

Sodium Fluorescein Video Angiography

The use of intraoperative [fluorescence](#) has proven to be a useful tool in multiple neurosurgical procedures with a potential utility in treating arteriovenous malformations (AVMs). The aim of this study was to characterize dynamic changes of an AVM using a microscope-integrated technique at the moment of performing an intraoperative Sodium fluorescein videoangiography (FL-VAG) at each of the resection phases.

METHODS: Our study at the National Institute of Neurology and Neurosurgery-Mexico City, prospectively recruited twelve patients harboring an AVM, using FL-VAG as an ancillary technique for the resection of the lesion. We analyzed the transit time (TT) of fluorescein in arterial feeders (TTa) and draining veins (TTv) during the different stages of resection. To achieve this, we recorded three values of the transit time of fluorescein (TTa, initial TTv, final TTv); when final TTv was markedly slower than initial TTv, we hypothesized that the nidus was devascularized enough and could be safely removed.

RESULTS: No mortality or morbidity was related to the use of fluorescein. In most cases, the TT values of arterial feeders and draining veins allowed an easier distinction between them. At advanced stages of resection, the FL-VAG assesses the increase in TTv (venous blood is slower or absent), suggesting that most feeding arteries had been obliterated, indicating the appropriate moment for nidus removal. The optimal dose of fluorescein was a 75 mg bolus followed by an injection of 20 ml of saline solution.

CONCLUSIONS: This simple technique allows a distinction of normal from abnormal flow in draining vessels, and might aid the surgeon to decide when the nidus can finally be safely removed. This is the first study prospectively evaluating this technique, and proposes an ideal dose for brain AVM surgery, in contrast with doses used in tumor cases ¹⁾.

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Alejandro SR, Armando S RT, Jose M OB, Rafael VG, Angel L, Edgar N. Sodium Fluorescein Video Angiography (FL-VAG) as an adjunct to resection of Cerebral Arteriovenous Malformations. World Neurosurg. 2018 Jun 12. pii: S1878-8750(18)31239-7. doi: 10.1016/j.wneu.2018.06.024. [Epub ahead of print] PubMed PMID: 29906575.

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