13. DELIBERATE INDUCED HYPOTENSION

Deliberate induced hypotension (DIH) is the controlled decrease of mean arterial pressure (MAP) to reduce surgical blood loss (PBM pillar 2).

Key Messages

- DIH is used to reduce surgical blood loss and improve visibility in the surgical field.
- Hypotension must be closely monitored and controlled to ensure adequate perfusion of vital organs.[1]

Clinical Implications

- In patients undergoing radical prostatectomy or major joint replacement, if substantial blood loss (blood loss of a volume great enough to induce anaemia that would require therapy) is anticipated, deliberate induced hypotension (MAP 50-60mmHg) should be considered, balancing the risk of blood loss and the preservation of vital organ perfusion (PO – R13).[2]

Background

There are a number of techniques used to control hypotension, such as inhaled anaesthetic agents, vasodilators, beta blockers, and/or alpha adrenergic receptors, combined with mechanical manoeuvres to potentiate the action of hypotensive agents. In patients undergoing radical prostatectomy or major joint replacement, DIH was associated with a significant reduction in operative blood loss. DIH also significantly reduced the volume of blood transfusion with 55.8% of the hypotensive groups receiving a transfusion, compared to 78.7% in the control groups.[3]

A meta-analysis of randomised controlled trials found that DIH reduces blood loss most effectively for.[3]

- hip arthroplasty (503ml reduction)
- spine fusion (318ml reduction)
- orthognathic surgery (147ml reduction)

The clinical significance of DIH is dependent on patient co-morbidity and the specific surgical procedure. [3]

DIH should not be confused with the concept of permissive hypotension as described in the Patient Blood Management Guidelines: Module 1 - Critical Bleeding/Massive Transfusion section 3.4.[4]

References

1. Bisbe, E.,Molto, L., Pillar 2 : Minimising bleeding and blood loss. Best Practice & Research Clinical Anaesthesiology 27, 99-110 (2013)

2. National Blood Authority. Patient Blood Management Guidelines: Module 2 - Perioperative. Australia 2011
3. Paul J., Ling, E. Lalonde,C. and Thabane L,. Deliberate hypotension in orthopaedic surgery reduces blood loss and transfusion requirements: A meta-analysis of randomized controlled trials. Canadian Journal of Anaesthesia 54 (10): 799-810. (2007)
4. National Blood Authority. Patient Blood Management Guidelines: Module 1 – Critical Bleeding/Massive Transfusion. Australia, 2011.