

**The influence of two different doses of magnesium sulfate on
intraocular pressure variations after injection of succinylcholine and
endotracheal intubation: a prospective, randomized, parallel three-
arm, double-blind, placebo-controlled clinical trial.**

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Abstract:

Background :The use of succinylcholine for rapid sequence induction in patients with open globe injuries may be detrimental to the eye.

Aim: to determine if the premedication with magnesium sulfate ($MgSO_4$) could attenuate the increase in intraocular pressure (IOP) associated with succinylcholine injection and intubation.

Setting: Operation theaters in a tertiary care University Hospital between December 2014 and July 2015.

Design: A prospective, randomized, parallel three-arm, double-blind, placebo-controlled clinical trial

Participants: 113 patients' physical status ASA classes I and II, underwent elective cataract surgery under general anesthesia.

Methods: These patients allocated into three groups: Group C (control group) received 100 ml normal saline, group M1 received 30 $mg.kg^{-1}MgSO_4$ in 100 ml normal saline, and Group M2 received 50 $mg.kg^{-1}MgSO_4$ in 100 ml normal saline. IOP, mean arterial pressure (MAP), and heart rate (HR) reported at five-time points related to study drug administration. Also, any adverse effects related to $MgSO_4$ were recorded. Intra-group and between groups differences examined by analysis of variance test.

Results: We noticed a significant decrease in IOP in M1 (n=38) and M2 (n=37) groups as compared with C group (n=38) after study drugs infusion, two, and five minutes after intubation, $P < 0.001$. While the difference between M1 and M2 groups was insignificant, $P = 0.296$ and $P = 0.647$ respectively. There was a significant decrease in MAP and HR in M1 and M2 groups as compared with C group two and five minutes after intubation, $P = 0.01$. While the difference between M1 and M2 groups was insignificant, $P = 1$.

Conclusion: $MgSO_4$ 30 $mg.kg^{-1}$ as well as 50 $mg.kg^{-1}$ effectively prevented the rise in IOP, MAP, and HR associated with rapid sequence induction by succinylcholine and endotracheal intubation.

Keywords: Endotracheal intubation; intraocular pressure; magnesium sulfate; succinylcholine

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