

ABDOMINAL COMPARTMENT SYNDROME

Intra –Abdominal Hypertension associated with organ dysfunction defines Abdominal Compartment Syndrome (ACS).

Etiology:

- Massive intra-abdominal or retroperitoneal hemorrhage (blunt trauma, aortic aneurysm rupture etc.).
- Severe gut edema.
- Intestinal obstruction.
- Tension ascites.
- Laparoscopy.
- Burns.
- Pancreatitis.

Normal intra-abdominal pressure 0-5 cm H₂O varies with position and normal breathing. Clinical signs when pressure is 15 cm H₂O.

“Magic” number 20 cmH₂O. Measured by urinary catheter transducer.

This is not an accurate measurement but the most commonly used and referred to in the literature.

Systems and organs affected:

- Pulmonary: the first system affected (on 15 cmH₂O), higher resistance on the lower wall (diaphragm) reduces the compliance and thus reduction in Total Lung Capacity (TLC), Functional Residual Volume (FRV) and Residual volume (RV). High ventilation pressure causes barotrauma and hence a vicious cycle.
- Cardio-Vascular: fall in cardiac output due to low venous return and high peripheral resistance.
- Renal: oliguria and in severe cases anuria due to reduction in GFR, prerenal and renal.
- Splachnic perfusion: low blood flow and bacterial translocation.
- CNS: elevated ICP as a result of high venous pressure.

Treatment:

- Kron et al (1984) reported a series of patients in which IAP was measured and used as a criterion for decompression. Coined the term Abdominal Compartment Syndrome (ACS).
- The IAP drops immediately after opening the fascia and usually pulmonary parameters are back to normal.
- Reperfusion injury is possible and should be anticipated.
- If not possible to close the wound primarily it should be left open with ‘Bogota’ bag or other modifications, the patient should return to SICU and another attempt should be done in the next days.

References:

- Abdominal compartment syndrome: Baily J and Shapiro MJ.:Crit Care 2000;4(1):23-29.
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- The abdominal Compartment Syndrome: Panel discussion: Rocco Orlando III (moderator):Arch Surg 139(4):415.
- Abdominal compartment syndrom: does intra-cystic pressure reflects actual intra-abdominal pressure? A prospective study in surgical patients: Johna et al: Crit Care 1999;3(6): 135-138.

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