

Do We Need a Saline Bolus? – The Necessary Refinement of Pediatric Propofol Sedation



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Purpose

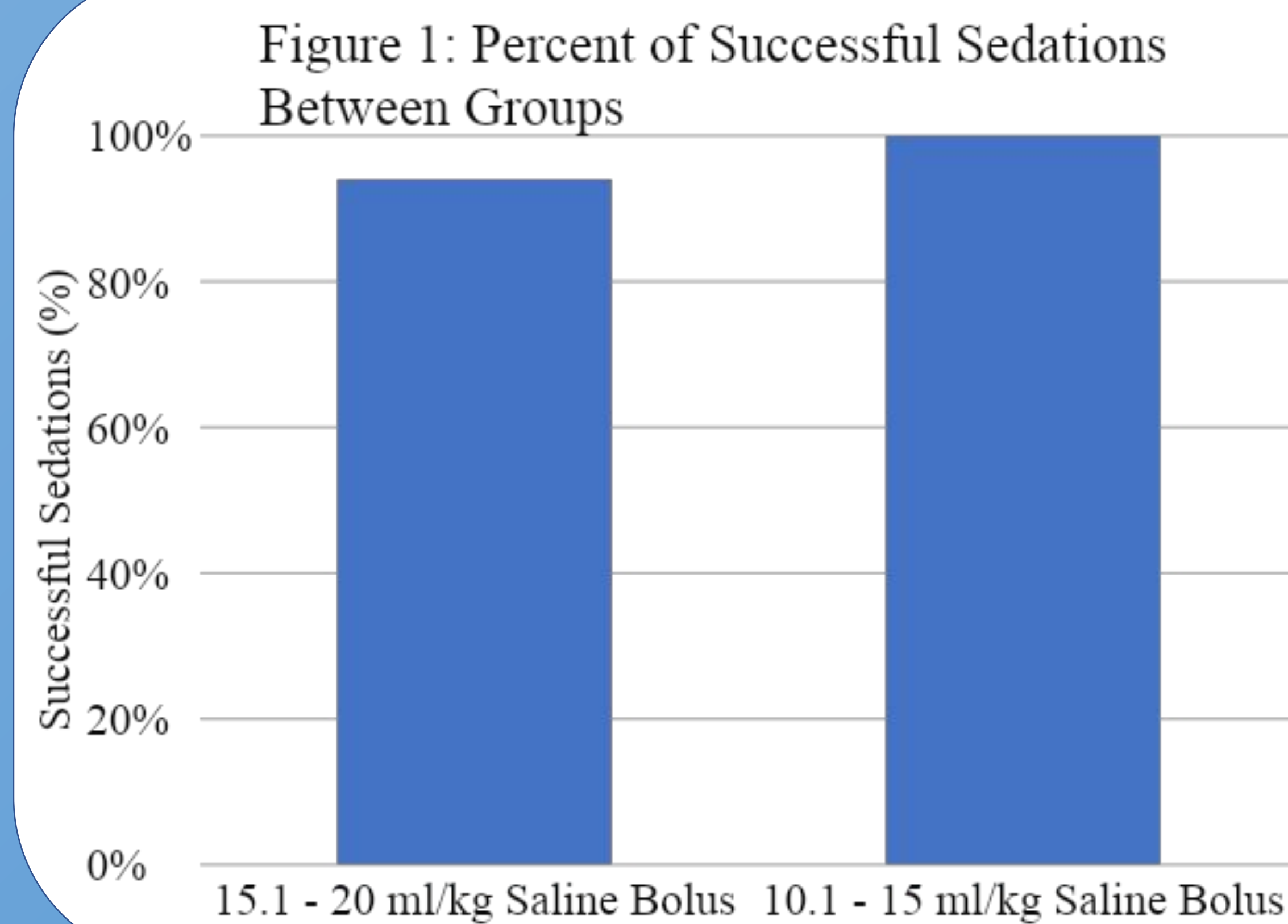
US healthcare costs have risen dramatically encompassing almost 20% of the nation's GDP and costs of pediatric MRI and sedations are no exception. Propofol sedation is used ubiquitously for pediatric MRIs when intensivists must ensure minimal patient movement for high-quality pictures. Normally, patients receive a 20 ml/kg saline bolus in hopes of maintaining blood pressure throughout propofol sedation. The goal of this study was to determine if a 10 ml/kg saline bolus was as equally efficacious as a 20 ml/kg saline bolus at completing pediatric propofol sedations and maintaining blood pressure in aims of reducing healthcare costs.

Methods

The study had two phases. The first phase was a six-month review of saline bolus dosing using the standard 20 ml/kg bolus. The second phase introduced a goal saline bolus dose of 10 ml/kg. A successful sedation was determined by completing the MRI without any complications or signs of cardiovascular distress.

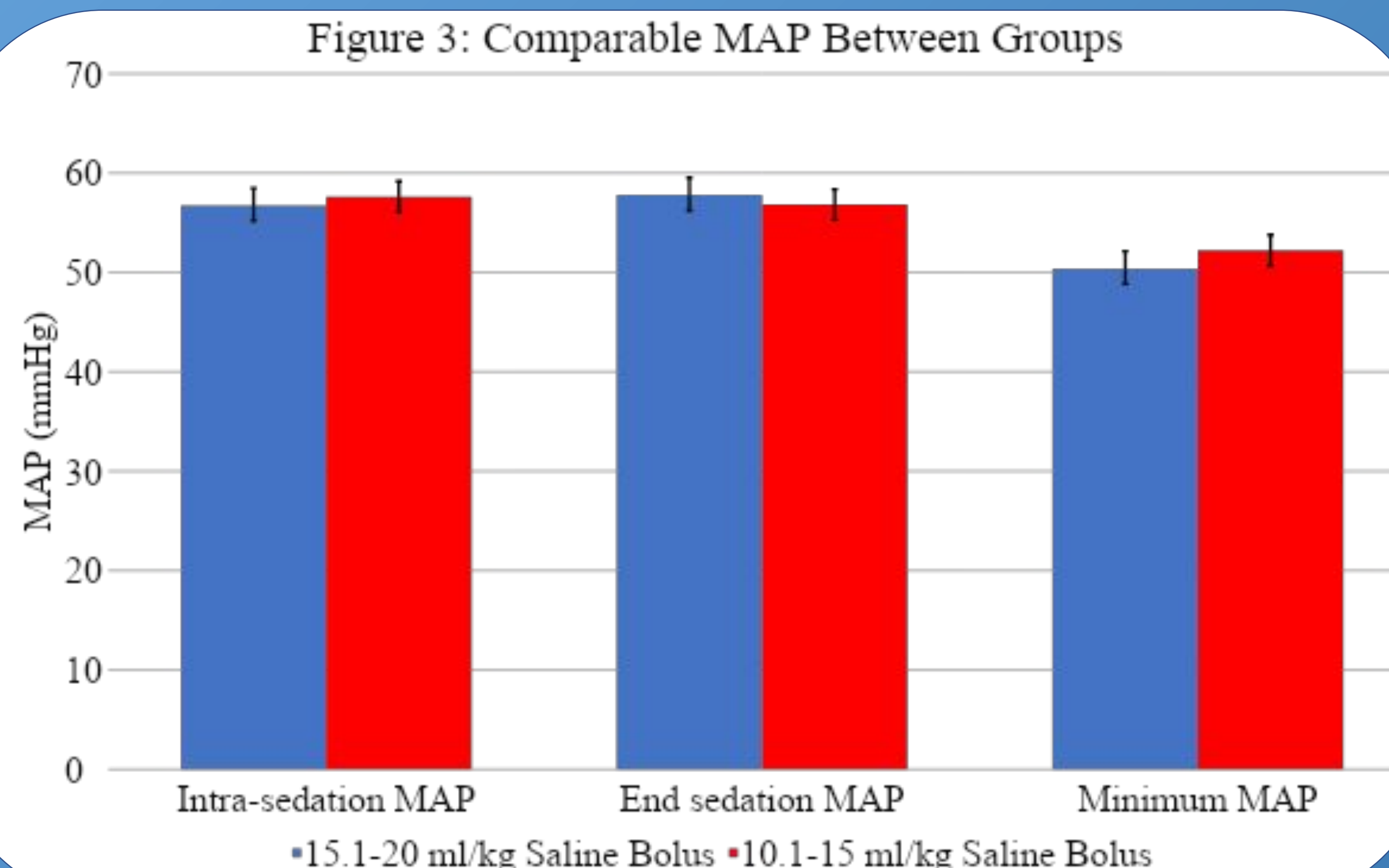
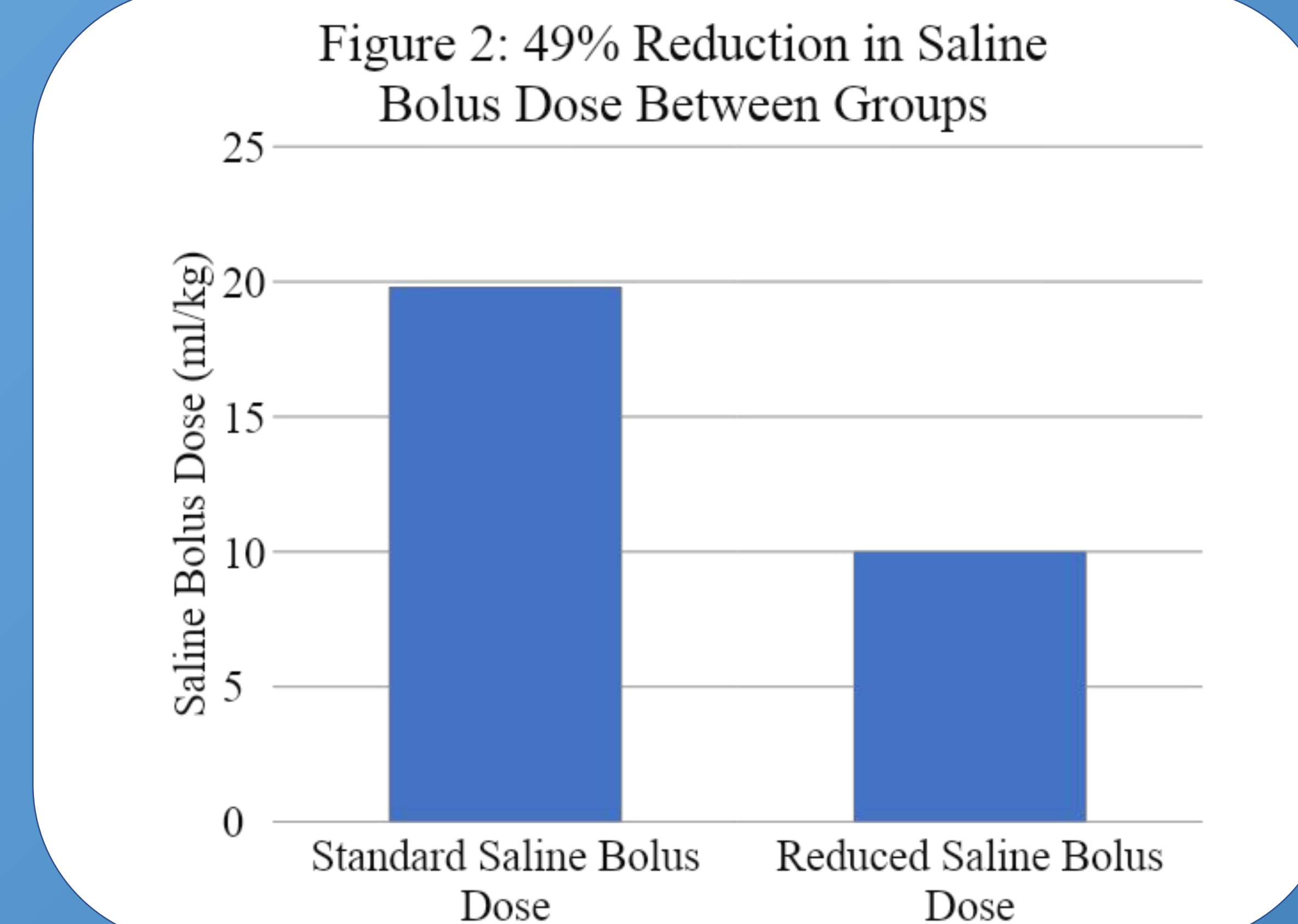
Results

- A total of 114 patients ranging from ages 18 months to 16 years were recruited.
- The percentage of successful sedations with a 20 ml/kg bolus and 10 ml/kg bolus was 94% and 100%, respectively.
- Figure 1 compares the number of sedations completed based on saline bolus dose.
- The average total saline bolus was reduced by 49% from phase 1 to phase 2.
- Figure 2 compares the average saline bolus dose between the two groups.



Results (cont.)

- The average MAP throughout sedation (20 ml/kg: 57±2 mmHg, 10 ml/kg: 58±2 mmHg, p = 0.425) was equivocal.
- The minimal MAP (20 ml/kg: 50±2 mmHg, 10 ml/kg: 52±1 mmHg, p = 0.125) was equivocal.
- The end-sedation MAP (20 ml/kg: 58±1 mmHg, 10 ml/kg: 57±1 mmHg, p = 0.610) was equivocal.
- There was no difference in MAP between groups. Figure 3 compares the average MAP by saline bolus dose.



Conclusion

We conclude that a baseline saline bolus dosage of 10 ml/kg would preserve blood pressure, allow for successful sedation, but prevent unnecessary excess dosing.

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