

PBLD – Table #2

Management of Elevated ICP after Bidirectional Glenn

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Goals: After the completion of the PBLD participants will be able to:

1. Discuss single ventricle anatomy and physiology with a focus on Bidirectional Glenn (BDG) and its impact on neurophysiology.
2. Understand the relationship between BDG physiology and cerebral blood flow regulation.
3. Understand the management of massive transfusion with a focus on the unique coagulation profile in single ventricle patients.

Case:

A 13-month old male with CHARGE syndrome, double outlet right ventricle (DORV), status post Bidirectional Glenn at 6 months of age presents with new onset seizures, altered mental status, and agitation. CT scan of the head shows a large subdural hematoma. He presents to the operating room for urgent evacuation of the subdural hematoma.

What is CHARGE syndrome and what are some of the concerns when anesthetizing these patients?

What is double outlet right ventricle and what are the surgical approaches to management of this cardiac defect?

The patient was born with double outlet right ventricle with mitral atresia and severe pulmonic stenosis. He initially underwent a Blalock-Taussig shunt shortly after birth. He required a balloon atrial septostomy during his prolonged hospital stay. He later underwent a bidirectional Glenn.

Describe the unique cardiovascular physiology of patients after bidirectional Glenn? What are your concerns when anesthetizing a patient after bidirectional Glenn? What is your preoperative workup? What is significant about the cardio-cerebral relationship in patients after bidirectional Glenn?

While you are discussing the anesthetic plan with the parents, the patient has a seizure in the pre-op area.

What are your concerns with this preoperative seizure and what would you do, if anything, to treat it?

You suspect that the seizure is related to rising intracranial pressure and you expedite your arrival to the operating room to proceed with urgent surgical evacuation.

What are your anesthetic goals in caring for a child with increased intracranial pressure?

How would you induce general anesthesia in this patient?

After beginning the operation, the neurosurgeon notices that the brain “looks tight.” He asks if you can do anything to lower the intracranial pressure in this patient.

How would you acutely lower intracranial pressure in a patient after bidirectional Glenn?

The patient is bleeding profusely and despite giving blood products it does not appear to be improving.

How would you manage major bleeding in this patient if it occurred? Would you consider recombinant factor VII?

Are there any unique coagulation abnormalities in patients with single ventricle physiology?

The neurosurgeon is considering placing a shunt for draining CSF to treat hydrocephalus. His options are a ventriculo-atrial shunt versus and ventriculoperitoneal shunt. He requests your input on which technique may be preferable in this patient.

How would you advise the surgeon in this case? Would you extubate this patient at the end of the case? Why or why not?

Discussion:

Will be provided after completion of the PBLD session.

References:

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