

Title : SUCCINYLCHOLINE: INTRAOCULAR AND INTRACRANIAL PRESSURE

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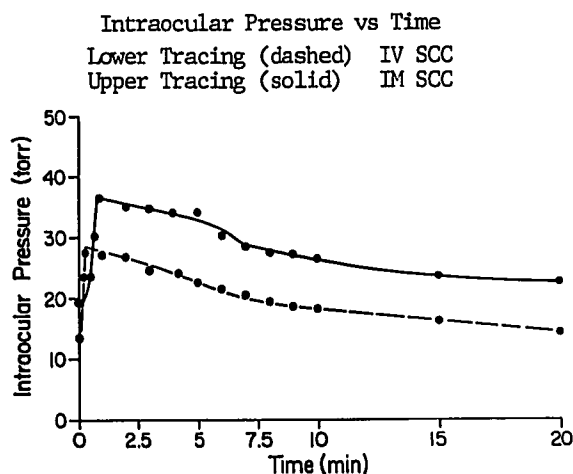
Introduction. Succinylcholine has been advocated as an agent of choice for rapid intubation during emergency procedures. We have been concerned with responses to SCC relating to intraocular (IOP) and intracranial (ICP) pressures given either intravenously (IV) or intramuscularly (IM). This investigation studies the effect of SCC on IOP and ICP in the adult canine under controlled conditions.

Methods. Anesthesia was induced with 22.0 mg/kg of thiopental followed by tracheal intubation and controlled ventilation with a Harvard respirator. Additional increments of thiopental were given as needed. Ventilator settings were adjusted to maintain PaCO_2 30 to 38 torr, PaO_2 80 to 104 torr and pH 7.37 to 7.47 on room air. An 18G spinal needle was placed in the cisterna magna and a 23G needle was placed in the anterior chamber of the eye for pressure recordings. A force transducer was used to measure twitch response. After baseline values were obtained, the animal was given either 1 mg/kg IV or 4 mg/kg IM of SCC. EKG, arterial blood pressure, ICP, IOP and train of four stimuli were recorded.

Results. The sequence of changes following IV and IM SCC consisted of an increase in IOP, fasciculations and then absence of twitch. During the experiments, no change in ICP occurred. With SCC given IV, the mean time until loss of twitch was 25 ± 7 sec. With SCC given IM the mean time was 52 ± 5 sec. Changes in IOP with time are shown in the figure. The increase in IOP with IV SCC was statistically significant only for a brief 10 sec. interval. On the other hand, the statistically significant time of increased IOP with IM SCC was 14 min. 30 sec. Also, the magnitude of increase in IOP was greater with IM SCC administration than with IV administration. The highest points reaching 36.7 torr and 28.5 torr, respectively.

Discussion. In this study no change in ICP was observed. This is contrary to results of Marx et al.¹ Since their measurements were at L₃ L₄, the observed increase could be reflected from increased intra-abdominal pressure. In children SCC, IM or IV may be used to facilitate intubation. If laryngospasm develops, SCC IM may be life saving. The effects of IV SCC on IOP have been described by many investigators.^{2,3} Using direct IOP measurement, we observed, in contrast to earlier reports, an increase in IOP in all animals studied. Craythorne⁴, using 1 mg/lb SCC IM with hyaluronidase reported increased IOP but did not record the time intervals.

Conclusion. 1. Based on our animal data, it appears that if IM SCC is to be used in a clinical situation, a period of at least 15 min. should elapse before the globe is opened. 2. The use of SCC is contraindicated by both the IV and IM route in penetrating eye injuries.



References.

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