UTHSC IACUC Policy on the Use of Tribromoethanol (Avertin)

Background
Tribromoethanol (TBE), formerly available as the pharmaceutical agent, Avertin, has been used as a general anesthetic in many species including humans, although its recent use has been almost entirely restricted to laboratory animal species. Some investigators choose TBE over other anesthetics because it is inexpensive, easy to use, not a controlled substance and because they believe it produces a good quality of anesthesia with minimal side effects.[1, 2] However, multiple reports indicate that TBE can be associated with significant side effects including peritonitis, ileus, and death, particularly when repeated doses are administered.[3-7] In addition, the sleep time and anesthetic depth associated with TBE has been shown to be variable even when the dose is kept constant.[8, 9] Studies have shown that the use of TBE in pregnant mice can cause developmental complications in pups. [10, 11] For these reasons, journals and funding agencies increasingly raise ethical concerns regarding TBE, and the continued use of this agent can no longer be recommended.

For some investigators the use of TBE is a long-standing practice, and there is legitimate concern that changing anesthetics could impact the model under study. Nevertheless, use of TBE must be discontinued unless evidence can be provided that this will seriously compromise ongoing research. A change in anesthetic should have negligible impact on terminal procedures, whereas investigators using TBE during survival surgery may consider pilot studies necessary to evaluate alternatives. The expense and effort required for this transition cannot be considered adequate justification for continued TBE use.

Since tribromoethanol is not available as a pharmaceutical-grade drug its use in laboratory animals requires scientific justification, in accordance with federal regulation and guidance from accrediting bodies (see IACUC Policy: Non-Pharmaceutical Grade Compounds for Use in Laboratory Animals).

Policy
- Use of tribromoethanol (TBE) as an anesthetic agent will be considered on an individual basis when scientifically justified and approved by an IACUC full committee review.
- Historical use of TBE is not adequate justification for its continued use.
- It must be established that other pharmaceutical grade anesthetics (including but not limited to isoflurane, ketamine/xylazine, and pentobarbital) cannot be used.
- An SOP for TBE preparation and storage must be included as an attachment.
- Investigators must acknowledge the potential adverse effects of TBE and must contact a veterinarian immediately if unexpected events occur during its use.

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References


