

## Considerations When Using the Beach Chair Position for Surgery

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**Abstract :** Introduction: The beach chair position (BCP) is a good approach to almost all types of shoulder procedures. However, moving an anaesthetized patient from the supine to sitting position may pose a risk of cerebral hypoperfusion and potential cerebral ischaemia as a result of significant reductions in blood pressure and cardiac output. Hypocapnia in ventilated patients and impaired blood flow to the vertebral artery due to hyperextension, rotation, or tilt of the head may have an impact too. Co-morbidities that may increase the risk of cerebral ischaemia in the BCP include diabetes with autonomic neuropathy, cerebrovascular disease, cardiac disease, severe hypertension, generalized vascular disease, history of fainting, and febrile conditions. Beach chair surgery requires a careful anaesthetic and surgical management to optimize patient safety and minimize the risk of adverse outcomes. Methods: We describe the necessary steps for optimal patient positioning and the aims of intraoperative management, including anaesthetic techniques to ensure patient safety in the BCP. Results: Regardless of the anaesthetic technique, adequate patient positioning is paramount in the BCP. The key steps to BCP are aimed at optimizing surgical success and minimizing the risk of severe neurovascular complications. The primary aim of anaesthetic management is to maintain cardiac output and mean arterial pressure (MAP) to protect cerebral perfusion. Blood pressure management includes treating a fall in MAP of more than 25% from baseline or a MAP less than 70 mmHg. This can be achieved by using intravenous fluids or vasopressors. A number of anaesthetic techniques could also improve cerebral oxygenation, including avoidance of intermittent positive pressure ventilation (IPPV) with general anaesthesia (GA), using regional anaesthesia, maintaining normocapnia and normothermia, and the application of compression stockings. Conclusions: In summary, BCP is a reliable and effective position to perform shoulder procedures. Simple steps to patient positioning and careful anaesthetic management could maximize patient safety and avoid unwanted adverse outcomes in patients undergoing surgery in BCP.

**Keywords :** beach chair position, cerebral oxygenation, cerebral perfusion, sitting position

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