

SEMISITTING POSITION IN NEUROSURGERY - A CONTROVERSY NOT YET SOLVED

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The semisitting position in Neurosurgery remains still a controversy both in neurosurgical practice and in literature: while many neurosurgical teams value this position and use it routinely, it is still not so widely used for fear of important side effects, related with venous and paradoxical air embolism. In our Institution in Verona, this position is widely and routinely used for a variety of posterior fossa and craniocervical junction pathologies. With this study, conducted in strict collaboration with our experienced anaesthesiology team, we want to verify the effective embolic risk related to this position.

Methods - We retrospectively analyzed a series of 100 consecutive patients operated in our Institution from December 2015 to August 2016 for a variety of posterior fossa pathologies - tumor (64), AVM (2) and cavernoma (4) resection, Chiari malformation (8), neurovascular conflicts (7), other (15) - in the semi sitting position. We used a standardized protocol which included preoperative transcranial doppler (TCD) to stratify the risk of embolism. All the patients have been operated upon in the semisitting position, regardless of the MES grade found at the Doppler, and using the same standardized positioning and a series of surgical maneuvers to prevent any air embolism; we used a strict anaesthesiologic monitoring of the systolic blood pressure (SBP), end-tidal of CO₂ (EtCO₂) and heart rate (HR).

Results - We operated on patients with a TCD MES grade of 0 (33), I (15), II (8) and III (1). Only 4 cases of significant air embolism occurred, defined by a significant decrease in the EtCO₂ and SBP values, all in patients with negative TCDs; nevertheless, no obvious clinical sequelae were suffered by the patients. We had no other morbidity nor any mortality related to the semi sitting position; in particular, we experienced no case of paradoxical air embolism, even in patients with MES>2.

Conclusions – We demonstrated that a correct positioning, along with focused surgical manoeuvres and a strict anaesthesiological monitoring, can minimise the incidence of venous air embolism and eventually extremely lower the possibility of paradoxical air embolism, in a large series of patients operated upon in the semisitting position. Even if we experienced no case of paradoxical air embolism, even in patients with high MES grade, the TCD may be considered as a highly effective mean to stratify the risk of paradoxical embolism. This risk is certainly present but very remote and probably overestimated, in optimal surgical and anaesthesiological conditions.