Editorial

Vol. 7, No. 2; 2023; pp 47–48
DOI: https://doi.org/10.26676/jevtm.307

Permissive Hypotension and Permissive Haemorrhage – Are They Necessary Evils of Trauma?

Kessel–Khan Corner

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Permissive hypotension is a medical strategy that involves intentionally maintaining lower-than-normal blood pressure in certain situations, typically during the initial resuscitation until achieving definitive haemostasis. This approach aims to prevent further bleeding and tissue damage by reducing blood flow to injured areas. In cases of severe trauma, such as major haemorrhage or penetrating injuries, maintaining normal blood pressure may increase bleeding and worsen the patient's condition. By allowing blood pressure to remain lower than usual (around 80–90 mmHg), permissive hypotension helps limit blood loss and preserve the body's ability to form blood clots, which can aid in controlling bleeding.

The adequate target blood pressure for permissive hypotension can vary depending on the specific situation and the patient's conditions, and especially when severe head injury is suspected/diagnosed. Once the patient is stabilized and definitive treatment options, such as surgery or embolization, are immediately available, blood pressure is often gradually increased to more normo-physiological levels.

One of the most promising advancements in modern trauma resuscitation is resuscitative endovascular balloon occlusion of the aorta (REBOA). This technique is a significantly less traumatic procedure than any open aortic clamping. Moreover, use of intermittent or partial REBOA allows reasonable blood pressure to be maintained for a much longer time than open closure. Nevertheless, the team who decide to perform partial REBOA should realize that this approach may cause arterial rebleeding in some cases. In our Corner, we have decided to define this phenomenon as "permissive haemorrhage" and have opened a discussion on how this terminology may be implemented into our trauma practice.

Permissive hypotension and "permissive haemorrhage" can help to preserve blood. Blood is a precious resource, and it can be difficult to obtain in large quantities, especially in austere or limited resource areas. By allowing patients to bleed for a short period of time, it is possible to save blood for later use. In addition, permissive hypotension and "permissive haemorrhage" can help to reduce the risk of complications. Complications, such as rebleeding due to clot disruption, can occur in patients with major trauma who have a high blood pressure, when haemorrhagic control has not been achieved . The adage of the first clot being your best clot remains. Prompt and effective bleeding control is essential to prevent further injury and promote healing. However, "permissive haemorrhage" allows limited blood flow to occur to end organs to aid perfusion, without which irreversible ischaemia and damage may occur.

Nevertheless, there are also some potential risks associated with permissive hypotension and "permissive haemorrhage". First, it is important to ensure that the patient's blood pressure does not drop too low. Such events may lead to irreversible organ tissue damage and death. Second, permissive hypotension and "permissive haemorrhage" can make it more difficult to control bleeding, which can be fatal.

Overall, the benefits and risks of permissive hypotension and "permissive haemorrhage" need to be carefully considered on a case-by-case basis. In some cases, the benefits may outweigh the risks, while in other

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cases the risks may outweigh the benefits. Therefore, it is crucial to consider the risk/benefit ratio during the decision-making process. We believe future clinical research will better define the types of patient who would benefit from the use of permissive hypotension and/or permissive haemorrhage.

Ethics Statement

(1) All the authors mentioned in the manuscript have agreed to authorship, read and approved the manuscript, and given consent for submission and subsequent publication of the manuscript.

(2) The authors declare that they have read and abided by the JEVTM statement of ethical standards including rules of informed consent and ethical committee approval as stated in the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.