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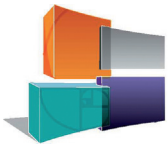

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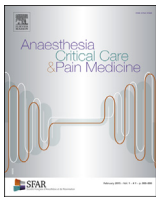

Letter to the Editor

Anaesthetic strategy during endovascular therapy

Dear Editor,

The recent study from Simonsen et al. [1] completed recent randomised clinical trials (RCTs) supporting the safety of general anaesthesia (GA) during endovascular treatment in acute ischemic stroke when compared to conscious sedation (CS) [2,3]. Before these studies, two main arguments used to be opposed to GA strategy, the delay of reperfusion and the drop of arterial pressure. Recent RCTs effectively revealed that GA neither was associated with delayed reperfusion, nor affected prognosis if arterial pressure decreased, and supported the limited impact of GA on the patients' outcome. This assessment strengthens the intervention of the anaesthesia team in this dynamically developing treatment.

The success of mechanical thrombectomy in acute stroke constitutes a real challenge for our organisations because of the extreme emergency ("time is brain") and the increasing number of candidates. Even if not totally defined, the neurologic context imposes the intensive management of these patients, and perioperative monitoring for limiting secondary injuries like hypotension, hypoxia or inadequate ventilation with consequences on brain perfusion and metabolism. Considering this increasing workload, implications for healthcare organisation are crucial. Indeed, in an era when stroke care is in deep restructuration, the means of comprehensive stroke centre should be adapted to insure the maximal safety of anaesthesia procedures. The single centre character of the study by Simonsen et al. does not allow to identify which organisational features, including human and material resources, are necessary to insure the efficacy and safety of the mechanical thrombectomy. The rehabilitation of GA may support the neuroradiologist's request for more comfort during the procedure, as suggested by the last RCT [1] with better recanalisation rate [i.e. higher modified Thrombolysis in Cerebral Ischemia (mTICI) 2b-3] under GA. Therefore, some anaesthesia departments are moving towards a 24-hour dedicated team. Furthermore, additional parameters are also to be considered to optimise the process, notably patients' and professionals' individual behavioural factors. Attention should be paid to provide specific up-to-date training to professionals including an emphasis on inter-professional team collaboration. Patients' centred approaches could also be included in the equation: if the situation allows it, patients or family preferences should also be taken into account in the decision. Tokunboh et al. [4] recently developed decision aids to facilitate review of benefits and risks of endovascular thrombectomy between healthcare providers, patients and families. However, these decision aids did not include anaesthesia modalities in factors to discuss regarding the procedure.

If the endovascular procedure became standardised for the neuro-interventionist, the management of anaesthesia remains to be clarified. For now, the goals of the anaesthesiologists remain the protection of unconscious patient and the comfort for the neuro-interventionist during the endovascular procedure. In the absence of available guidelines, except for comatose patients, the anaesthesiologist may choose between:

- no anaesthesia;
- CS or;
- GA, depending on patient's cooperation and motion, co-morbidities, and clinical stability.

Accordingly, in the recent RCTs, a part of exclusion was left at the discretion of the attending anaesthetist. After the restoration of GA as an acceptable strategy for endovascular treatment, it would be useful to characterise patients who would benefit of one of the three anaesthetic strategies, in balance with identified risks like predicable difficulties of intubation or aspiration pneumonitis. Besides keeping the baseline arterial pressure as reference, other variables should be studied, like hypoxia, hyperoxia, hypocarbia or hypercarbia, the type of anaesthetic drugs, in order to define the target for an optimal anaesthetic management. All these perspectives support the close and tailored management for all patients and type of anaesthetic option. Recently, a retrospective study pointed out frequent haemodynamic interventions during procedures under CS or even without sedation [5]. Finally, the waking period from the anaesthetic may expose the patient to hemodynamic risk. Especially the pic of hypertension might be deleterious for a period of several hours and have to be addressed in collaboration with the acute stroke team.

Obviously, we are still in the phase of development of this strategy for stroke therapy. Accordingly, anaesthetic management for cerebral thrombectomy is not restricted to the protection of unconscious patients or comfort for the procedure. There still remain important factors to determine to reach a transparent, evidence-based and informed decision of all stakeholders for anaesthesia modalities in endovascular thrombectomy for ischaemic stroke patients. The development of this strategy for stroke therapy requires new perspectives for adapted anaesthetic management, and impacts our organisations.

Disclosure of interest

The authors declare that they have no competing interest.

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