INTRA-ABDOMINAL HYPERTENSION (IAH) / ABDOMINAL COMPARTMENT SYNDROME (ACS) MANAGEMENT ALGORITHM

**Intra-Abdominal Hypertension (IAH)**

- **Patient has IAH** (IAP ≥ 12 mmHg)
  - Initiate treatment to reduce IAP
    - Avoid excessive fluid resuscitation
    - Optimize organ perfusion
  - IAP ≥ 20 mmHg with new organ failure?
    - **NO**
    - Monitor IAP with serial measurements at least every 4 hours while patient is critically ill
    - IAP < 12 mmHg consistently?
      - **YES**
      - IAH has resolved
        - Discontinue IAP measurements and monitor patient for clinical deterioration
    - **NO**
    - IAP > 20 mmHg with new organ failure?
      - **YES**
      - Patient has ACS

**Abdominal Compartment Syndrome (ACS)**

- **Does patient have Primary ACS?**
  - **NO**
  - **YES**
    - Perform / revise abdominal decompression with temporary abdominal closure as needed to reduce IAP
      - **YES**
        - Is IAP > 25 mmHg with progressive organ failure?
          - **NO**
            - Continue medical treatment options to reduce IAP
              - Measure IAP/APP at least every 4 hours while patient is critically ill
              - Perform balanced resuscitation of patient preload, contractility, and afterload using crystalloid / colloids / vasoactive medications
                - AVOID EXCESSIVE FLUID RESUSCITATION
          - **YES**
            - Can APP be maintained > 60 mmHg?
              - **YES**
                - IAP < 12 mmHg consistently?
                  - **NO**
                    - **YES**
                      - IAH has resolved
                        - Decrease frequency of IAP measurements and observe patient for deterioration
              - **NO**
                - Perform balanced resuscitation of patient preload, contractility, and afterload using crystalloid / colloids / vasoactive medications
                  - AVOID EXCESSIVE FLUID RESUSCITATION
      - **NO**
        - **YES**
          - Continue medical treatment options to reduce IAP

**Medical treatment options to reduce IAP**

1. Improve abdominal wall compliance
   - Sedation & analgesia
   - Neuromuscular blockade
   - Avoid head of bed > 30 degrees
2. Evacuate intra-luminal contents
   - Nasogastric decompression
   - Rectal decompression
   - Gastro-/colo-prokinetic agents
3. Evacuate abdominal fluid collections
   - Paracentesis
   - Percutaneous drainage
4. Correct positive fluid balance
   - Avoid excessive fluid resuscitation
   - Diuretics
   - Colloids / hypertonic fluids
   - Hemodialysis / ultrafiltration
5. Organ Support
   - Maintain APP > 60 mmHg with vasopressors
   - Optimize ventilation, alveolar recruitment
   - Use transmural (tm) airway pressures
     - Pplat\_tm = Pplat - IAP
   - Consider using volumetric preload indices
   - If using PAOP/CVP, use transmural pressures
     - PAOP\_tm = PAOP - 0.5 * IAP
     - CVP\_tm = CVP - 0.5 * IAP

**Definitions**

- **IAH** - intra-abdominal hypertension
- **ACS** - abdominal compartment syndrome
- **IAP** - intra-abdominal pressure
- **APP** - abdominal perfusion pressure (MAP-IAP)
- **Primary ACS** - A condition associated with injury or disease in the abdomino-pelvic region that frequently requires early surgical or interventional radiological intervention
- **Secondary ACS** - ACS due to conditions that do not originate from the abdomino-pelvic region
- **Recurrent ACS** - The condition in which ACS redevelops following previous surgical or medical treatment of primary or secondary ACS


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