HYPERBARIC OXYGEN THERAPY

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The thrust of the Hyperbaric Oxygen Committee Report (1983 Revision) has been to establish a list of those conditions in which the use of hyperbaric oxygen (HBO) is either mandatory or ethically permissible, with the understanding that Medical Insurance Funds in the USA will accept a responsibility for reimbursing insured patients who receive such treatment. Omission of conditions from the list carries the implication that no repayments will be considered, though a number of causes of chronic ulcers are specifically listed as NOT justifying therapy by HBO.

In general terms the conditions can be broadly defined as falling into four groups, general anoxia or hypoxia from acute blood loss or poisoning of oxygen carrying capacity, local ischaemic or hypoxic causes (either widely disseminated or localised), anaerobic infections, and where the vasoconstriction effect of HBO is of value. A number of references are given to support the suggested uses, with advice that the literature on the subject is vast and that interested persons should consult the quarterly journal of abstracts, Hyperbaric Oxygen Review, published jointly by Plenum Publishing Corporation and UMS.

1. Currently Accepted Indications

Tissue Hypoxia:

General

Acute blood loss, if blood unavailable or the patient refuses to accept transfusion. Oxygen carriage poisoned by carbon monoxide or cyanide (rare).

Local

Decompression sickness (several factors operate)
Gas embolism
Osteoradionecrosis; soft tissue Radiation Necrosis
Refractory osteomyelitis
Acute traumatic ischaemia (Crush injury)
Compromised skin grafts (pre-operation).

Anaerobic Infections:

Gas gangrene
Mixed infections; Refractory mycoses.

Cerebral Oedema:

HBO produces cerebral vasoconstriction, decreasing cerebral blood flow yet providing adequate levels of brain tissue oxygenation.

2. Experimental but acceptable use

Tissue Hypoxia:

General

Acute Sickle Cell Crisis
Poisoning by carbontetrachloride, hydrogen sulphide

Local

Acute CVA (thrombotic or embolic)
Acute trauma to head or spinal cord
Bone grafts (2nd attempt)
Multiple Sclerosis (mode of action??)
Radiation myelitis, cystitis, enteritis, proctitis
Fracture healing (intermembranous bone)

Anaerobic Infections:

Intra-abdominal and intracranial abscesses
Lepromatous leprosy
N Meningitis with meningitic purpura
Pseudomembranous colitis (C difficile)
Pyoderma gangrenosa
Actinomycosis

Vasoconstriction needed:

Acute retinal artery insufficiency
Retinopathy, adjunct to scleral buckling procedures in patients with sickle cell peripheral retinopathy and retinal detachment

The Committee also mention, without giving clear guidelines, the use of HBO for thermal burns.

It is to be noted that HBO is only part of the therapeutic management, both antibiotics and surgery being essential components of the management of cases where trauma and/or anaerobic infections are present. Medical care is also necessary.

The use of HBO to produce vasoconstriction may appear paradoxical to some and is indicative of the Yin/Yang principle of therapy which is too frequently translated as drug action/side effects. In cases of retinal artery insufficiency, where therapy would need to be applied rapidly, HBO is thought to act by shunting blood to the ischaemic areas due to vasoconstriction of the normal portions of the artery. In acute cerebral oedema the vasoconstriction decreases the cerebral blood flow while maintaining tissue oxygenation: CAT scan and clinical evidence suggests the treatment is of value, as part of a management protocol.

The final section of the report is a reminder of the need for strict controls over the use of HBO, the need for correctly trained personnel and careful records. The many hazards of the HBO environment must be recognised and appropriate precautions taken at all times.

The Hyperbaric Oxygen Committee Report (1983 Revision) is available, price US$2.50 per copy, from

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A case of retinal ischaemia following hyperbaric oxygen exposure is reported on page 32 of this issue.