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How to treat septic patient during anesthesia?

Sepsis is present in around 10% of all critically ill patients. The definition for sepsis is redefined in 2016, Sepsis-3. According to the new definition sepsis is a life-threatening organ dysfunction caused by a dysregulated host response to infection. Organ dysfunction is defined as an acute increase of Systemic Organ Failure Assessment (SOFA) score ≥2 points caused by infection. SOFA score consists of six different areas: cardiovascular, respiratory, renal, liver, neurological and hematologic. The new Sepsis-3 definition also guides to screen for organ failures outside ICUs (e.g. emergency department,) in patients with infection and at least two out of three qSOFA criteria (respiratory rate ≥22/min, altered mentation, systolic blood pressure ≤100 mmHg).

Around 20-40% of all sepsis patients in ICUs have infection focus from a site where source control can be achieved, i.e. the patients undergo surgery before or during their ICU stay.

Surviving sepsis campaign has launched guidelines to treat sepsis among other measures to improve outcomes in septic patients. The guidelines have >20 recommendations, of which initial resuscitation, source control, fluid therapy, vasopressor and inotrope use are among the most important ones during anesthesia.

The initial resuscitation goals of CVP>8 mmHg, MAP >65 mmHg and ScvO2 ≥70% have been challenged by three recent large randomized trials that showed no difference between early goal-directed resuscitation and standard of care.

For source control, the recommendation is less evidence-based. The recommendation is to have the least invasive procedure within 12 hours after the diagnosis is made.

When treating septic patient, the choice of fluid should be crystalloids. If excessive amounts are needed, albumin can be used as an option. The use of hydroxyethyl starch is discouraged due to risk of acute kidney injury in septic patients.

The optimal blood pressure is >65 mmHg. In septic patients, increasing blood pressure to 80-85 mmHg, did not improve survival, but increased adverse effects. If a patient has hypertension in medical history, the need for renal replacement therapy is lower if higher blood pressure is targeted. The first-line vasopressor should be norepinephrine. If septic myocardial depression is present, the first-line inotropic agent should be dobutamine.

Blood product administration should be conservative. The targeted hemoglobin concentration of 70-90 g/l is considered sufficient. In cases of ongoing myocardial or cerebral ischemia, the target value can be higher. For optimal dosing of fresh frozen plasma or thrombocytes, there is no good evidence. In case of active bleeding, these products should be used to correct coagulation.

For ventilatory treatment in sepsis patients undergoing surgery, lung-protective strategy should be applied (limitation of volume and plateau pressure).