

PERMISSIVE HYPOTENSION-AN ENTICING ILLUSTRATION

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THE CASE- Fontan anatomy with Dengue Shock Syndrome

9 year old girl was admitted with chief complains of

- High grade fever - since 5 days
- Decreased oral intake - since 5 days
- Facial puffiness – since 4 days
- Generalized body swelling – since 2 days
- Abdominal distension - since 2 days
- Breathlessness – since 2 days
- Melena – since 2 days
- Decreased urine output – since 1 day
- Hematemesis - since 1 day



Outside Journey....

- Hb- 14.9,TLC-3100,Platelets -87000
- 24 hour later – Hb -16.3, TLC-3300, Plat- 12000
- Dengue NS 1 and IgM – Positive
- Patient received IV Fluids, platelets and FFP transfusion.
- Patient's complaints worsened, she became progressively breathless, unable to maintain saturation
- Transferred to PICU for mechanical ventilation



Underlying Heart Condition

Situs Inversus with Dextrocardia with DORV with Severe Infundibular Pulmonary stenosis with VSD
Patient had undergone

- 1) Bidirectional Glenn's shunt
- 2) Fontan's completion surgery
- 3) Device closure of main pulmonary artery



On Admission to PICU...

- Child was conscious but anxious and was able to speak only 1-2 words in a breath
- Afebrile with HR – 78/m, RR – 40/m, BP-68/42(49), SpO2- 98% on 8 lit O2, peripheral pulses – poorly felt
- Generalized anasarca- present
- Petechiae –all over body
- Bleeding through mouth – present
- CVS-Pansystolic murmur
- RS-b/l basal crepts
- P/A- Distended, Gross ascites- present



Diagnosis and Treatment

• So the working diagnosis – FONTAN'S PHYSIOLOGY WITH DENGUE HAEMORRHAGIC SHOCK SYNDROME (DHSS)

• The treatment options

Treatment in DHSS	To Correct	C/I or Problems in our patient
1 Fluids	To maintain intravascular volume	Risk of pulmonary oedema
2 Vasopressors	Keep MAP > 65	Fontan Physiology
3 Albumin	To limit severity of fluid overload	Protein loosing enteropathy due to Fontan physiology
4 Blood products	To correct deficiencies	Risk of pulmonary oedema
5 Mechanical Ventilation	Respiratory distress	Detrimental to venous return due to Fontan physiology



Devil Vs Deep Sea

So how did we manage this case?

- 1) Avoid fluid overload – By strict I/O monitoring. We restricted fluid intake and managed to remove excess fluids with diuretics.
- 2) We allowed HYPOTENSION to avoid vasopressors as long as we were able to keep perfusion within acceptable range by monitoring pH, lactate and neurological status.
- 3) Avoided platelet transfusion by keeping an eye on bleeding manifestations and not on platelet numbers!
- 4) Avoided mechanical ventilation as it would have had deleterious effects on her cardiovascular status.

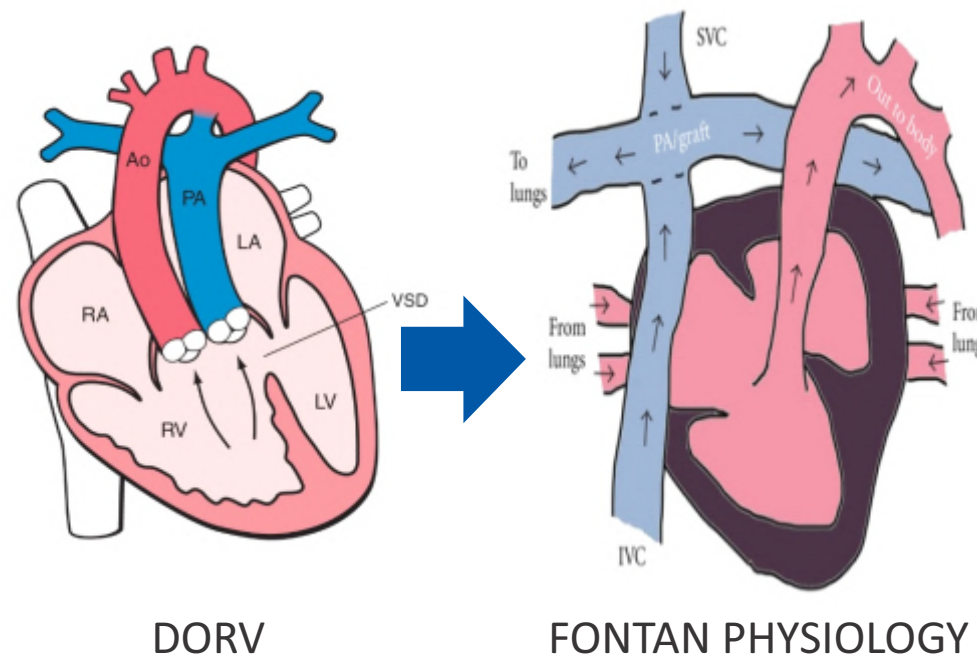
Date	Intake	Output	BP	MAP	pH	Lactate	HCT	Platelets
25/7	1050	190	67/44	48	7.28	1.9	34.7	51000
26/7	1600	1355	61/30	38			35.2	28000
27/7	1840	1580	56/27	39			38.1	10000
28/7	980	880	69/39	48	7.34	1.2	35.8	47000
29/7	1490	1445	66/42	49				
30/7	1385	1200	66/40	50			36.3	55000
31/7	1040	970	68/35	45			36.1	50000
1/8	1550	1165	78/45	55	7.36	1.1		
2/8	1500	925	88/48	53			37.9	76000
3/8	1288	800	59/42	47				
4/8	610	550	72/52	63				



GOAL

To avoid inotropes (as it would have had detrimental effects on patient's cardiovascular status) and allow hypotension as long as

- pH is maintained within normal limits
- lactate is low
- organ perfusion maintained



Final Thought

- Importance of Permissive Hypotension is well documented in trauma patients but does it have any role in other clinical scenario?
- We need to explore because we are caretaker of our patients and NOT of their vitals!!!