

INTRODUCTION

- Dexmedetomidine is a selective α_2 -adrenergic agonist that produces sedative and anxiolytic effects that is often used in pediatric population for sedation in non-invasive procedures.
- Common side effects include hypotension and bradycardia.

CASE

- A 21-month old, 12 Kg, previously healthy female presented with a 4-day history of worsening abdominal pain, jaundice, scleral icterus, decreased PO intake, and urine output.
- Workup revealed conjugated hyperbilirubinemia, elevated liver enzymes, and INR of 1.7
- Patient continued to deteriorate clinically necessitating a liver biopsy for diagnostic and prognostic indications.
- Trans-jugular approach though preferred, given the high INR of 1.6 after 3 doses of Vitamin K, was not an option given the patient's size.
- Risk of bleeding versus benefit was discussed, decision was to proceed with percutaneous liver biopsy after transfusing 10 ml/kg FFP preoperatively.
- Anesthesia was induced with Propofol, maintained with sevoflurane and airway was secured with LMA.
- Intraoperatively, patient received 10ml/kg of fresh frozen plasma during the case and remained hemodynamically stable.
- Procedure was uneventful, patient extubated deep and dexmedetomidine 0.5mcg/kg given to remain supine in the recovery room for observation per protocol.

- One hour later in the PACU, patient became hypotensive (MAPs = 30 mmHg) without significant change in heart rate (<10% from baseline). Blood pressure responded to fluid bolus raising concerns for perihepatic bleed.
- STAT Abdominal ultrasound revealed a large perihepatic hematoma (Image 1) and a Hemoglobin of 5.6 gm/dl.
- Patient was transfused with 20 ml/kg PRBCs, 20ml/kg FFP, 10 ml/kg of platelets, and then transferred to the ICU for monitoring and overnight observation.

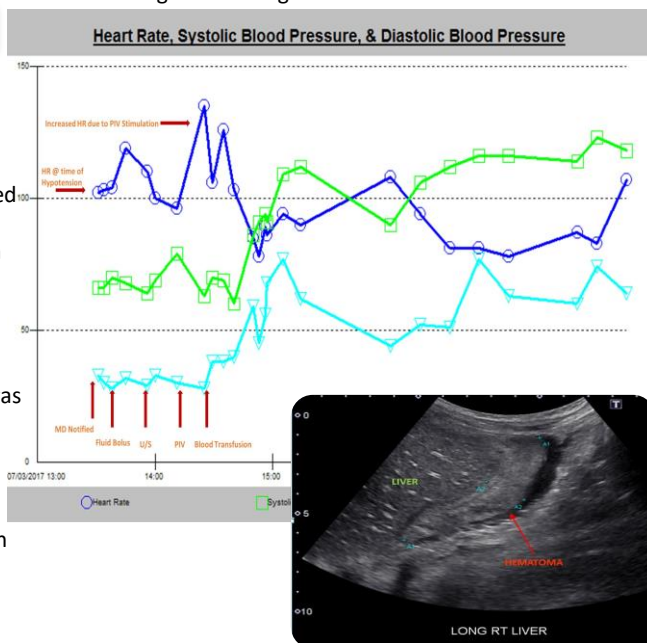


Image 1: Abdominal Ultrasound

DISCUSSION

- Elevation of heart rate in response to hypotension is a mechanism for the body to maintain cardiac output.
- This case highlights a safety concern for pediatric anesthesiologists given that cardiac output is largely heart rate dependent.
- Lack of tachycardia to hemorrhagic hypotension has been recorded in some adult trauma patients and was associated with increased mortality.
- Lack of the tachycardic response in our patient could be explained by:
 - ❑ Increased parasympathetic response due to hemoperitoneum.
 - ❑ Relative bradycardia from prolonged duration of dexmedetomidine (delayed elimination in children, especially those with hepatic dysfunction).

CONCLUSION

- This the first case in literature describing an absent tachycardic reflex in response to hemorrhagic hypotension in the pediatric population.
- Hemorrhagic shock should be considered in patients at high risk for bleeding, even in the absence of tachycardia especially in those who have received dexmedetomidine.

REFERENCES

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