



Fluid management for ARDS patients with or without Covid-19

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The ARDS is characterized by an inflammatory pulmonary edema with an increase in vascular permeability leading to an interstitial / intraalveolar fluid accumulation. The fluid accumulation promotes lung atelectasis, collapse which is responsible for the alveolar shunt and hypoxemia. In addition to lung edema, fluid accumulation in the tissue promotes venous congestion, splanchnic edema, acute renal failure and loss of albumin. Thus the ARDS is not only a lung disease but a systemic disease.

The optimal fluid management in these patients remains controversial, because the main goal of a fluid challenge and fluid management is to provide an adequate cardiac preload, cardiac output and oxygen delivery. Unfortunately in the early phase due to an alteration in permeability associated to the use of non invasive or invasive ventilation, a positive fluid balance are required. Several data clearly showed that positive fluid balance are associated to an increase in the mortality. In addition also low serum albumin concentration have been shown to increase the risk of a worse outcome.

A practical management of fluid management should be oriented accordingly to the phase of the disease: resuscitation, stabilization and weaning.

Independently of the phase an arterial catheter with a central venous catheter should be place to evaluate the serum lactate and central venous saturation.

Physicians should evaluate the possible fluid responsiveness accordingly to several test such as the pulse pressure variation, stroke volume variation, passive leg and respiratory variation of the vena cava and aortic doppler velocity.

Ideally physicians should give the minimal amount of fluid to maintain the hemodynamics and evaluate the early use of vasopressors, considering as possible markers the serum lactate, central venous saturation, central venous pressure and the refilling time.

In the stabilitation and weaning phase diuretics should be provide to reach a negative fluid balance.