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Intravenous Alcohol in 1831

To the Editor:—The following short episode in the history of intravenous anesthesia may be of interest to some readers of ANESTHESIOLOGY.

The earliest intravenous injections of various substances were performed by Christopher Wren and later by some of his colleagues at Oxford University about 1656. These represented attempts to define the role of circulatory transport in certain physiologic processes. Among some of the substances infused into dogs were wine, ale, and opium.^{1,2} On these occasions, mild inebriation and drowsiness ensued. In 1664, Daniel Major (Meyer), of Kiel, Germany, reported that he did not observe any response to insertion of needles into the tongue of a dog to whom he had administered opium intravenously.³ J. Sigismund Elsholtz, physician to the Elector of Brandenburg, also described diminished sensitivity to pinprick and prolonged stupor in dogs after intravenous opium.⁴ The general impression appears to be that, after this original 17th century flurry of interest, there was no further activity related to intravenous anesthesia until 1875, when the technique was reinvestigated and then introduced into clinical practice by Pierre-Cyprien Oré using chloral hydrate.⁵

There exists an account that apparently has been overlooked of veterinary administration of alcohol intravenously almost half a century before Oré's work. In 1831, M. Dupuy, of Alfort, France, director of the Veterinary Medicine School at Toulouse, infused various substances into the jugular veins of horses. He described the effect of alcohol injection:

A demiliter of alcohol was injected into the jugular vein of another horse and produced the following effects:—The animal tottered, his head quickly fell, and he presented all the appearances of intoxication, which continued about an hour. During this time, the circulation and respiration were very frequent; the expired air smelt strongly of alcohol; the conjunctiva and mucous membrane of the nose and mouth were injected and of a red color; the skin was very hot, and the several secretions increased. All the muscular movements were feeble and uncertain, the limbs bent beneath the weight of the body, and the animal seemed entirely devoid of strength.⁶

Intravascular injection of ammonium carbonate in another horse promptly reversed the intravenously induced state of inebriation in

that animal. Other substances also were injected. The comment that the horse's breath smelled strongly of alcohol must represent one of the earliest observations that volatile substances administered intravenously can be excreted *via* the lungs. Dupuy's experiments were mentioned in a contemporary book on medical jurisprudence in connection with a discussion of narcotic depressant substances, such as diethyl ether.⁷ One can speculate that, if Dupuy had used a larger dose of alcohol and achieved unconsciousness in his horses, some perceptive reader of the report might have attempted to mitigate surgical pain with this technique.

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