

ANEURYSMAL SUBARACHNOID HEMORRHAGE AND ITS COMPLICATIONS' MONITORING AND MANAGEMENT: DATA FROM A REAL WORD SETTING

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INTRODUCTION

Aneurysmal subarachnoid hemorrhage (aSAH) represents a neurological emergency with high mortality and morbidity (up to 22-26% of cases will die before hospitalization, 13-20% will die during hospitalization and 30-33% will be highly dependent). Major intracranial complications are early brain injury, rebleeding of ruptured aneurysm, hydrocephalus and delayed cerebral ischemia. The latter can be caused by several mechanisms, including **cerebral vasospasm (CVS)** and cortical spreading depolarization. Other possible complications are seizures and status epilepticus. All these complications have been associated with **poor functional outcome** [1]. Transcranial Doppler (TCD) and Electroencephalography (EEG) are useful tools for closely monitoring these patients [2]. Enteral **nimodipine** is the standard preventive therapy for CVS, whereas intraarterial administration can be used to treat CVS confirmed by DSA [3]. We report our experience in the management of aSAH and its possible complications.

MATERIALS AND METHODS

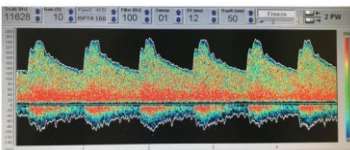
We collected data of patients admitted in our hospital between January 2016 and December 2024 for suspected aSAH. Data concerned clinical evaluations, laboratory tests, neuroimaging (including NCCT/CTA, DSA), type of intervention and monitoring, outcome at discharge and after 6 months.

RESULTS

We isolated **160 patients** with aSAH, mostly **young** (median age of 59 yo) and **female** (61.3%). SAH was caused by a ruptured cerebral aneurysm in 90.6% of subjects, involving the **AcoA** in 31.8% of cases, the MCA in 28.1% and VB circulation in 6.8%. At admission, about a third of patients had a **mFS ≥ 3** , similarly, 33.5% had a **H&H score ≥ 3** . In patients with an identified ruptured cerebral aneurysm, surgical/angiographic intervention was performed in the first 24h in 63.8% of cases: clipping in 66.2%, coiling in 19.3% while in 12.5% no surgical intervention was done. All patients received preventive enteral nimodipine (60mg/4h), 9 patients received local intraarterial administration. All patients underwent TCD monitoring (except for 10% of cases with inadequate transtemporal window): CVS was detected in 22.5% of cases and DSA confirmed it in 8.1% of cases. EEG monitoring was performed in 22.5% of cases. "Complicated" patients were generally older, with mFS and H&H scores ≥ 3 . At discharge mRS was 0-2 in 53% of patients, 3-5 in 27.5%. At 6 months after discharge **18.7%** of patients had died.



A. Brain NCCT showing SAH, IVH, initial obstructive hydrocephalus. B. TCD showing cerebral vessels' velocities reaching >200 cm/s. C. Vasospasm before and after treatment with nimodipine.



CONCLUSIONS

aSAH usually affects **young individuals** and is characterized by **high mortality** and **high morbidity**. The best management of aSAH and its complications still remains debated. Intensive care and monitoring of these patients, especially with TCD and EEG, is crucial to early detect and promptly treat any complications.

References

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24-28 Ottobre 2025
Padova Congress

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