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## Impact of the lunar cycle on the incidence of intracranial aneurysm rupture: Myth or reality?

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### Abstract

#### Objective

To analyze the impact of the lunar cycle and season on the incidence of aneurysmal subarachnoid hemorrhage (SAH).

#### Patients and methods

The medical records of 111 patients who were admitted over a 5-year period to our department because of aneurysmal SAH were retrospectively reviewed. The date of aneurysm rupture was matched with the corresponding season and moon phase.

#### Results

An incidence peak for aneurysm rupture (28 patients) was seen during the phase of new moon, which was statistically significant ( $p < 0.001$ ). In contrast, no seasonal variation in the incidence of SAH was observed.

#### Conclusion

The lunar cycle seems to affect the incidence of intracranial aneurysm rupture, with the new moon being associated with an increased risk of aneurysmal SAH.

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## Introduction

It is a common belief that the moon and its cycle have a significant influence on human life. In the medical literature, several studies have analyzed the relationship between the lunar cycle, climatic changes, and hemorrhagic events in humans [1], [2], [3], [4], [5], [6], [7], [8], [9], [10]. However, very few of these have specifically looked at the incidence of intracranial aneurysm rupture in relation to the moon phase or season [2], [3]. The purpose of this study was to determine whether the lunar cycle and season had an impact on the incidence of aneurysmal subarachnoid hemorrhage (SAH).

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## Section snippets

### Patients and methods

Between January 1998 and December 2002, 166 consecutive patients were admitted to our department with the diagnosis of spontaneous SAH. The medical records of these patients were retrospectively reviewed. Twenty-three patients were found to have a negative cerebral angiogram and were excluded from the study. An additional 32 patients were excluded because of uncertainty about the exact date of aneurysm rupture. The remaining 111 patients with angiographically-demonstrated intracranial aneurysms ...

### Results

The study population consisted of 59 men and 52 women with a mean age of 65 years (range 43–76 years). Patients' demographic characteristics and distribution of risk factors for SAH are summarized in Table 1.

Aneurysm rupture occurred during winter in 29 patients (26%), during spring in 33 patients (30%), during summer in 29 patients (26%), and during autumn in 20 patients (18%). No statistically significant difference in the incidence of aneurysm rupture was observed among the four seasons ( $p=...$

### Discussion

Aneurysmal SAH is a relatively common disorder with few known risk factors, including smoking, hypertension, excessive alcohol intake, and family history [13].

The existence of seasonal variations in the incidence of aneurysm rupture in humans is a matter of debate [2], [3], [4], [5], [9]. Few studies [2], [3] have assessed the impact of seasons and climatic conditions on the risk of aneurysmal SAH. In one study [2], a seasonal variation in the incidence of aneurysmal SAH was documented, with a...

### Conclusion

In this study, we found an increased risk of intracranial aneurysm rupture during the phase of new moon. In contrast, the incidence of aneurysmal SAH did not vary significantly with season. Larger prospective studies may be required to confirm our findings....

## Acknowledgement

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...Similarly, it has been suggested that the phases of the Moon influence SAH onset. The New Moon phase seems to be associated with increased SAH onset [23], but studies investigating the role of the Moon are scarce and reported inconsistent results [21,24]. Moreover, these studies considered only illumination phase and not the interaction between Moon phase and tidal coefficient....

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...A recently published study in which the authors used high-quality data and robust statistical methods suggested no relevant influence of any meteorologic parameter on the incidence of aSAH, which is likely to put an end to the discussion about terrestrial meteorological impact on this disease (48). Recently, further authors have concentrated on extra-terrestrial extrinsic risk factors in an attempt to solve the riddle of extrinsic influence on aSAH (2, 35, 37). Despite previously reported positive associations (2), it could be shown that the lunar cycle has no impact on aneurysm rupture (35, 37)....

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...Moreover, in a prospective study using multivariate logistic regression analysis, Setzer et al. [9] have recently demonstrated that an abrupt change in BP (>10 h Pa within 24 h) was associated with SAH clustering in a large patient group. On the other hand, as to specific climatic conditions or astronomical phenomena, an association of SAH onset with heavy snowfall [19] or a new moon [26] has been observed. In the Yaeyama Islands, it is warm throughout the year, and temperature changes are light....

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