To Swan or not to Swan that is the Question?

P Marik, J Varon

Citation

P Marik, J Varon. *To Swan or not to Swan that is the Question?*. The Internet Journal of Anesthesiology. 1997 Volume 2 Number 2.

Abstract

When faced with a patient with hemodynamic instability the question that is often posed is whether a pulmonary artery catheter (PAC) should be inserted or not? There is very little hard scientific data to help answer this question. However, it is clear that the inappropriate use and poor understanding of the PAC leads to excessive mortality. It is also evident that the PAC is a very useful diagnostic tool that aids in the management of critically ill patients. PAC's should only be used by physicians who have extensive bedside experience in their use. The data obtained from the PAC must be verified by the visual inspection of both the PAP and PCWP tracing. Furthermore, the data must be interpreted in the context of the clinical scenario. To often the attending reviews the patients numbers without ever setting eyes on the patient.

The PAC provides useful information when titrating fluid and vasoactive therapy. Fluid resuscitation remains the prime therapeutic intervention in the hemodynamically unstable patient. The change in heart rate, cardiac output, PCWP, oxygenation, blood pressure and urine output in response to a fluid challenge should guide the use of further fluid challenges. Volume replacement should never be titrated against the PCWP alone. Vasoactive agents should be considered when evidence of inadequate organ perfusion persists after adequate fluid resuscitation. The choice of agents will depend on the patients hemodynamic profile. Furthermore, the response to vasoactive therapy should be closely monitored. The end points of resuscitation should be the restoration of adequate organ and tissue perfusion.

Following the studies of Shoemaker et al in surgical patients it became popular to increase systemic oxygen delivery in patients with sepsis on the assumption that these patients had an overt or occult oxygen debt. Furthermore, an elevated arterial lactate concentration in septic patients was presumed to be a marker of cellular oxygen deficiency and was used to identify patients who would respond to maneuvers which increase systemic delivery. Recent data suggests that both of these postulates are probably incorrect. We believe that the concept of supranormal oxygen delivery is based on erroneous assumptions and observations leads to hazardous therapeutic interventions.

References

Author Information

Paul Marik, M.D., F.C.C.M.
St. Vincent's Hospital

Joseph Varon, M.D., F.A.C.P., F.C.C.P.
Baylor College of Medicine