

[A Retrospective Study on Subarachnoid Hemorrhage Causes ,Complications ,Treatment and Management in A hospital in AlQassim , Saudi Arabia]

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ABSTRACT:

Subarachnoid hemorrhage (SAH) is bleeding into the subarachnoid space—the area between the arachnoid membrane and the pia mater surrounding the brain Symptoms may include a severe headache of rapid onset, vomiting, decreased level of consciousness, fever, and sometimes seizures. Neck stiffness or neck pain are also relatively common .Generally, the diagnosis can be determined by a CT scan of the head if done within six hours of symptom onset.

SAH may occur as a result of a head injury or spontaneously, usually from a ruptured cerebral aneurysm. Risk factors for spontaneous cases included high blood pressure, smoking, family history, alcoholism, and cocaine .SAH in Females are more commonly affected than males. While it becomes more common with age, about 50% of people present under 55 years old. It is a form of stroke and comprises about 5 percent of all strokes .

Early diagnosis will affect outcome of SAH . Control the risk factors will decrease possible of SAH . Nearly half of people with a SAH due to an underlying aneurysm die within 30 days and about a third who survive have ongoing problems. 10–15 percent die before reaching a hospital .

INTRODUCTION:

Subarachnoid hemorrhage is a serious and life-threatening medical condition which commonly presents with an acute headache. subarachnoid hemorrhage (SAH) is a severe type of hemorrhagic stroke with a mortality rate up to 35%. Approximately one-third of the survivors remain severely disabled and functionally dependent. Early and reliable prediction of the patient's outcome after SAH is important in clinical practice for decision-making about treatment options . Subarachnoid hemorrhage (SAH), mostly from aneurysms, accounts for only 3% of all strokes , but for 5% of stroke deaths and for more than one-quarter of potential life years lost through stroke. The 20th century has seen great advances in diagnosis, starting with the ability to recognize the condition at all during life. Advances in treatment and prevention of complications have also occurred, but these have led to only modest improvement in overall outcome, hence there are still formidable challenges ahead for neurologists, neurosurgeons and radiologists.

MATERIAL AND METHODS

Retrospective medical records review .

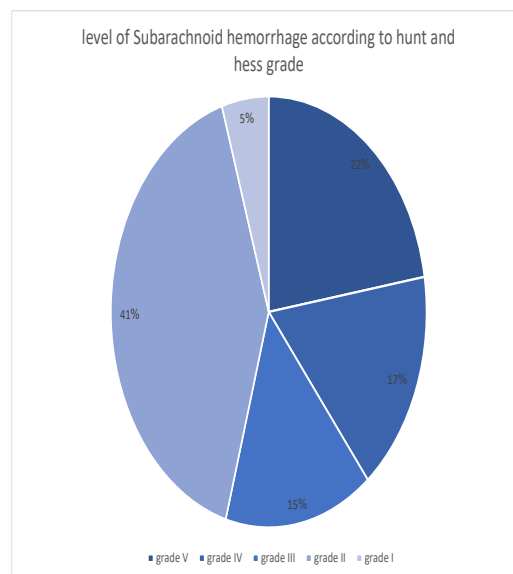
Data were collected from Hospital in ALQassim ,Saudi Arabia .

Sample size 125 .

Statistical analysis Excel

- Incidence among the level of Subarachnoid hemorrhage according to hunt and hess grade

Grade I	6
Grade II	51
Grade III	19
Grade IV	21
Grade V	28



RESULTS

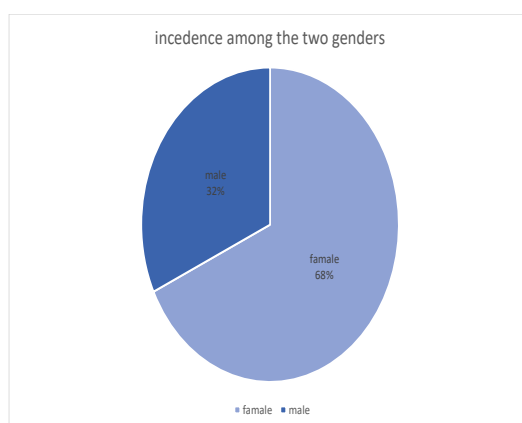
125 patients case studies retrospective and the result was:

- Incidence among the age

The number of patients in this study ranged between 19 - 55 years

- Incidence among the genders

Female	85
Male	40



Grade	Signs and symptoms	Survival
1	Asymptomatic or minimal headache and slight neck stiffness	70%
2	Moderate to severe headache; neck stiffness; no neurologic deficit except cranial nerve palsy	60%
3	Drowsy; minimal neurologic deficit	50%
4	Stuporous; moderate to severe hemiparesis; possibly early decerebrate rigidity and vegetative disturbances	20%
5	Deep coma	10%

RISK FACTORS

Most cases of SAH are due to HTN and trauma . Traumatic SAH usually occurs near the site of a skull fracture or intracerebral contusion. It often happens in the setting of other forms of traumatic brain injury.

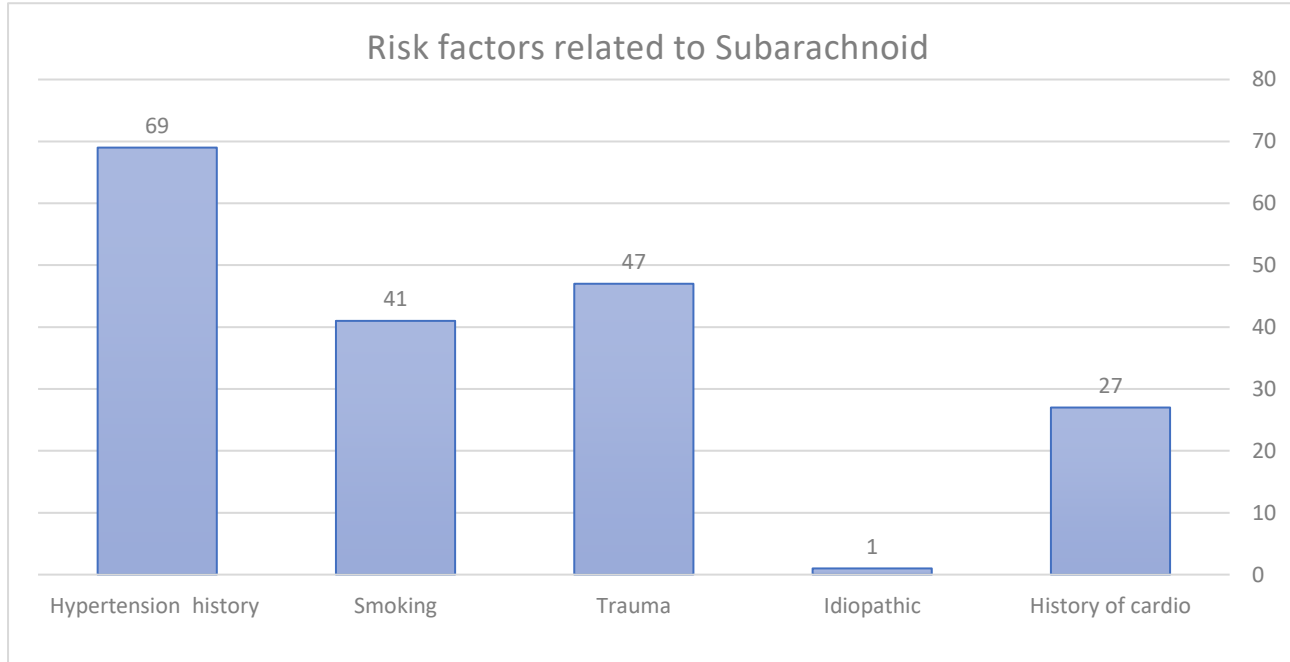
In 85 % of spontaneous cases the cause is a cerebral aneurysm a weakness in the wall of one of the arteries in the brain that becomes enlarged. While most cases are due to bleeding from small aneurysms, larger aneurysms (which are less common) are more likely to rupture. Aspirin also appears to increase the risk.

In 15% of cases of spontaneous SAH, no aneurysm is detected on the first angiogram. About half of these are attributed to non-aneurysmal perimesencephalic hemorrhage, in which the blood is limited to the subarachnoid spaces around the midbrain.

Cocaine abuse and sickle cell anemia (usually in children) and, rarely, anticoagulant therapy, problems with blood clotting and pituitary apoplexy can also result in SAH.

Treatment

Management involves general measures to stabilize the person while also using specific investigations and treatments. These include the prevention of rebleeding by obliterating the bleeding source,



prevention of a phenomenon known as vasospasm, prevention and treatment of complications.

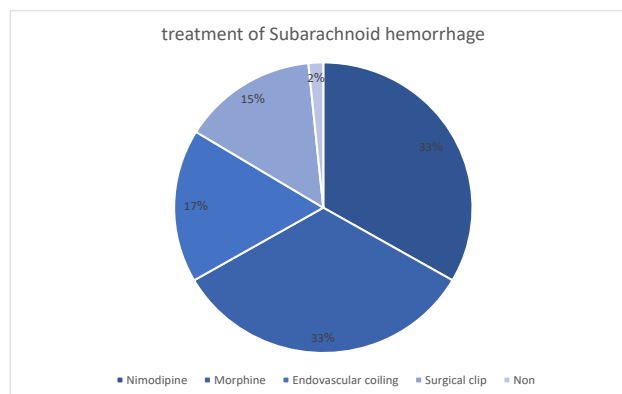
Stabilizing the person is the first priority. Those with a depressed level of consciousness may need to be intubated and mechanically ventilated. Blood pressure, pulse, respiratory rate, and Glasgow Coma Scale are monitored frequently.

Once the diagnosis is confirmed, admission to an intensive care unit may be preferable, especially since 15 % may have further bleeding soon after admission.

Nutrition is an early priority, mouth or nasogastric tube feeding being preferable over parenteral routes. In general, pain control is restricted to less-sedating agents such as **morphine**, as sedation may impact on the mental status and thus interfere with the ability to monitor the level of consciousness.

- Incidence among the treatment of Subarachnoid hemorrhage

Nimodipine	125
Morphine	125
Endovascular coiling	64
Surgical clip	55
Non	6



Deep vein thrombosis is prevented with compression stockings, intermittent pneumatic compression of the calves, or both. A bladder catheter is usually inserted to monitor fluid balance. **Benzodiazepines** may be administered to help relieve distress. **Antiemetic** drugs should be given to awake persons.

After the first 24 hours have passed, rebleeding risk remains around 40 percent over the subsequent four weeks, suggesting that interventions should be aimed at reducing this risk as soon as possible.

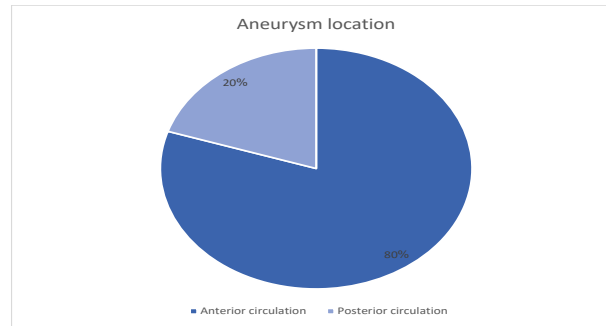
If a cerebral aneurysm is identified on angiography, two measures are available to reduce the risk of further bleeding from the same aneurysm: **clipping** and **coiling**.

Clipping requires a craniotomy (opening of the skull) to locate the aneurysm, followed by the placement of clips around the neck of the aneurysm.

Coiling is performed through the large blood vessels (endovascularly): a catheter is inserted into the femoral artery in the groin and advanced through the aorta to the arteries (both carotid arteries and both vertebral arteries) that supply the brain.

- Incidence among the different position of Subarachnoid hemorrhage

Aneurysm location	
Anterior circulation	100
Posterior circulation	25



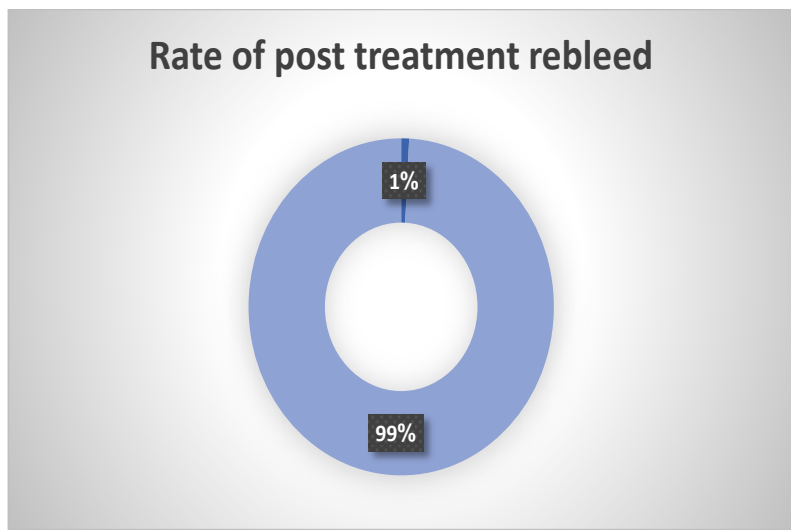
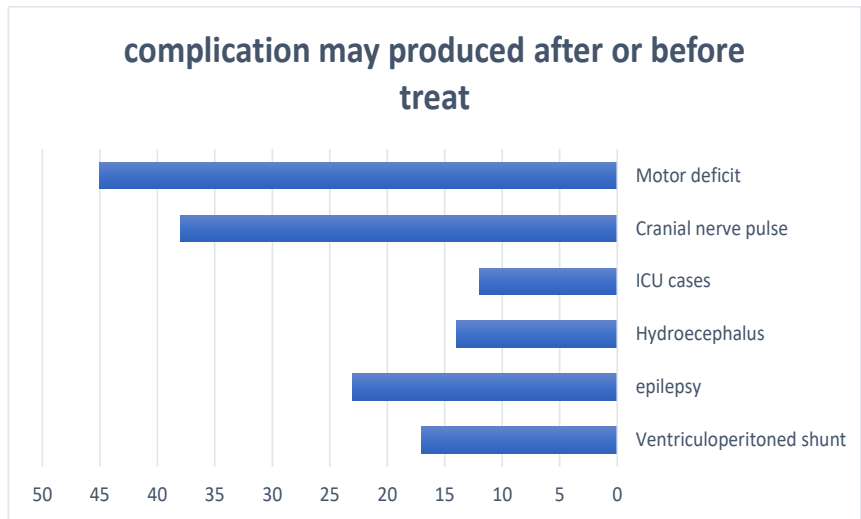
Vasospasm, in which the blood vessels constrict and thus restrict blood flow, is a serious complication of **SAH**. It can cause ischemic brain injury referred to as "delayed ischemia" and permanent brain damage due to lack of oxygen in parts of the brain.

The use of **calcium channel blockers**, thought to be able to prevent the spasm of blood vessels by preventing calcium from entering smooth muscle cells, has been proposed for prevention. The calcium channel blocker **nimodipine** when taken by mouth improves outcome if given between the fourth and twenty-first day after the bleeding, even if it does not reduce the amount of vasospasm detected on angiography. It is the only Food and Drug Administration (**FDA**)-approved drug for treating cerebral vasospasm.

In traumatic subarachnoid hemorrhage, **nimodipine** does not affect long-term outcome, and is not recommended.

- Incidence among the complication may produced after or before treat of Subarachnoid hemorrhage

Rate of post treatment rebleed	1/119
Ventriculoperitoned shunt	17
epilepsy	23
Hydrocephalus	14
ICU cases	12
Cranial nerve pulse	38
Motor deficit	45



Complications

Hydrocephalus (obstruction of the flow of cerebrospinal fluid) may complicate SAH in both the short and long term. It is detected on CT scanning, on which there is enlargement of the lateral ventricles.

If the level of consciousness is decreased, drainage of the excess fluid is performed by therapeutic lumbar puncture, extraventricular drain (a temporary device inserted into one of the ventricles), or occasionally a permanent shunt. Relief of hydrocephalus can lead to an enormous improvement in a person's condition.

Fluctuations in blood pressure and electrolyte imbalance, as well as pneumonia and cardiac decompensation occur in about half the hospitalized persons with SAH and may worsen prognosis. **Seizures** occur during the hospital stay.

Factors found on admission that are associated with poorer outcome include poorer neurological grade; systolic hypertension; a previous diagnosis of heart attack or SAH; liver disease; more blood and larger aneurysm on the initial CT scan; location of an aneurysm in the posterior circulation; and higher age. Factors that carry a worse prognosis during the hospital stay include occurrence of delayed ischemia resulting from vasospasm, development of intracerebral hematoma, or intraventricular hemorrhage (bleeding into the ventricles of the brain) and presence of fever .

LONG TERM OUTCOME

Neurocognitive symptoms, such as fatigue, mood disturbances, and other related symptoms are common sequelae. Even in those who have made good neurological recovery, anxiety, depression, posttraumatic stress disorder, and cognitive impairment are common; 46% of people who have had a subarachnoid hemorrhage have cognitive impairment that affects their quality of life.

Over 60% report frequent headaches. Aneurysmal subarachnoid hemorrhage may lead to damage of the hypothalamus and the pituitary gland, two areas of the brain that play a central role in hormonal regulation and production. More than a quarter of people with a previous SAH may develop hypopituitarism (deficiencies in one or more of the hypothalamic-pituitary hormones such as growth hormone, luteinizing hormone, or follicle-stimulating hormone).

DISCUSSION

In this study , etiology of SAH were high blood pressure , smoking cigarettes , family history and trauma. That was similar to (Abraham, MK; Chang,2016) .The methods of treatment also was in agreement with (Armin SS, Colohan AR, Zhang JH , 2006).The incidence is increased in female more than male and becomes more common with age. (Rooij NK, Linn FH, van der Plas JA, Algra A, Rinkel GJ ,2007). Complication like hydrocephalus , cranial nerve palsy , venticuloperitoned shunt , rebleed , motor defect, and epilepsy . And this result were in agreement with (Tang C, Zhang TS, Zhou LF 2014) and (Dorhout Mees SM, Rinkel GJ, Feigin VL, Algra A, van den Bergh WM, Vermeulen M, van Gijn j ,2007).

CONCLUSION

In this study , early diagnosis will decrease complications of SAH. Control risk factors like HTN, cardio and stop smoking will avoid possible of SAH It is a form of stroke and comprises about 5 percent of all strokes

SAH is a severe and complex disease which must be managed in specialized centers by professionals with ample experience in relevant diagnostic and therapeutic processes .

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