PRACTICE GUIDELINES: INTRA-ABDOMINAL HYPERTENSION/ABDOMINAL COMPARTMENT SYNDROME

OBJECTIVE:

Provide guidelines describing the appropriate monitoring for adult and pediatric patients who are at risk for Intra-abdominal hypertension (IAH)/Abdominal Compartment Syndrome.

GUIDELINES:

Purpose of these guidelines are to assist in identifying patients who are at risk for development of intra-abdominal hypertension (IAH)/abdominal compartment syndrome.

Identify etiologies of Intra-abdominal hypertension and Abdominal compartment syndrome.

Identify clinical signs and symptoms of Intra-abdominal hypertension and Abdominal compartment syndrome.

Recognize and implement the use of bladder pressures for the diagnosis of Intra-abdominal hypertension and Abdominal compartment syndrome.

Procedure: Defining IAH & ACS

1. Intra-Abdominal Hypertension (IAH) A steady state pressure of greater than 12mmHg concealed within the abdominal cavity
2. Abdominal Perfusion Pressure (APP):
   a. Defined as Mean Arterial Pressure (MAP) – Intra-Abdominal Pressure (IAP)
3. Abdominal Compartment Syndrome (ACS):
   a. A sustained IAP > 20mmHg (with or without an APP < 60) that is associated with new organ dysfunction/failure – research purposes

Etiologies Intra-abdominal hypertension and Abdominal compartment syndrome:

<table>
<thead>
<tr>
<th>Primary</th>
<th>Secondary</th>
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<tr>
<td>Abdominal trauma</td>
<td>Large IVF resuscitation</td>
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<tr>
<td>Abdominal surgery</td>
<td>Mechanical ventilation</td>
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<tr>
<td>Diminished abdominal wall compliance</td>
<td>Sepsis and/or septic shock</td>
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<tr>
<td>Increased intra-luminal contents</td>
<td>Burns</td>
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<td>Increased abdominal contents</td>
<td>Metabolic acidosis</td>
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<td>Capillary leak/fluid resuscitation</td>
<td>Third spacing/interstitial edema</td>
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<td>Cirrhosis w/ascites</td>
<td>Prone positioning</td>
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<tr>
<td>Gastroparesis/ileus</td>
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<td>Ogilvie’s syndrome</td>
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<td>Volvulus</td>
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<td>Pancreatitis</td>
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<td>Abdominal abscess</td>
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<td>Retroperitoneal bleed</td>
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1. Based upon the risk assessment evaluation, if a patient has 2 or more risk factors that are associated with IAH/ACS, a positive presence indicates the need for serial monitoring.
2. Measure the patient’s IAP to obtain a baseline. A sustained IAP ≥12 mmHg requires continued monitoring.
3. If patient has an IAH, notify medical provider. Proceed to IAH/ACS management algorithm.
4. Patient does not have IAH continue to observe patient. If patient declines recheck the IAP.
5. Persistent patient IAP ≥12 begin medical management Algorithm.
Establishing a baseline IAP (Nurses refer to AACN Procedure Manual for Critical Care)

1. Expressed in mm Hg (1 mm Hg = 1.36 cm H20)
2. Measured at end expiration
3. Performed in the supine position
4. Zeroed at the iliac crest in the mid-axillary line
5. Performed with an instillation volume of no greater than 25ml of saline (1 ml/kg for children up to 20 kg for bladder technique)
6. Measured 30-60 seconds after instillation to allow for bladder detrusor muscle relaxation (for bladder technique)
7. Measured in the absence of active abdominal muscle contractions
Fig. 1 Updated intra-abdominal hypertension (IAH)/abdominal compartment syndrome (ACS) management algorithm. IAP intra-abdominal pressure.
The choice (and success) of the medical management strategies listed below is strongly related to both the etiology of the patient’s IAH / ACS and the patient’s clinical situation. The appropriateness of each intervention should always be considered prior to implementing these interventions in any individual patient.

- The interventions should be applied in a stepwise fashion until the patient’s intra-abdominal pressure (IAP) decreases.
- If there is no response to a particular intervention, therapy should be escalated to the next step in the algorithm.

**IAH / ACS MEDICAL MANAGEMENT ALGORITHM**

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**Step 1**
- Insert nasogastric and/or rectal tube
- Abdominal ultrasound to identify lesions
- Initiate gastro-colo-prokinetic agents (GRADE 2D)

**Step 2**
- Minimize enteral nutrition
- Abdominal computed tomography to identify lesions
- Administer enemas (GRADE 1D)
- Percutaneous catheter drainage (GRADE 2C)

**Step 3**
- Consider colonoscopic decompression (GRADE 1D)
- Consider surgical evacuation of lesions (GRADE 1D)
- Consider neuromuscular blockade (GRADE 1D)
- Discontinue enteral nutrition

**Step 4**
If IAP > 20 mmHg and new organ dysfunction / failure is present, patient’s IAH / ACS is refractory to medical management. Strongly consider surgical abdominal decompression (GRADE 1D).

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World Society of the Abdominal Compartment Syndrome (WSACS)
References

