Subjective assessment of the peripheral circulation is still important in critically ill patients

The importance of clinical assessment of peripheral perfusion beyond the initial resuscitation phase in critically ill patients is unknown. Lima et al. enrolled 50 consecutive critically ill patients who had undergone initial resuscitation and stabilization within 24 hours of ICU admission.

Subjective peripheral perfusion was measured by capillary refill time and skin temperature. Objective central-to peripheral temperature differences were also measured as was the peripheral flow index (PFI) derived from the pulse oxymetry signal. The authors specifically investigated whether subjective assessment of peripheral perfusion could predict an increase in SOFA score or subsequent hyperlactataemia.

After initial resuscitation a total of 23 patients (46%) had abnormal peripheral perfusion. Objective measures were congruent with subjective assessment. Haemodynamic variables were not different between patients with an abnormal or normal peripheral perfusion as was the dose of vasopressors.

Deterioration was more frequently seen in patients with abnormal peripheral perfusion both for an increase in SOFA score (odds 7.4, 95% CI 2 – 19) and for the existence hyperlactataemia (odds 4.6 (95% CI 1.4 – 15).

This study clearly suggests that the subjective assessment of the peripheral circulation predicts unfavourable evolution after initial resuscitation of the critically ill patient. Clinical assessment of the peripheral circulation therefore has the potential to optimize resuscitation procedures. Although this must be formally tested, it is nice to see that in an era of increasingly complex monitoring techniques, a simple bedside observation could still be useful. The authors should be congratulated for this.


The predictive value of blood lactate levels depends on the admission diagnosis

It is generally accepted that high lactate levels are bad and a decrease in lactate is good despite a multitude of underlying diseases. Jansen et al. investigated the prognostic value of repeated lactate levels in septic versus other patients with low-oxygen transport (e.g. haemorrhage), and in haemodynamically stable versus unstable patients.

Blood lactate levels were recorded on admission and after 12 and 24 hours. Differences between lactate levels on admission and 12 h, and between 12 h and 24 h were related to mortality. A total of 394 patients were included. In patients with sepsis (N = 140), there were no differences in admission levels of lactate between survivors and non-survivors, but levels after 12 and 24 hours were significantly higher in the non-survivors. In patients admitted with haemorrhage, non-survivors had higher lactate levels on admission and after 12 hours but not after 24 hours. These data were confirmed when haemodynamic status on admission (stable versus unstable) was taken into account.

The study shows that a decreasing lactate level in patients with sepsis is associated with improved survival but not, however, in patients with haemorrhage or other clinical conditions with low-oxygen transport. Apparently, the increased lactate levels at admission in non-septic patients were the result of profound tissue ischaemia resulting in irreversible tissue damage. In contrast, persistent lactate levels in patients with sepsis were not necessarily associated with a worse outcome. In these patients persistent hyperlactataemia could be explained by increased aerobic glycolysis, pyruvate dehydrogenase dysfunction or mitochondrial dysfunction. This study is helpful in understanding the prognostic value of serum lactate levels during the first 24 hours of admission.