

## Abdominal compartment syndrome: immeasurable relevance.

### *Síndrome compartimental abdominal: relevância imensurável.*

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#### LETTER TO THE EDITOR

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I congratulate the authors of the original article published in the issue 45(3) of the Journal of The Brazilian College of Surgeons<sup>1</sup>. It pleased me much to read this article, even more so by seeing this topic published in a journal for surgeons. In this article, the authors seek to analyze the knowledge of the multidisciplinary team in intra-abdominal hypertension and abdominal compartment syndrome (ACS) in a tertiary university hospital located in Curitiba, Paraná, a standard reference for trauma patients.

The relevance of this manuscript is immeasurable, considering our geographical position and the importance of the theme for those who deal with critical patients on a daily basis. For some reasons, intra-abdominal hypertension (IAH) continues to be neglected by the physician, be it an intensivist, a surgeon or an emergency physician in the vast majority of countries in the southern hemisphere. In a recent student, Wise *et al.*<sup>2</sup> published a similar research of international coverage. The authors demonstrated that although most of the physicians who answered the questionnaire stated that they were familiar with IAH and ACS, knowledge is incoherent and inadequate about the definitions published in the consensus of the World Society of the Abdominal Compartment (WSACS), the clinical measurement, and the treatment techniques. Von Bathen *et al.*<sup>1</sup> sought to study exactly this awareness.

They elaborated 14 objective questions and applied them to professionals who interact with this patient population. It is noteworthy that despite 53 questionnaires sent within this same institution, only 38 were answered. Similarly, in the Wise *et al.*<sup>2</sup> study respondents did not reach the totality. This behavior deserves the reflection that sometimes health professionals do not feel comfortable answering questionnaires or the subject is of little interest. The second hypothesis being true, another reflection is required. Would it be the subject of little interest because there is actually little knowledge on the subject? Not infrequently, during presentations and discussions around the world, we hear questions such as "Is IAH so important?"; "Does the presence of IAH actually change the patient's outcome?"; "I do not see IAH as something tangible in the daily clinic, am I correct?".

Well, these are questions that actually stimulate WSACS to continue its work, mainly in Latin America. It is true that in the present Von Bahten *et al.* study, unlike in the international study of Wise *et al.*, most of the professionals that answered the questionnaire have little professional experience (1 to 5 years), the majority of them being residents. This point could be signaled as an important selection bias, however, in comparison with Wise's research, the conclusion is the same: there is no diffusion of the theme among peers, and there is no specific clinical care for patients who present with IAH.

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In a pilot study under way for publication carried out at the University of Campinas, we noticed an incidence 70% to 80% of IAH in septic patients without primary abdominal changes. We selected septic patients with diagnostic criteria by *Sepsis III*, whose etiology was mainly of the pulmonary focus and, even so, we noticed a high incidence of IAH and secondary ACS. It is part of current medical evidence that IAH is undoubtedly incident in critically ill patients, be them surgical or not. It is in this occasion that I emphasize the importance of the research carried out by Von Bahten *et al.* There is an urgent need to alert and educate this set of health professionals that still omit or neglect the presence of IAH in critically ill patients. It is clearly elucidated in Von Bahten's *et al.* sample that about 40% to 50% of respondents fail to recognize IAH and their grades of classification, which can consequently lead to adverse outcomes in the population of patients treated at the center. In fact, ACS hardly conducts a patient to death alone, but the observations are much more subtle. The presence of sustained long-term IAH in patients with perfusion disorder undoubtedly stimulates the permanence of these patients in the ICU, be it due to prolonged ventilation, resulting from the consequent increase in intra-thoracic pressure caused by IAH, or due to difficult waking of the patient. The latter being a consequence of decreased cardiac output induced by decreased venous return caused by IAH, and subsequently by decreased cerebral perfusion pressure or by the consistent flushing of catecholamines and oxidative metabolic products, such as IL1B, IL6, TNF, and free radicals of oxygen generated by the hypoperfusalional state silently perpetuated by IAH.

This insidious process needs and must be noticed by the surgeon or intensivist and promptly reverted to mitigate the endocrine-metabolic response and damage to microcirculation.

Returning to the present Von Bahten's *et al.* study, another important point must be expressed. His manuscript shows that just over 70% of respondents view oliguria as an early sign of IAH. Although I agree that there is a scientific basis by WSACS for this statement, it is important to emphasize that in clinical practice this clinical sign loses relevance. The presence of oliguria in critically ill patients is multifactorial and often caused by other etiologies. A trauma patient, for example, has several reasons for the development of oliguria, whether of pre-renal (shock and haemorrhagic) origin, or of renal origin (acute tubular necrosis). The presence of oliguria in the daily clinical setting cannot be attributed primarily to IAH and, conversely, the diagnosis of IAH cannot be concluded only in the presence of oliguria, since these presentations are not true in most real cases.

Also in this study, most interviewed doctors opted to measuring IAP in the presence of risk factors for ACS, whereas currently the recommendation of WSACS is that measuring be performed considering the presence of one or more risk factors for IAH. An extremely recent movement, which has been around for less than two years, has been established by the World Society, in the belief that every critical patient should have the intra-abdominal pressure (IAP) measured independently of what has motivated admittance to the intensive care unit (ICU). Based on the fact that every critical patient has at least one risk factor for developing IAH, why not establish routine IAP measurement as a way to monitor one more vital sign?

Severe patients have continuous monitoring when admitted to the ICU, to bring the therapy used as close as possible to the patient's normal physiological state. Thus, the IAP routine assessment would be very coherent, as with heart rate, respiratory rate, temperature, or urine output. IAP is an important physiological marker, and when hypertension is noted early, corrective measures can also be taken early, to inhibit a continued cycle of tissue hypoperfusion and reperfusion, contributing to prolonged ICU stay.

Very satisfactorily, I note that, although we are still walking slowly, conceptual progress in the

theme has occurred with the passing of the last years. In the work presented by the group of Professor Von Bahten slightly more than 89% of respondents measure IAP by the standard WSACS way, and this undoubtedly reflects the effort towards continuing education within the institution. On the other hand, the majority of Brazilian and Latin American services still lack protocols for measurement of IAP in critically ill patients, reflecting the delay of the continent in relation to the Northern Hemisphere continents. To assist the readers of the Journal of the CBC, I leave here a protocol proposal for measuring the IAP that follows the theoretical precepts of WSACS (Figure 1).

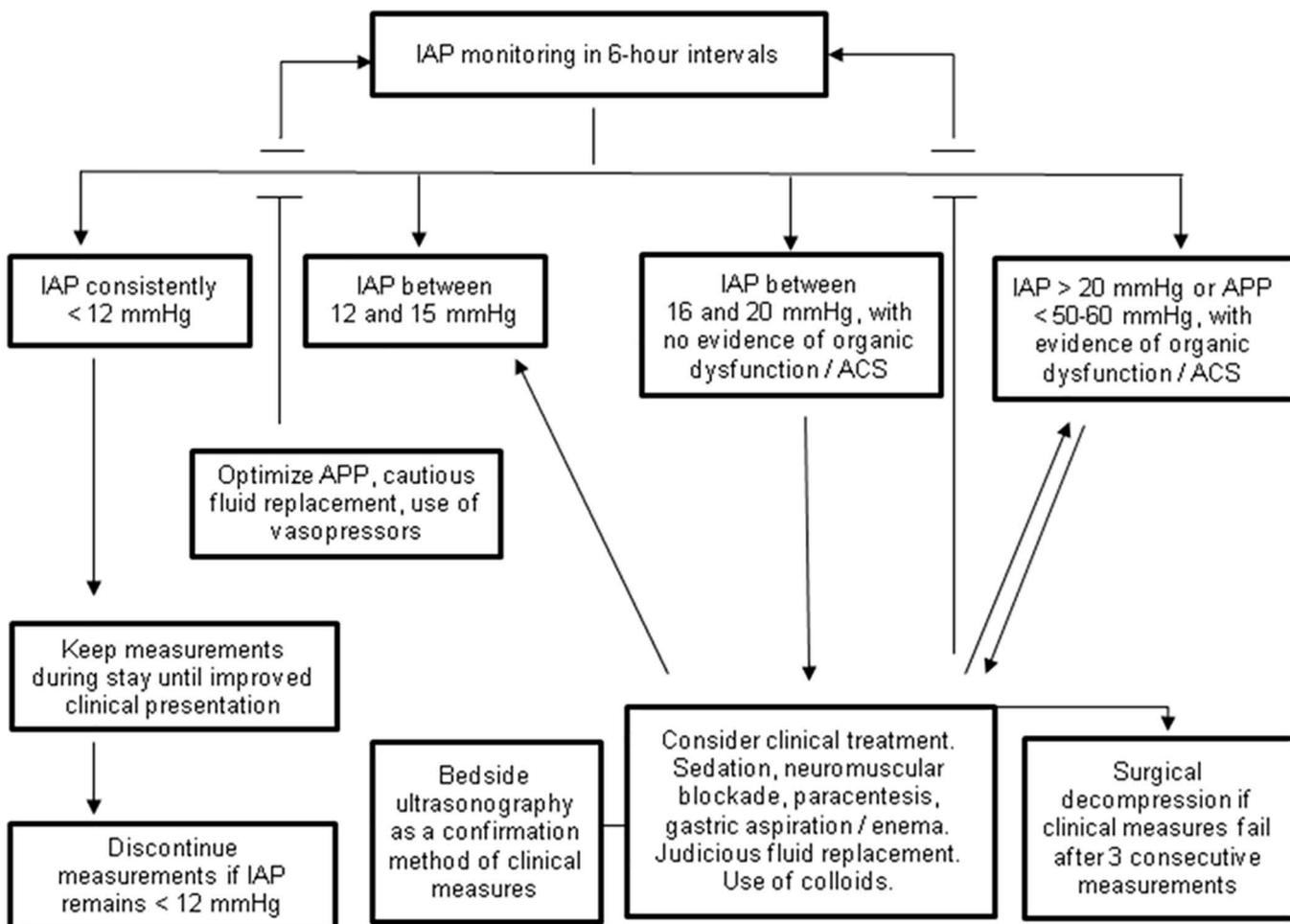


Figure 1. Protocol suggestion for intra-abdominal pressure measurement.

As discussed by the authors, "it is evident that the diagnostic indications for IAH are not widely known, even in a tertiary care institution with a high prevalence of IAH". The physicians interviewed do not know the WSACS guidelines and are unaware of a protocol of their own service, a strong indication for future changes. The application of a protocol in each Brazilian service is paramount for increased attention and awareness of this diagnosis and coverage of the theme in residence programs undoubtedly will cause a new population of medical specialists to come to medical practice at least with basic concepts on the theme.

It is worth mentioning that the treatment of IAH and ACS has also undergone updates<sup>3</sup>. Currently, bedside ultrasound is indicated as an adjuvant for the follow-up of clinical and therapeutic measures proposed by WSACS. The advent of point-of-care ultrasonography in the IAH scenario has utility not only in confirming measures of reduction of intra-luminal and external luminal content, but also provides assistance in measures that require invasive procedures, such as paracentesis.

Finally, I encourage all readers of the journal of the CBC to gather from the Von Bahten *et al.* study the important message that we must be alert and aware for the presence of IAH and that we need, finally, to take a step forward with more education of our peers and residents, as well as the establishment of protocols that assist in this process.

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