

# Letters to the Editor

## ECHM Consensus Conference and levels of evidence

The ECHM Consensus Conference on indications for hyperbaric oxygen treatment (HBOT) was a welcome update of the evidence for HBOT use.<sup>1,2</sup> However, clarification is requested in relation to how the GRADE system (Grades of Recommendation, Assessment, Development and Evaluation) was modified and how levels of evidence were applied in the case of idiopathic sudden sensorineural hearing loss (ISSHL). GRADE has a low kappa value for inter-observer agreement, so is modification valid?<sup>3</sup>

The original GRADE criteria, using consensus, grades evidence (defined as high, low and very low) and uses this to adjust the strength of recommendations.<sup>4,5</sup> Randomised controlled trials (RCTs) score highly. The ECHM have modified the GRADE system without explanation, assigning grades as levels 1 to 4 and have asserted that RCTs which are double-blinded constitute level 1 or 2 evidence. This has important implications for HBOT research. The term double-blinded is not used in the abstract, which leads the reader to wonder; where do RCTs which are not double-blinded fit in? The ECHM, by including the term double blinded as a requirement for level 1 or 2, has lifted the evidence bar. Does this constitute a form of research “*bracket creep*”?

Double-blinding is viewed by many to require a ‘sham’ treatment in hyperbaric research. Many conditions require multiple doses requiring daily hospital attendance with associated costs of lost time from work and daily transport costs. Even with a crossover after the sham, a requirement of many ethics committees, the lost time for a patient is a considerable burden. Delaying HBOT until crossover in those randomised to the control group in a disease that has a narrow therapeutic temporal window, such as idiopathic sudden sensorineural hearing loss (ISSHL), may affect the chance of recovery. Double blinding is logistically difficult with HBOT. A sham treatment may be achieved by using air instead of oxygen; however, this exposes the non-intervention group to a risk that the intervention group does not have, that of decompression sickness (DCS). This may be considered to be unethical.<sup>6</sup> Researchers have used hypoxic air mixtures to compensate for the higher oxygen partial pressure at depth as the control, but this is complex and increases the nitrogen load (and thus the risk of DCS). RCTs which control by other methods should still be considered high level evidence (as the original GRADE system recognised). Many indications for HBOT have multiple therapies against which to compare, which could act as a control. The requirement for double-blinding to achieve level 1 or 2 evidence may hamper research; an unintended negative consequence.

There is lack of consistency of definitions in relation to levels of evidence used by the ECHM. The authors state that for

clinical research the levels of evidence are; levels A to F, which they defined. The ECHM jury used a grading scale of level 1 to 4. For ISSHL, this results in a recommendation to treat based on level B evidence. Is this the same as level 2 in their modified system? This is confusing. The authors have not explained why they modified the GRADE system which is itself non-validated.<sup>2</sup>

The lack of references to the publications which provide the foundation for the strength of the recommendations leaves the reader unable to determine the true strength of the evidence. The GRADE system has been criticised as it dissociates recommendations from the evidence that the recommendation is founded upon.<sup>3</sup> Further, the application of the GRADE system has been questioned when strong recommendations are made with it as this may cause ethics committees to question whether equipoise exists, further hampering research. How do we present a well-designed trial for ISSHL to an ethics committee when a strong recommendation has already been made despite the Cochrane review on ISSHL concluding there is a need for large, well designed RCTs in this area?<sup>7</sup>

### References

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### Key words

Hyperbaric oxygen therapy; Medical conditions and problems; Evidence; European Committee for Hyperbaric Medicine; Letters (to the Editor)