the position of the ANZHMG with regard to these matters for the consideration of the various Health Administrations in Australia and New Zealand.

2 Definitions

ANZHMG

The professional body of the trained practitioners of Hyperbaric Medicine in Australia and New Zealand and is at present a sub-committee of the South Pacific Underwater Medicine Society (SPUMS). All presently operating hospital-based and military facilities for the practice of HBOT are represented by this group.

Hyperbaric Oxygen Therapy

The administration of oxygen for therapeutic purposes at pressures greater than one atmosphere. This requires the application of pressure to the body and simultaneous administration of oxygen for breathing. This is carried out in a vessel designed for the purpose called variously a compression, recompression or decompression chamber. Such chambers may be designed for single occupancy or multiple occupancy and have an atmosphere of either air or 100% oxygen. When the atmosphere is air, the patient is required to breathe oxygen (or sometimes other gas mixtures) through a mask or via a hood. Many chambers are designed to operate at a range of pressures as required for the treatment of a variety of conditions.

HBOT is at present carried out in a number of facilities around Australia and New Zealand. Most are officially called *Hyperbaric Medicine Unit*, *Hyperbaric Therapy Unit* or similar and they provide a 24-hour service, commonly in association with the intensive care or emergency medicine departments of major hospitals.

3 Current Situation

Currently there are eight facilities operating in tertiary hospitals around Australia and New Zealand and three operated by the Navies of the two countries. One civilian facility is located in each State of Australia and one in the Northern Territory, while the NZ Navy operates a facility in Auckland and a civilian facility is located in Christchurch. While there are some geographical gaps in coverage, for the most part each State has elected to concentrate resources in these single facilities. Smaller hospitals have chosen not to enter the field both because of the extensive specialist back-up required and the probable under-utilisation of an expensive resource. However technical advances are beginning to lower the capital cost of at least the smaller, monoplace chambers.

4 Position Statement

Physician Requirements

It is the opinion of the ANZHMG that HBOT must be prescribed by a physician with appropriate training in Hyperbaric Medicine. There are two appropriate courses operating in Australia at present, being those at the Royal Adelaide Hospital and at the Submarine and Underwater Medicine Unit at HMAS PENGUIN in Sydney, which satisfy a minimum level of theoretical instruction. At present practical experience is obtained by an informal process through the various facilities. There are many equivalent theoretical courses and training fellowships internationally.

At present the local qualification in the field is the Diploma of Diving and Hyperbaric Medicine (DipDHM) which is administered by SPUMS. The minimum requirements are successful completion of one of the courses noted above, six months supervised training in a registered hyperbaric facility and presentation of a written thesis (accepted by appointed referees) for publication in the South Pacific Underwater Medicine Society Journal.

It may be that for management of specific recognised indications in facilities expressly built for that purpose, a modified curriculum would be appropriate theoretical training. This area is controversial and there are no current plans for the definition of such criteria.

Physicians prescribing this treatment are medically accountable for the safety of the patient and staff involved in the treatment. This requires both a knowledge of the indications, contraindications, side-effects and complications of therapy and the provision of an environment where there is immediate availability of emergency medical skills and equipment sufficient to treat any problems that may reasonably be anticipated. In the field of HBOT, this most definitely includes advanced life-support facilities.

It is important to bear in mind that the staff in such facilities are subject to risk directly as a consequence of compression themselves when acting as medical attendants in multi-place chambers and indirectly by the proximity and operation of equipment requiring the use of high pressure gas supplies.

Chamber Requirements

All chambers operated for the purpose of HBOT must comply with appropriate technical and Worksafe standards. These are currently under extensive review to improve their relevance to hospital practice and the new Australian standard entitled "Guidelines for Clinical Multiplace Hyperbaric Facilities" is, now in its second draft. The current standard is AS2299-1992 Occupational Diving.

The ANZHMG feels that hyperbaric facilities should adhere to the guidelines in this document and make extensive reference to international standards and guidelines until the revised local document is published. The most relevant international standards are Z2751-93 Hyperbaric Facilities (Canadian) and two reports from the safety committee of the Undersea and Hyperbaric Medical Society (UHMS) Monoplace Hyperbaric Chamber Safety Guidelines and Guidelines for Clinical Multiplace Hyperbaric Facilities. The UHMS is the largest international body representing the practice of hyperbaric medicine to which the great majority of local practitioners belong.

Chamber Operator Requirements

Any person charged with the responsibility of operating a vessel for the purpose of HBOT must have had appropriate recognised training in the field. The minimum requirements for such operators in Australia and New Zealand are currently under review by the Hyperbaric Technicians and Nurses Association (HTNA) but may be chamber-specific and less comprehensive than those currently derived from the commercial diving industry. These standards are however currently required for all operators in the facilities previously mentioned in this document.

Chamber Attendant Requirements

In any operation which requires a medical attendant present with the patient(s) in the chamber, such attendants

must have appropriate training in the field and be medically fit for compression. The HTNA is about to publish a national curriculum of minimum requirements for such training. Courses are currently offered in a number of the hospital-based facilities around Australia, primarily for the provision of sufficient attendants for those facilities. At present all such attendants are either registered nurses, medical practitioners or Navy trained medics who have satisfied such requirements.

Indications

The ANZHMG believes that treatment should be limited to accepted indications for HBOT and for the proper investigation of potential new indications, ideally through the initiation of appropriate randomised controlled trials after sufficient anecdotal and case-descriptive evidence has been documented to justify such studies. Prior approval by an appropriate ethics committee is mandatory.

Exceptions

The only currently acceptable exceptions to the above principles, in the view of the ANZHMG, are the on-site commercial chambers required for the safe execution of diving and tunnelling operations. Such chambers are operated by technicians with extended training and for specific purposes. They are viewed not primarily as therapeutic vessels but as integral to safe diving operations and for the purposes of on-surface safe decompression schedules. They are regulated by a comprehensive set of standards and legal requirements which are also under review at the present time. In practice, such chambers often maintain a close liaison with their local HBOT units.

5 Conclusions

The ANZHMG accepts that many currently proposed out of hospital facilities will not easily be able to comply with all the above principles. We feel, however, these represent the minimum requirements for the safe and rational use of HBOT. Facilities not meeting the above principles cannot be endorsed by the ANZHMG as being appropriate for the administration of this potentially harmful therapy.

The ANZHMG would be glad to assist in the development of further hyperbaric facilities in the region where there is a desire to establish such safe and appropriate use of hyperbaric oxygen.

6 Addendum - The Treatment of Sports Injuries with HBOT

The ANZHMG supports the investigation of this potential indication for HBOT. It should be stressed that, at this time, treatment of such conditions with this therapy remains unproven. People presenting for HBOT with

sports-related injuries should be made aware of this, be under the care of appropriately trained medical staff and ideally be willing to participate in controlled trials to assess the efficacy of such treatment. At present, the only facilities in a position to do this are the hospital-based facilities in co-operation with those trained in Sports Medicine or related medical practice.

Dr Michael Bennett
Secretary, ANZHMG
October 1995

MEDICAL SUPPORT FOR DIVING OPERATIONS: TRAINING THE ON-CALL DOCTOR

David Elliott

All diving activities need medical support, not only in case there is a medical emergency but also for routine cover, in particular for the assessment of fitness to return to diving after some illness or injury. Arrangements for the provision of medical cover vary around the world but usually there is a local medical service which responds to the local need and this is supported by a distant and more experienced medical service providing consultant advice when it is required. There are many different ways in which these medical services are provided but, whatever their organisation, accountability, resources and regulatory constraints, the supreme need is for the competency of the diving doctor on call.

Even the phrase "diving doctor" can be inappropriate because many diving doctors do not dive. A few may be recreational scuba divers and even fewer may have had commercial or naval mixed gas training but the majority are occupational or family doctors who have no need to dive. Attendance at a one-week introductory course is more than is required in most countries. In contrast, for those who are on-call and responsible for providing medical care in a diving emergency, there are no national requirements and few courses, but specific and appropriate training is essential. For those doctors who not only treat diving illnesses but also advise diving companies or government agencies on aspects of diving health and safety, the opportunities to learn the important subtleties of diving physiology are few.

The Diving Medical Specialist must have received some practical training in order to understand the underwater working environment and its medical emergencies. At an intermediate level, while gaining experience under a consultant, the essential medical skills are those of managing the various medical emergencies in diving. At the consultant level, additional skills include

applied physiology, understanding decompression theory and reviewing aspects of operational diving, for example assessing modifications to underwater breathing apparatus. Competencies need to include experience of treating difficult diving incidents and the ability to use applied physiology in the assessment of the divers' working environment and all associated equipment. A postgraduate qualification in occupational medicine is an appropriate foundation for this training but, in practice, accreditation in a major clinical speciality has also proved suitable.

A two-week course is a minimum introduction to this subject and must be supplemented by appropriate and sufficient experience. To complete their training, such doctors should be fit to dive and they must maintain this fitness for compression chamber work for as long as they continue to treat diving casualties.

The first course to focus upon the medical needs of commercial diving was organised in Italy by Shell in 1975. Since then there have been a number of advanced courses in Europe of two weeks or longer to give doctors practical training appropriate for providing emergency medical cover for air and mixed gas diving.

Another such international course is planned and will take place in Fremantle in October 1996. Open to doctors from all corners of the world this course will be the first to be located geographically convenient for those in Asia, Australia and around the Pacific rim. The theme of the first week (30 Sep to 4 Oct) is working dives to 50 metres and that of the second week (7 to 11 Oct, 1996) is working dives deeper than 50 metres. The courses will have practical sessions which, with the support of local and international diving companies and the Fremantle Hyperbaric Unit, will include in-water training and simulated emergencies.

Details are available from Professor David Elliott or from Biomedical Seminars, 7 Lyncroft Gardens, Ewell, Surrey KT17 1UR, England. Fax (44) 181 786 7036. Also see the advertisement on page 264

YET ANOTHER FUSS ABOUT (PROBABLY) NOTHING.

Des Gorman

As much of the Australasian media-attentive population are aware, there has been yet another media release of a study showing that diving, even in the absence of decompression illness (DCI) is injurious to your health. The specific study alluded to here was from a German group and published in the British journal called The