

The Clinical Profile of Aneurysmal SAH Patients: Tertiary Centre Experience

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Abstract

Background: Aneurysm subarachnoid haemorrhage (SAH) is a leading cause of mortality (40% - 50% of SAH), occurring in about 10 per 100,000 persons annually; 30,000 SAH in the United States alone each year. SAH is characterized by three commonly occurring complaints: 'worst headache of my life', photophobia and meningismus. These symptoms often can be confused with bacterial and viral meningitis and migraine headaches. As a result, aneurysm SAH is initially misdiagnosed in nearly 12% of patients, a potentially lethal mistake. The rule of thirds dictates that one-third of the patients with SAH die before reaching the hospital, another third present with irrecoverable neurological deficits and last third make it to the treatment; half of the last third will have long term disabilities. In short, only about 16% of the patients will be left with the minimal or no permanent neurological sequelae after SAH. A high suspicion for SAH during the initial evaluation in the Emergency Department or by the Primary Care Physician increases the patient's chance for early intervention and reduces mortality and disability. It is imperative that emergency department and primary care physicians understand how to diagnose and initially manage aneurysm SAH.

Methodology: This study included 30 patients and was conducted in SKIMS Srinagar with aneurysmal SAH who underwent clipping of intracranial aneurysm after taking written informed consent. A detailed history was taken. The age, gender, Glasgow Coma Scale (GCS), World Federation of Neurological Surgeons (WFNS) grade, Hunter and Hess (H-H) grade were recorded after adequate resuscitation and hemodynamic stabilization.

Summary and Conclusion: The study included 30 patients with the mean age of 42.7 years. The number of male patients in the study was 17 (56.7%) and the number of female patients was 13 (43.3%). Sudden onset headache was commonest headache occurring in 17 (56.7%) patients followed by altered sensorium with sudden onset headache (43.3%) patients. Patients were mostly in H-H grade 2 (60%) and WFNS grade II (73.3%) with the GCS score of 14-15 (83.3%). H-H grade I-II, grade WFNS I-II and good GCS score translated in better operative outcome and survival where as H-H grade 3-4-5 and bad GCS Score translated in worst outcome.

Keywords: Subarachnoid hemorrhage, aneurysm, glasgow coma scale, sudden onset headache, altered sensorium

Introduction

Intracranial aneurysms are common lesions with an adult prevalence rate between one and five percent in autopsy studies.¹ Fortunately, most aneurysms are small and an estimated 50 to 80 percent of all aneurysms do not rupture during the course of a person's lifetime.² Intracranial aneurysms are considered to be sporadically acquired lesions, although a rare familial form has been described.³ Clinically, cerebral aneurysms can be silent or give rise to focal neurological symptoms or rupture leading to the dramatic event of subarachnoid haemorrhage.

Aneurysm subarachnoid haemorrhage (SAH) is a leading cause of mortality (40% - 50% of SAH), occurring in about 10 per 100,000 persons annually; 30,000 SAH in the United States alone each year. SAH is characterized by three commonly occurring complaints: 'worst headache of my life', photophobia and meningismus. These symptoms often can be confused with bacterial and viral meningitis and migraine headaches. As a result, aneurysm SAH is initially misdiagnosed in nearly 12% of patients, a potentially lethal mistake. Misdiagnosis increases the risk of re-bleeding and subsequent death.

The rule of third dictates that one-third of the patients with SAH die before reaching the hospital, another third present with irrecoverable neurological deficits and last third make it to the treatment; half of the last third will have long term disabilities. In short, only about 16% of the patients will be left with the minimal or no permanent neurological sequelae after SAH. A high suspicion for SAH during the initial evaluation in the Emergency Department or by the Primary Care Physician increases the patient's chance for early intervention and reduces mortality and disability.⁴ It is imperative that emergency department and primary care physicians understand how to diagnose and initially manage aneurysm SAH. Recent evidence based literature recommends non contrasted head CT scan as the initial first step in evaluation of SAH followed by LP if radiographic imaging is non- diagnostic. CSF analysis with spectrophotometry provides a specificity of 97% for xanthochromia. Advancing technology has improved the sensitivity and specificity of CTA for detecting brain aneurysms and approaches that of DSA. The accuracy of CT angiography (CTA) for identifying brain aneurysms, particularly helical CTA, is approaching that of catheter – based digital subtraction angiography (DSA).⁵ However, DSA remains the gold standard and serves as an important tool for planning treatment. DSA remains the gold-standard study for the radiographic diagnosis and pre-treatment planning for patients with brain aneurysms. It is important to control hypertension immediately following SAH to reduce the risk of an aneurysm re-bleed. A high suspicion for SAH during the initial evaluation increases the patient's chance for early intervention and reduces mortality and disability.⁴

Aims and Objectives

To study the clinical profile of aneurysmal SAH patients: tertiary centre experience.

Materials and Methods

The present study entitled “Clinical profile of aneurysmal SAH patients: tertiary centre experience” was prospective in design and was conducted in the Department of Neurosurgery SKIMS Srinagar from September 2017 to September 2020.

Methodology

This study included 30 patients and was conducted in SKIMS Srinagar with aneurysmal SAH who underwent clipping of intracranial aneurysm after taking written informed consent. A detailed history was taken. The age, gender, Glasgow Coma Scale (GCS), World Federation of Neurological Surgeons (WFNS) grade, Hunter and Hess (H-H) grade were recorded after adequate resuscitation and hemodynamic stabilization. The baseline investigations comprising of complete blood count, kidney function test, liver function test, serum electrolytes, coagulation profile was done in all patients. Baseline CT was done to know.

Observation and Results

The following observations were made with regard to:

Table 1.

Table 1: Age distribution of study patients		
Age (Years)	Frequency	Percentage
20-40	14	46.7
40-60	13	43.3
60-80	3	10.0
Total	30	100
Mean±SD (Range)=42.7±6.89 (25-78)		

The number of patients between 20 and 30 years was 14 (46.7%). The number of patients between 40 and 60 years was 13 (43.3%). The number of patients between 60 and 80 years was 3 (10.0%). The mean age of the patients was 42.7 +/- 6.89 and range was 25 years to 78 years.

Table 2

Table 2: Gender distribution of study patients		
Gender	Frequency	Percentage
Male	17	56.7
Female	13	43.3
Total	30	100

The number of male patients in the study was 17 (56.7%) and female patients was 13 (43.3%).

Table 3

Showing symptoms at presentation in study patients		
Symptoms	Frequency	Percentage
Sudden onset headache	17	56.7
Sudden onset headache with transient loss of consciousness	6	20.0
Sudden onset headache with altered sensorium	13	43.3
Sudden onset headache and Seizures	4	13.3

The number of patients presenting with sudden onset headache was 17 (56.7%). 6 (20.0%) patients presented with sudden onset headache with transient loss of consciousness. The number of patients presenting with sudden onset headache with altered sensorium was 13 (43.3%) whereas 4 (13.3%) patients presented with sudden onset headache and seizures.

Table 4

Table 4: Showing various signs at presentation in study patients		
Signs	Frequency	Percentage
Meningismus	13	43.3
Motor deficit	4	13.3

The number of patients presenting with meningismus was 13 (43.3%) and motor deficit was present in 4 (13.3%) patients.

Table 5

Showing WFNS score of study patients		
WFNS Score	Frequency	Percentage
Grade I	0	0.0
Grade II	22	73.3
Grade III	8	26.7
Grade IV	0	0.0
Grade V	0	0.0
Total	30	100

None of the patients presented with grade I WFNS score. Grade II WFNS score was present in 22 (73.3%) patients. 8 (26.7%) patients had grade III WFNS score. Grade IV and grade V were present in none of patients.

Table 6

Hunter and Hess (H-H) grade of study patients		
H-H Grade	Frequency	Percentage
Grade 0	0	0.0
Grade 1	7	23.3
Grade 2	18	60.0
Grade 3	5	16.7
Grade 4	0	0.0
Grade 5	0	0.0
Total	30	100

None of the patients presented with H-H grade 0. H-H grade 1 was present in 7 (23.3%) patients. 18 (60.0%) patients presented with H-H grade 2. H-H grade 3 was presented in 5 (16.7%) patients.

Table 7

GCS score at admission in study patients		
GCS Score	Frequency	Percentage
3-7	0	0.0
8-13	5	16.7
14-15	25	83.3
Total	30	100

GCS score of 8-13 was present in 5 (16.7%) patients whereas 25 (83.3%) patients had GCS score of 14-15 the site of SAH, fisher grade, brain edema, hydrocephalus and hematoma.

Discussion

In our study the mean age of patients was 42.7 ± 6.89 and the range of age of patients was 25 – 78 years. In the study conducted by *Doss VT et al (2014)*¹ the mean age of patients was 51.6 years. In the study conducted by *Roessler K et al (2014)*² the mean age of patients in years was 54 ± 10.4 years with range of age between 16 – 79 years. In our study 56.7% of patients were male patients and 43.3% of patients were female patients however in the study conducted by *Doss VT et al (2014)*¹ 23.5% of patients were male patients and 76.5% were female patients. In the study conducted by *Roessler K et al (2014)*² out of 232 patients, 73 patients were male patients and 159 patients were female patients.

In our study sudden onset headache was the presenting symptom in 17 (56.7%) patients followed by sudden onset headache with altered sensorium in 13 (43.3%) patients, sudden onset headache with transient loss of consciousness in 6 (20.0%) patients and sudden onset headache with seizures in 4 (13.3%) patients. Sudden headache is the most characteristic symptom of subarachnoid haemorrhage, in 3 out of 4 patients, headache is diffuse and often described by patients as by far the most severe headache they have ever had. It is, however, not the severity, but the suddenness of onset which is the characteristic feature⁶⁷.

In our study, meningismus occurred in 13 (43.3%) patients and motor deficit in 4 (13.3%) patients. In our study no patient belonged to the grade I WFNS, 22 (73.3%) patients belonged to the grade II and 8 (26.7%) patients belonged to the grade III WFNS. None of the patients belonged to grade IV and grade V WFNS. In the study conducted by *Della-Puppa A et al (2014)*³ 17 out of 26 (65.3%) patients belonged to grade 0 WFNS, 7(26.9%) patients belonged to grade 1 WFNS and 2 (7.6%) patients belonged to grade 2 WFNS.

In our study none of the patients presented with H-H grade 0. H-H grade 1 was present in 7 (23.3%) patients. 18 (60.0%) patients presented with H-H grade 2. H-H grade 3 was presented in 5 (16.7%) patients. In the study conducted by *Della-Puppa A et al (2014)*³, 17 patients presented with H-H grade 0, 5 (19.2%) patients presented with H-H grade 1 and 4 (15.3%) patients presented with H-H grade 2. In our study majority of patients i.e. 25 (83.3%) a GCS score of 14-15 was seen, in 5 (16.7%) patients 8-13 GCS score was seen. *Edner G et al (1992)*⁴ reported that 52.05% patients were admitted in good grade, 17.80% in intermediate grade and 45.03% in poor grade.

Summary and Conclusion

The study included 30 patients with the mean age of 42.7 years. The number of male patients in the study was 17 (56.7%) and the number of female patients was 13 (43.3%). Sudden onset headache was commonest headache occurring in 17 (56.7%) patients followed by altered sensorium with sudden onset headache (43.3%) patients. Patients were mostly in H-H grade 2 (60%) and WFNS grade II (73.3%) with the GCS score of 14-15 (83.3%). H-H grade I-II- grade WFNS I-II and good GCS score translated in better operative outcome and survival where as H-H grade 3-4- 5 and bad GCS Score translated in worst outcome.

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