G22 An Unusual Death Involving a Sensory Deprivation Tank

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After attending this presentation, attendees will understand the intended use of sensory deprivation tanks and understand possible risks associated with improper use. A practical investigative approach to similar deaths involving water tanks and spas will be discussed.

This presentation will impact the forensic community by familiarizing the forensic community about the use of sensory deprivation or flotation tanks, as well as risks associated with improper use.

Deaths involving sensory deprivation tanks, also called flotation tanks, are very rare. A thorough literature search using PubMed and Ovid MEDLINE search engines yielded no such cases; however, recently a preliminary report on a similar case from Berkshire, UK was reported online in late 2007. This is the first known death associated with a flotation tank to be reported in the medical literature.

Flotation REST (Reduced Environmental Stimulation Therapy) is used by some as a modality for stress-reduction or for behavioral modification programs. REST was initially a research tool for neuropsychiatric studies in the 1960s, but became more popular in the United States in 1970s-1980s when the tanks became available for commercial and personal use. Most recently some medical practitioners ascribe to its use as an alternative therapy for various medical illnesses, as it may reduce hypertension and alleviate chronic pain. The medical literature discusses the effects of chamber REST for many psychiatric, behavioral and addiction disorders; however controlled studies using flotation REST are very limited.

A unique case in which a previously healthy 50-year-old woman apparently died while floating in a sensory deprivation tank within the basement of her own home will be described. The deceased reportedly had not previously used the tank, although had purchased it approximately three years previously, and was likely not familiar with the proper use of the tank. At the time of the scene investigation the unit's filtration system, which was situated close to the flotation tank, was noted to be on and running. The temperature of the water in the flotation tank was elevated at 116 deg F, approximately 20 deg F higher than the usual target temperature for flotation sessions. Examination of the tank and accessories found all components operating within specifications, with no malfunctions or electrical hazards identified. There was no evidence the decedent drowned, as the nose and mouth were not submerged. A full medicolegal autopsy was performed. No anatomic cause of death was identified at autopsy. Postmortem laboratory studies demonstrated a vitreous creatinine of 5.2 mg/dl, a blood ethanol level of 0.270%, an elevated blood doxylamine level, and the presence of sertraline and diphenhydramine. It has been concluded that the deceased inadvertently left the pump on during her flotation session, which resulted in the elevation of water temperature after she fell asleep during the session. The cause of death was determined as due to acute mixed drug and ethanol toxicity with probable hyperthermia contributing. Manner was ruled as accident.

It is recommended that mind-altering or CNS depressant drugs including alcohol not be used during flotation REST sessions. This case report and discussion will help the forensic community understand the use of flotation tanks and the risks associated with improper use. Investigation of deaths involving these unit or similar devices such as bathtubs or spas should include special precautions aimed to prevent harm to the investigation crew. In addition, full examination of the tank and accessories should be performed by professionals familiar with the equipment to confirm any product malfunctions or other potential safety hazards.

Sensory Deprivation Tank, Flotation Tank, Intoxication

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