NEW CONTRIBUTIONS TO THE MANAGEMENT OF ABDOMINAL COMPARTMENT SYNDROME

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INTRODUCTION

Intra-abdominal hypertension (HIA) and abdominal compartment syndrome (ACS) are recognized as pathological entity with high prevalence in the critical patient, significantly increasing morbidity and mortality in these clinical circumstances.

Evaluation and treatment of ACS remains a major challenge, although lately there has been progress in his therapy, based on a better understanding of the pathogenesis of ACS.

Under these conditions, evaluation of parameters in SCA is required to a quick diagnosis. They complement information provided by the clinical picture, helping to correct choice of therapeutic conduct.

The main objective of the thesis is to achieve a score of evaluation of patients with HIA / SCA useful for both local and systemic damage assessment and for monitoring disease evolution and dynamics shaping a prognosis of death.

The secondary objective is to strengthen knowledge among health professionals on HIA / ACS and improve patient survival.

The definition of intra-abdominal hypertension (HIA)

HIA is defined as any of the following two conditions:
PIA-to ≥ 12 mm Hg measured under standard conditions at least 3 times at intervals of 4-6 hours
PPA-to ≤ 60 mmHg measured at least twice the standard conditions every 1-6 hours

SCA Definition:

ACS is defined by the presence of the following two situations:
≥ 20 mmHg, to the market with or without PAP <50 mmHg recorded at least three standardized measurements single or multiple-organ failure

Key words: Intra-abdominal hypertension (HIA), abdominal compartment syndrome (ACS), Score ACS, intraabdominal pressure (PIA)

MATERIAL AND METHODS

Study population consisted of 192 patients.

Methods included the monitoring of some parameters comprised in the final score ACS such as:
- PaO2/FiO2,
- pH,
- TAM (average blood pressure),
- Glasgow score,
- PIA (intra-abdominal pressure),
- PAP (pressure infusion abdominal),
- GFR (glomerular filtration rate).

The present study was conducted in accordance with the rules and principles WSACS code of good practice.

The study is based on an original goal, the first attempt to set up a score that aims to monitor patients with HIA / SCA and is based on original documents that meet the standard of medical healthcare:
- biochemical analysis were conducted using a gazometric analizer Bayer 865 (Germany), from Intensive Care Unit, the rest of analysis were being made in Medical Analysis Laboratory County Emergency Hospital of Craiova - ex. serum creatinine).
- PIA measurements were made by AbViser adapted to SpaceLabs monitors and Phillips Intellivue MP40 measurement ports that are compatible with PVC pressure transducers type AbViser (WSACS recommendation) and measures the pressure in the range of similar pressure.
- PVC, TAM were measured electronically
- Statistical interpretation and analysis was performed with the curve ROC and multiple linear regression.

RESULTS

Statistical analysis of all seven parameters confirmed their sensitivity to monitor the occurrence, diagnosis and development of abdominal compartment syndrome

![Chart 1](chart1.png)

**Chart 1.** The global evolution of the monitored parameters between the moment of the patient’s inclusion in the study and ACS diagnosis

![Chart 2](chart2.png)

**Chart 2.** The global evolution of the parameters between the moments of the diagnosis of ACS and time to time (24, 48, 72 hours and 5,10 days)

There is a parallel evolution of the parameters studied to their normal values showing the close interdependence of these parameters (GFR, TAM, pH, PPA, GCS and R-PIA increases to normal and down to 0). Although all parameters have a good prediction for mortality, PPA report achieved the best sensitivity / specificity and the highest area under ROC curve. PPA exceeds that unfavorable evolution and mortality prediction market is not random, generating MODS abdominal ischemia is primarily related to the PPA and indirectly PIA (Figure 3)
Chart 3. ROC corelations between the researched parametres (GCS, PIA, PPA, PaO2/FiO2, RFG, TAM, şi pH) and mortality

<table>
<thead>
<tr>
<th>ACS SCORE</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIA</td>
<td>&gt;0</td>
<td>0-9</td>
<td>10-15</td>
<td>16-25</td>
<td>&gt;26</td>
</tr>
<tr>
<td>PPA</td>
<td>≥60</td>
<td>50-59</td>
<td>40-49</td>
<td>20-39</td>
<td>&lt;19</td>
</tr>
<tr>
<td>PaO2/FiO2</td>
<td>400-435</td>
<td>300-399</td>
<td>200-299 (ALI)</td>
<td>100-199</td>
<td>&lt;100</td>
</tr>
<tr>
<td>pH</td>
<td>≥7.36</td>
<td>7.30-7.35</td>
<td>7.23-7.29</td>
<td>7.16-7.22</td>
<td>≤7.15</td>
</tr>
<tr>
<td>TAM</td>
<td>≥70</td>
<td>60-69</td>
<td>50-59 or Dopamine≤5</td>
<td>Dopamine&gt;5 Dobutamine&gt;5 Epinephrine≤0.1 Norepinephrine≤0.1</td>
<td>Dopamine&gt;15 Dobutamine&gt;15 Epinephrine&gt;0.1 Norepinephrine&gt;0.1 Vasopresine orice doză</td>
</tr>
<tr>
<td>SCG</td>
<td>15</td>
<td>13-14</td>
<td>10-12</td>
<td>6-9</td>
<td>&lt;6</td>
</tr>
<tr>
<td>RFG</td>
<td>&gt;80</td>
<td>60-79</td>
<td>30-59</td>
<td>10-30</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>

Table 1. The ACS score

CONCLUSIONS

1. Presence of one or more of the criteria used for inclusion of patients in the study, undertake monitoring IAP is increased whether or not the onset of disease, after diagnosis of ACS is necessary to identify and start as soon as possible measures to reduce IAH which has an undeniable positive effect on disease progression and reduce mortality.

2. Utilizarea unique value as a parameter IAP is insufficient to make a realistic assessment of local and systemic impact of IAH and therefore should be identified and other parameters that can help evaluate the patient with HIA;

3. Increased incidence of abdominal hipoperfuzia (below 60 mmHg) becomes manifest early hours of IAH 24-36, improving intra-abdominal infusion occurred in many cases immediately after the establishment of therapeutic management of decreased and increased PAP, IAP;

4. The respiratory disfuncţia is near mandatory "in the SCA (almost 90%), most commonly ALI and ARDS patients enrolled for two or more criteria;
The metabolic dysfunction is ubiquitous in the SCA, the pH being a witness to the seriousness of her damage in SCA is affected physiological mechanisms governing the fast or slow pH, i.e., functions that respiratory impairment.

Evolution of pH measured at diagnosis of ACS was fast enough in many cases by restoring favorable compensatory mechanisms and pharmacological interventions;

TAM is the parameter indicators to monitor cardiovascular status and fluid resuscitation witness to the detriment of PVC under HIA loses value.

Greater or less impairment of consciousness is found in most patients with ACS, the use of GCS monitoring to reveal neurological status of patients in intensive care is routine and is confirmed for HIA / ACS;

Renal function is affected very early onset increases with increasing PIA and its growth, the favorable development of Germany after ACS diagnosis and therapeutic measures was only beginning after 4-5 days and significantly better after 10 days.

Following statistical analysis, SCA score proved superior in assessing severity and predicting unfavorable early evolution of HIA and ACS Patient versus SOFA scores and APACHE II. The main Advantage of ACS score Before The Other scores is That it encompasses, in addition to specific parameters of the main body homeostasis impairment, and two parameters - PIA and PPA Specified, SCA Phenomenon "that should Be Considered as,, additional organ dysfunction”.

**Final conclusion**

I think the main objectives proposed in this research were met by conducting, score SCA "and strengthen knowledge of PIA / HIA / SCA among medical staff in Intensive Care Unit in Clinical Emergency hospital of Craiova.

To correctly interpret the findings and to properly use SCA score must be said that adequate indication of the use of a patient is serious when, in addition to the presence of criteria for inclusion in the study (or simply one organ dysfunction) is presented to and IAH.

Basically this is what I wanted to get behind this research, bringing together the most valuable parameters that is useful in monitoring a PIA and MODS score to exceed the predictive value of scores used to monitor patients' problems. I believe that by developing ACS score was an important first step for diagnosis and evaluation of ongoing management of patients with HIA and SCA.

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- University of Medicine and Pharmacy - Craiova - Faculty of Medicine: October 1992- October 1999;
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- Senior Specialist in Anesthesiology Intensive Care from 2011.
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Scientific activity

- Developed in student scientific circles, during the residency stages, as specialist and senior in Anesthesiology - Intensive Care materialized in:

Published “in extenso” articles in scientific journals correlated with this study:

