PANCREAS NEWS

Early Treatment of Acute Pancreatitis: Do Not Forget the Need for Water

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An Italian survey on the treatment of acute pancreatitis published in 2007 [1] assessed the compliance of 56 medical and surgical centers equally distributed throughout Italy to the Italian guidelines on acute pancreatitis [2]. The severity of the disease was clinically assessed according to the Atlanta criteria [3] and the majority of patients were observed and treated early after the onset of acute pancreatitis; in fact, the mean interval between the onset of pain and hospital admission was 14.9±37.2 hours (mean±SD) in patients with mild acute pancreatitis and 17.8±39.1 hours (mean±SD) in those with severe pancreatitis. One of the results of this study was that the amount of fluids administered to acute pancreatitis patients was significantly higher in patients with severe acute pancreatitis than in those with the mild form. The appropriate fluid replacement may be one of reasons for the low mortality (3.1%) observed in the patients with acute pancreatitis enrolled in this study. Low mortality due to early fluid administration is now supported by the findings of three recent studies coming from Japan and the United States [4, 5, 6]. In the first study we examined [4], the authors revised the data of 9,489 acute pancreatitis patients 18 years of age or older who were categorized into four study groups: ventilation, hemodialysis, a combination of ventilation and hemodialysis, and neither ventilation nor hemodialysis. They analyzed the fluid volume (FV) administered during the initial 48 h (FV48) and during hospitalization (FVH), and calculated the FV ratio (FVR) as FV48/FVH. The authors found that FV48 and FVR were higher in patients requiring ventilation as compared to those not requiring ventilation. A high

FV48 increased mortality and a high FVR decreased mortality in patients with severe acute pancreatitis. A high FV48 required ventilation in patients with severe acute pancreatitis, which was independently associated with mortality; the obvious conclusion was that adequate fluid administration is required in acute pancreatitis. These data were further confirmed by the study of Warndorf *et al.* [5]. These authors retrospectively evaluated the data of 434 acute pancreatitis patients stratified into two groups on the basis of early or late resuscitation. They defined early resuscitation as receiving more than one-third of the total 72-hour fluid volume within 24 hours of presentation and late resuscitation as those patients receiving less than one-third of the total 72-hour fluid volume within 24 hours of presentation. Early resuscitation was associated with decreased systemic inflammatory response syndrome (SIRS), reduced organ failure, reduced rate of admission to the intensive care unit and a reduced length of hospital stay. Thus, early fluid administration should be considered a valuable therapeutic measure for the early management of acute pancreatitis. The fact that, in a subgroup analysis, the beneficial effects of early fluid resuscitation were most pronounced in patients admitted with interstitial rather than severe disease further supports the need for adequate fluid administration as a first line therapeutic approach to acute pancreatitis. The answer to the question of which kind of fluids should be administered comes from the study of Wu *et al.* [6]. The authors performed a randomized controlled trial of 40 patients with acute pancreatitis; the patients received goal-directed fluid resuscitation with lactated Ringer's solution, goal-directed fluid resuscitation with normal saline, standard fluid resuscitation with lactated Ringer's solution, or standard fluid resuscitation with normal saline. Systemic inflammation was measured on the basis of levels of SIRS and C-reactive protein (CRP) level after 24 hours. The authors found that the volumes of fluid administered during a 24-hour period were similar among patients given goal-directed or standard fluid

resuscitation. Goal-directed resuscitation did not significantly reduce the incidence of SIRS as compared to standard resuscitation or levels of CRP after 24 hours. By contrast, there was a significant reduction in SIRS after 24 hours among subjects resuscitated with lactated Ringer's solution as compared to normal saline; the administration of lactated Ringer's solution also reduced levels of CRP as compared to normal saline. Thus, the suggestion to the practicing physician is that patients with acute pancreatitis be resuscitated with lactated Ringer's solution because the pH is more balanced than simple saline solution. Caution should be also recommended regarding early fluid administration; the fluids should be administered under continuous monitoring and they must also be managed according to the chronic cardiovascular comorbidities of patients with acute pancreatitis.

Finally, we should take into account that, as suggested by de-Madaria *et al.* [7], an aggressive fluid therapy during the initial 24 h of admission in patients without signs of fluid depletion may be detrimental.

Abbreviations FV: fluid volume; FV48: fluid volume administered during the initial 48 h; FVH: fluid volume during hospitalization; FVR: FV ratio as FV48/FVH

Conflict of interest None

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