A Guide for Fluid or Vasopressor Support Based upon Non-invasive Technology

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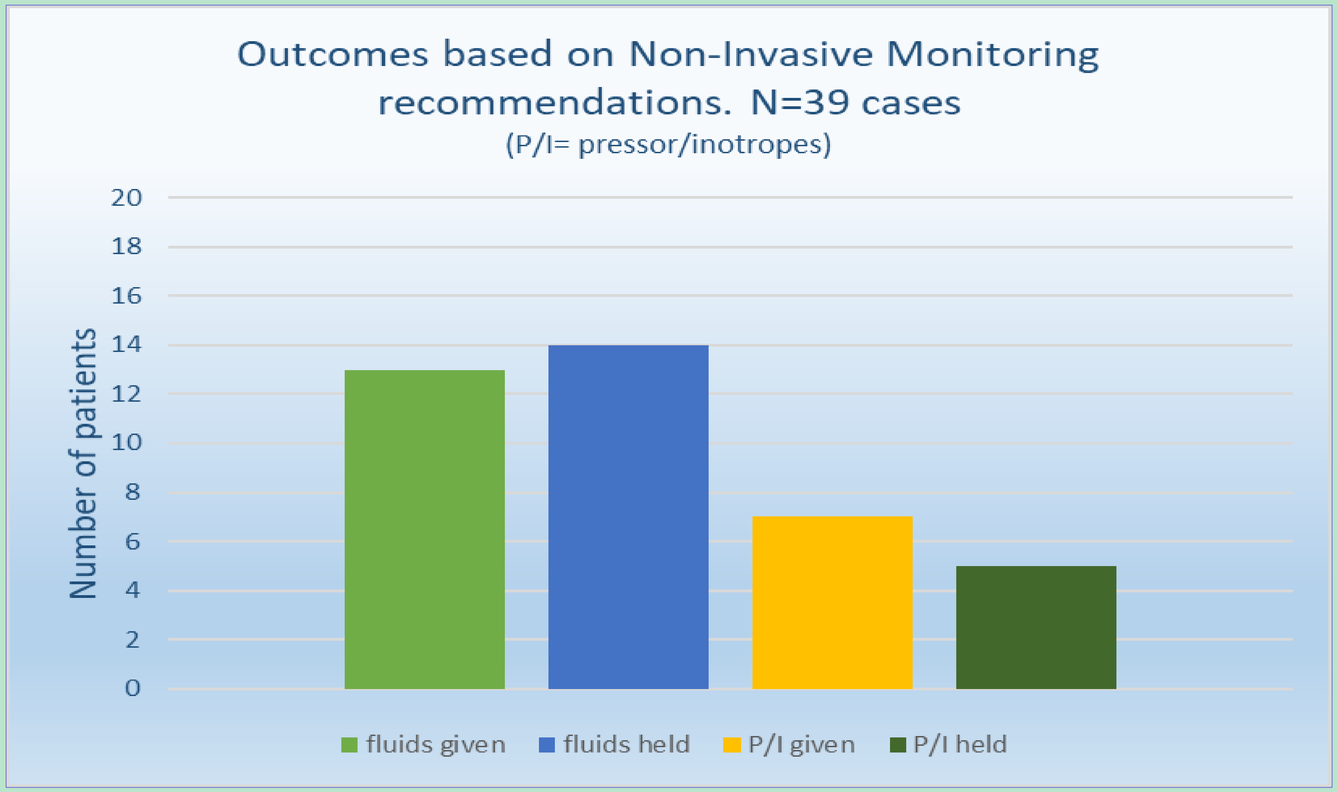
Background: Fluid management is one of the cornerstone treatments for critically ill patients. It influences patient's outcomes and is considered one of the most common pitfalls encountered in the management of the critically ill patient. Fluid overload, delayed pressor medications and bolusing are risks that may lead to serious complications, such as decreasing oxygenation, cardiac failure and acute kidney injury. Ultimately these detrimental effects can increase mortality. Mismanagement also increases resource utilization, length of stay, and costs. A gap was noted in the fluid resuscitation-pressor management from internationally established protocols for such patients as those in septic shock, particularly with comorbidities such as congested heart failure or chronic kidney disease.

Purpose: To examine the result of non-invasive cardiac output monitoring (NICOM) in driving fluid or pressor/ionotropic medication in critically ill adults.

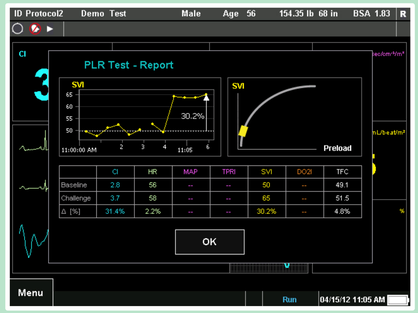
Methods: The critical care team used Lean methodology to study decision making related to fluids and pressor administration. The team believed what should be happening was application of NICOM to patients that were deemed to be critically ill when fluid or pressor support was in question. The NICOM demonstrated whether fluids would be advised or not, based on the Frank-Starling Curve. Providers were also asked, after using the NICOM and the recommendations provided, if it helped guide them in their decision making of fluid or pressor support.



Results: The ICU coordinator followed 39 Cases. Providers felt 97% (38/39) of the time that the monitoring helped guide therapy.

Based on the data collected, fluids were provided in 13/39 (33%), and held in 14/36 (33%).

Pressors/inotropes were given in 7/39 (18%) and held in 5/39 (13%) of cases.



Conclusion: The non-invasive monitoring provided data based on the Frank-Starling Curve, which guided fluid, pressor and inotropic administration or restriction. There was overwhelming acceptance that the monitoring guided care and the use of the technology is encouraged.

Further information:

- **Inside scientific: Integrating Noninvasive Blood Pressure Monitoring with Human Physiology Measurements Webinar** https://insidescientific.com/webinar/noninvasive-blood-pressure-monitoring-with-human-physiology-biopac-cnsystems/
- **UpToDate: Novel tools for HD monitoring in critically ill patients with shock. 8/2018**
- **Contact: Gwen.Schneider@salemhealth.org**