TREATMENT OF NEUROLOGICALLY IMPAIRED ADULTS AND CHILDREN WITH "MILD" HYPERBARIC OXYGEN (1.3 ATA AND 24% OXYGEN)

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INTRODUCTION

The senior author has a special interest in toxic encephalopathy and documented its features in a number of publications. These show that SPECT brain scans become abnormal after neurotoxic exposure and can continue abnormal for years after toxic exposure has ceased (1,2). These abnormal findings can be further confirmed with neuropsychological tests and with neurological physical examinations and then become part of a protocol for the evaluation of a chemically-injured patient (3).

Since SPECT scans in patients with toxic encephalopathy typically show hypoperfusion and therefore decreased oxygen supply to certain parts of the brain (mostly temporal but also frontal and parietal lobes) the senior author initially began to refer patients for "regular" HBOT. This had promising results but was expensive. When a portable chamber became available for office use, we started to treat patients with that approach ("mild" HBOT) in our office. The results of a pilot study were presented by poster (4) and partially discussed in a Letter to the Editor ("Correspondence") (5) which referred to a paper (6) on treatment of cerebral palsy with HBO.

While our initial study was only in adults with toxic encephalopathy, we have since begun to study children with toxic encephalopathy and autism. This became possible when a database for normal children became available.

MATERIALS & METHODS

Nine adults with a diagnosis of toxic encephalopathy underwent SPECT brain scans (for methodology see Ref. 1) under the direction of Dr. Uszler who also interpreted these scans which were individually compared with a normal database.

Two children (a four-year-old boy with autism and an eleven year old girl with toxic encephalopathy from mold exposure) were studied with SPECT scans which were again individually compared with a normal database. Their scans were also supervised and interpreted by Dr. Uszler.

"Mild" HBOT was given on ten consecutive days (except weekends) for one hour each. SPECT scans were done before and then within days after the last HBOT session. Details of our HBOT are given (and compared with "regular" HBOT) in Table 1. The term "mild" connotes the fact that both ATA and oxygen concentration are below conventional numbers used in "regular" chambers.

RESULTS

Figure 1 shows before and after SPECT scans (left and right lateral views) in an adult with toxic encephalopathy. This patient underwent a total of ten HBO treatments. Note the blue (abnormal) and purple (more abnormal) areas showing hypoperfusion. Also note that yellow color represents normal perfusion while red and white represent hyperperfusion. Finally, note marked improvement after HBOT.

Figure 1 is representative of all nine patients who all showed considerable improvement.

Figure 2 shows before and after SPECT in a four-year-old child who developed autism shortly after vaccination with MMR (which contained mercury and possibly other contaminants at the time) at age eighteen months. While the software program for children presents the SPECT scan in a somewhat different format, yellow still represents normal perfusion. Note striking improvement with more yellow areas after HBOT.

DISCUSSION

Our data show that considerable improvement can be obtained in adults and children with toxic encephalopathy by using "mild" HBOT in a portable chamber. Further improvement occurs when HBOT is continued beyond the initial ten treatments discussed here. As a matter of fact, we recommend a total of twenty to sixty treatments in our office. If all parties are then convinced of success we recommend that a portable chamber be purchased and used at the patient's home on an as-needed basis.

The benefit of ten treatments may only last a few months. After twenty or more treatments the improvement lasts longer (six to eighteen months). However, patients are less likely to be cured than to be improved for an extended period of time after which they often request more HBOT. This is why the eventual purchase of a portable chamber makes sense.

The results of a Canadian study (6) on HBOT of children with cerebral palsy raised the question whether their "control group" was actually a treatment group and therefore also improved. Our treatment protocol with "mild" HBO very much resembles their control group protocol and therefore supports the notion that their control group was indeed a treatment group (5).

While we have become used to improvement in adults, we were struck by the improvement (SPECT) in our children, especially the autistic child (figure 2) who also showed striking improvement in behavior including memory and cognitive functions. He became affectionate, started pointing, verbalized, and now interacted with people around him.

The etiology of autism is still not clear. However, autistic behavior often follows vaccination. Thus, autism may be a subtype of toxic encephalopathy.

Treatment of toxic encephalopathy is difficult. Drugs are often not tolerated and in any case are usually not very successful. This is why mild HBOT has so much promise, having no significant side effects whatsoever in our setting.

SUMMARY

We treated nine adults with toxic encephalopathy and two children (one with toxic encephalopathy and one with autism) with "mild" HBOT. All patients showed significant improvement which was documented with before and after SPECT brain scans.

We believe that "mild" HBOT is the treatment of choice for toxic encephalopathy (and possibly autism) since, contrary to drug therapy, this treatment is devoid of significant side effects.

ACKNOWLEDGMENTS

Sylvia Heuser participated in and contributed to all phases of the project.

Diane Rodelander and Dr. Aguilera administered our "mild" HBOT.

Carol Rogowski administered and supervised many related activities in our office.

Special thanks to Cathy Damman, R.N. for donating the hyperbaric chamber used in our studies.

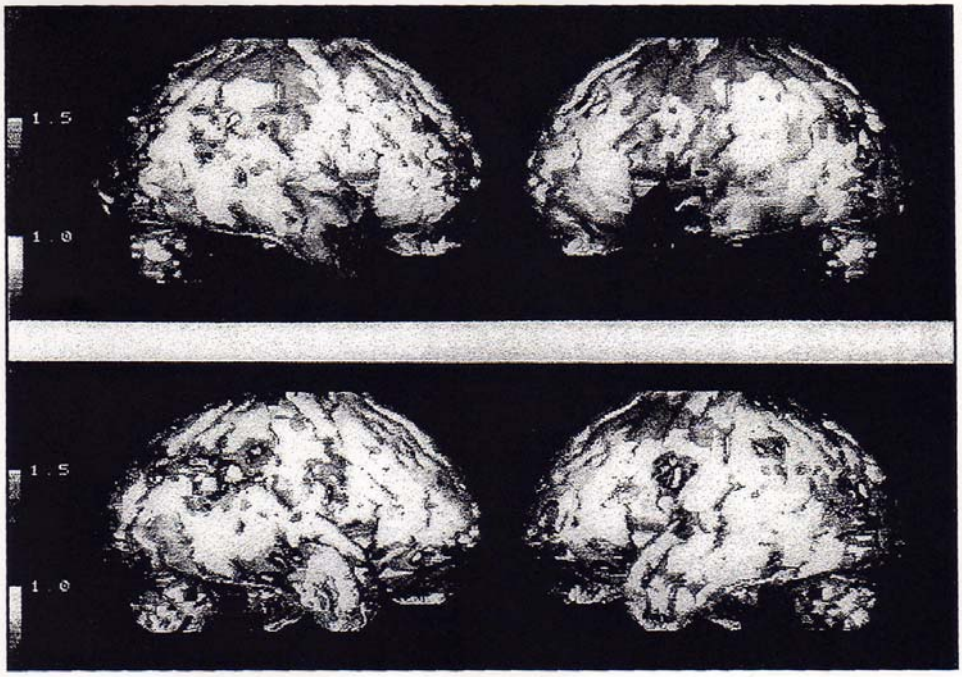

FIGURE 1

Treatment Protocol

	Sea Level	Mild HBO	Traditional HBO
ATA	1.0	1.3	2.0 – 3.0
PSIG	0	4.7	14.7 – 29.4
FSW	0	11	33 – 66
O_2 Concentration	21%	24%	100%

TABLE 1

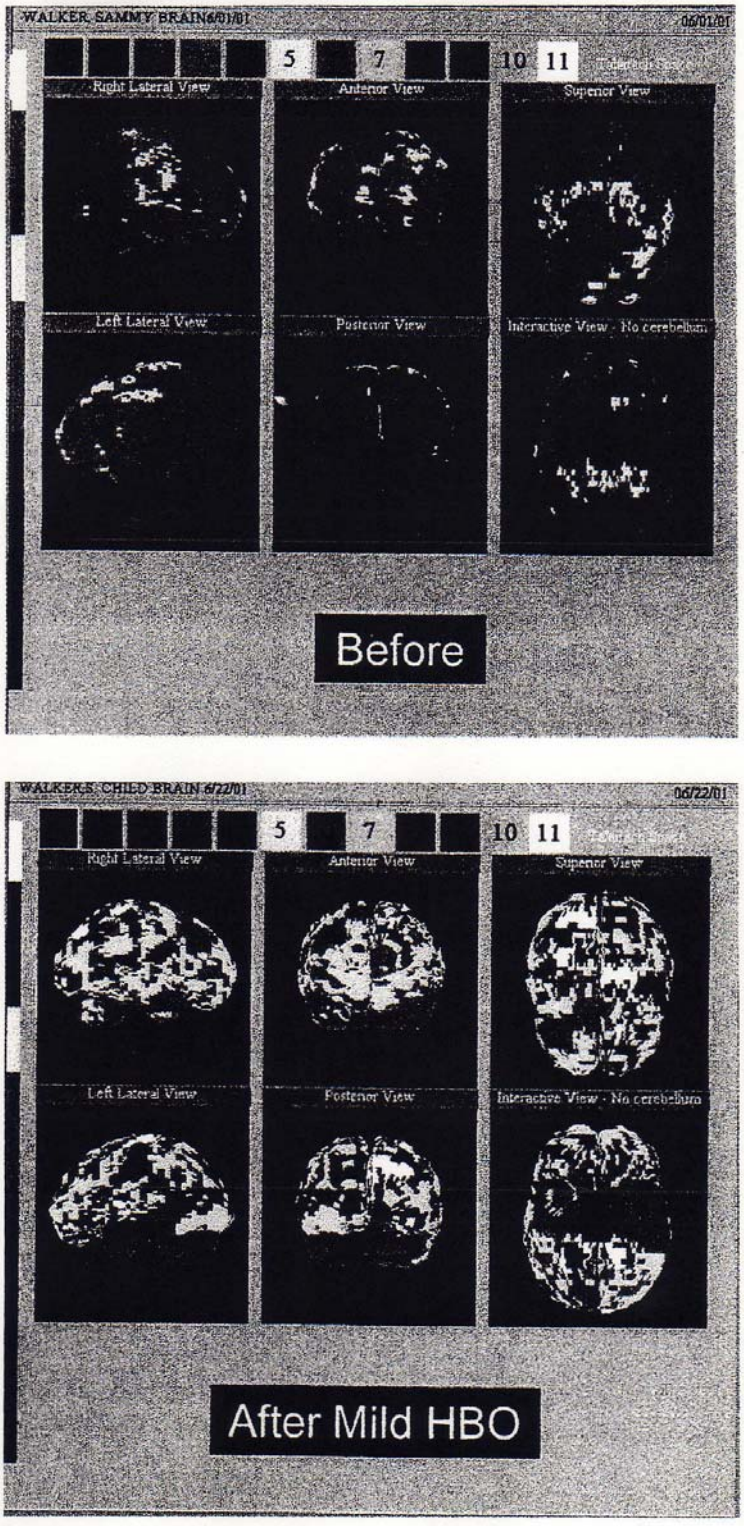
WALKER, SAMMY BRAIN6/01/01
06/01/01
5
7
10
11
Right Lateral View
Anterior View
Superior View
Left Lateral View
Posterior View
Interactive View - No cerebellum
Before
WALKER,S CHILD BRAIN 6/22/01
06/22/01
5
7
10
11
Right Lateral View
Anterior View
Superior View
Left Lateral View
Posterior View
Interactive View - No cerebellum
After Mild HBO

FIGURE 2

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