FAST FACTS: Intraabdominal Pressure Monitoring

- **Intra-Abdominal Pressure (IAP)** is the pressure concealed within the abdominal cavity. IAP is measured indirectly using the bladder to obtain the inferred measurement. A normal pressure reading is 0 mmHg, while in a critically ill patient it may rise to 5-7 mmHg.
- **Intra-Abdominal Hypertension (IAH)** is defined as an IAP of greater than or equal to 12 mmHg. IAH is graded by severity:
    - Grade I: 12-15 mmHg
    - Grade II: 16-20 mmHg
    - Grade III: 21-25 mmHg
    - Grade IV: >25 mmHg
- **Abdominal Compartment Syndrome (ACS)** is a clinical syndrome caused by a sustained IAP greater than (>) 20 mmHg that is associated with new organ dysfunction/failure.
- **Abdominal Perfusion Pressure (APP)** is defined as Mean Arterial Pressure minus IAP. APP should be maintained at more than 50 to 60 mm Hg to maintain adequate perfusion to the abdominal organs and reduce the chance of organ dysfunction.

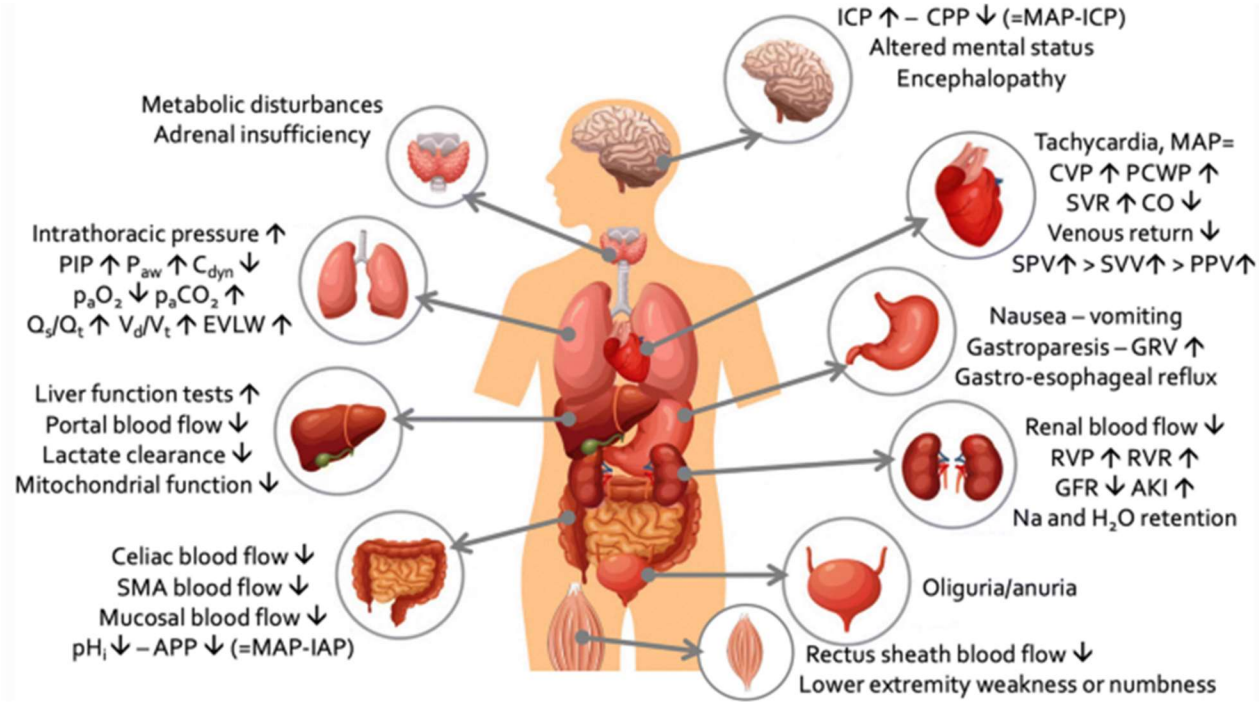
Risk Factors for IA Hypertension or Abdominal Compartment Syndrome:

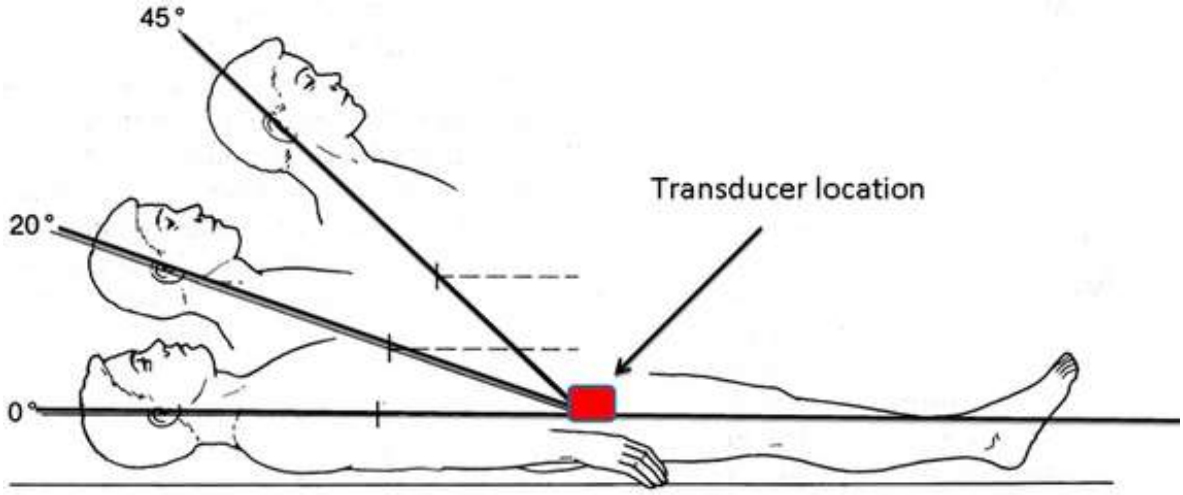
- Diminished abdominal wall compliance
    - Abd. Surgery, Major Trauma, Major Burns, Prone positioning
- Increased intestinal intraluminal contents
    - Gastroparesis, gastric distension, ileus, colonic pseudo-obstruction, volvulus
- Increased intraabdominal contents
    - Distended abd, peritoneal dialysis, laparoscopy with excessive insufflation pressure, acute pancreatitis, infection or abscess, hemoperitoneum or pneumoperitoneum, tumors, ascites
- Capillary leak or fluid resuscitation
    - Metabolic acidosis, hypothermia, massive fluid resus, poly transfusions(>10 units), damage control laparotomy
- Miscellaneous/Other:
    - Age (>69years), coagulopathy, increased HOB angle, large hernia repair, mechanical ventilation, PEEP>10, obesity(BMI>30), diagnosis of peritonitis, pneumonia, bacteremia, sepsis, shock or hypotension

Treatment

- Supportive care including gastric and rectal decompression
- Percutaneous drainage of ascites or intraperitoneal hematomas
- Percutaneous catheter placement (we tend to place acute peritoneal dialysis catheters at the level of the linea alba (non-vascular) below the umbilicus)
- Sedation and chemical paralysis to relax the abdominal musculature
- Ventilatory support as needed
- Hemodynamic support as needed

- **Surgical decompression** and usually maintenance of an open abdomen via a temporary abdominal wall closure is the definitive treatment





The correct transducer position at the iliac crest in the mid-axillary line in the supine position and with head of bed elevation.

IAP should be measured with the patient in the supine position unless contraindicated by the Provider

Bladder Pressure set up and IAP monitoring:

Note in photo 1: Get an unbonded CVP kit (item supply #1067, Ref. # on package 461150451) You only need the middle transducer cable piece of the actual CVP tubing (double sided yellow arrow). Remove all of the extra bits and toss.

See the single arrow that points to which end the white transducer cable needs to come out. Put a red cap on that end.

Photo 2:
Prime tubing by pulling and pushing 500cc NS fluid until it flows out and down the unclamped foley catheter. Prime transducer portion of tubing by pinching the pressure tubing, below the Y-split, so that it flows back up to the transducer- get all air out of transducer. Connect to foley in aseptic manner.

Don't forget to zero, by turning stopcock to patient and opening up yellow cap. Level the pressure transducer at the level of the bladder, located at the iliac crest in the mid-axillary line.

To measure IAP, Clamp drainage bag of foley Cath just distal to the aspiration port. Turn the stop cock to the "off" position towards the patient following fluid instillation and open to the NS. Use syringe to fill up with max of 25ml NS. Turn stop cock to "off" position towards the NS fluid and open to patient. Instill max of 25ml NS into bladder. Unclamp the foley clamp to let any air out of the proximal portion of the tubing then reclamp. Wait 30-60 seconds to ensure detrusor muscle relaxation before obtaining IAP value. Unclamp the foley clamp ones pressure is obtained. Subtract 25ml from urine output. Measure every 4 hours or follow orders.