

Correlation Between Ruptured Cerebral Aneurysms and Previous use of Statins: An Epidemiological Relation in a Retrospective Case Control Study and Multivariate Analysis

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### Introduction

Correlation between ruptured cerebral aneurysms and previous use of statins: an epidemiological relation in a retrospective case control study and the importance of multivariate analysis

### Methods

Our study consisted of 140 patients accompanied by the neurosurgery service of HCFMUSP. Of these 140 patients, 108 presented one or more non-ruptured patients and 34 entered the service with a case of SAH due to the rupture of a previous aneurysm. Given that our study bases itself in an epidemiologic analysis, we did not need to submit it to the ethics committee of the university. The data of the study resulted from a joint effort between the neurosurgery department and the vascular surgery department of HCFMUSP. Thus, we obtained not only data about the presence of an aneurysm, ruptured or not, but also if patients presented with other comorbidities, such as Systemic Arterial Hypertension, diabetes, or dislipidemia. The population of our study consisted of 112 women and 35 men, 85 non-smokers and 27 smokers, 82 non hypertensives and 65 hypertensive patients, 21 took statin and 121 did not. The quantitative methods in medicine we used were: to measure relative risk, Odds Ratio; Chi-Squared test to prove that our results could not be an accidental clinical finding; and logistic regression to discern confounding factors.

### Conclusions

One concludes that the use of statins in patients before the rupture of the aneurysm did not present itself as protective in avoiding subarachnoid aneurysmatic hemorrhage.

### Learning Objectives

through the identification of possible protective factors for the rupture of cerebral aneurysms

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### Results

Initially, the analysis of the use of statin with ruptured and non-ruptured aneurysms: OR: 0.132, indicating a protective effect. The Chi-Squared test demonstrated that this effect was truly due to the statins (P=0.02463). However, when we performed a logistic regression adjusting for possible confounding factors (tobacco use, gender, systemic arterial hypertension, and age) we proved that previous analyses which demonstrated a protective effect in avoiding SAH were inconclusive and flawed. One concludes, thus, the importance of evidence-based medicine and adequate calculations, evaluating not only the studied elements, but also possible confounding factors. One also perceives how one must be careful with rushed scientific deduction when testing hypotheses in a coarse manner.

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