Pediatrics Research Directory

Hyperbaric treatment of cerebral air embolism in an infant with cyanotic congenital heart disease.


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PURPOSE: Infants with cyanotic congenital heart disease are at risk for cerebral arterial gas embolism (CAGE) from iv infusion lines. Concern about the hazards and difficulty of caring for such patients inside a hyperbaric chamber may deter referral. We report a complex case in which a small infant was managed successfully using a modified hyperbaric oxygen treatment (HBOT) schedule. CLINICAL FEATURES: A four-month-old 6.19 kg male infant with a recent Glenn shunt for double-outlet right ventricle had a seizure and became unstable immediately after an iv drug infusion. The patient was sedated, intubated and ventilated and dobutamine was commenced. A computerized tomography (CT) scan performed ten hours later demonstrated three intracranial air bubbles. About ten hours later the patient was referred for HBOT which commenced soon afterwards in a multiplace chamber. Since the right-to-left shunt would greatly increase the risk of decompression illness from breathing hyperbaric air HBOT was modified by the use of an abbreviated schedule at reduced pressure. Two 90-min HBOT sessions were administered within 24 hr at 38 feet of sea-water pressure, equivalent to 2.15 atmospheres absolute without any air break. During treatment the infant was ventilated using an Oxford Penlon ventilator. A subsequent CT scan demonstrated the absence of air. After extubation he appeared neurologically intact except for some weakness of the left arm.

CONCLUSION: Hyperbaric oxygen may be utilized to treat CAGE in small infants with right-to-left shunt and should be commenced promptly.

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