PATIENT PAGE

Aneurysms

Should We Screen Everyone Who Has a Family History of This?

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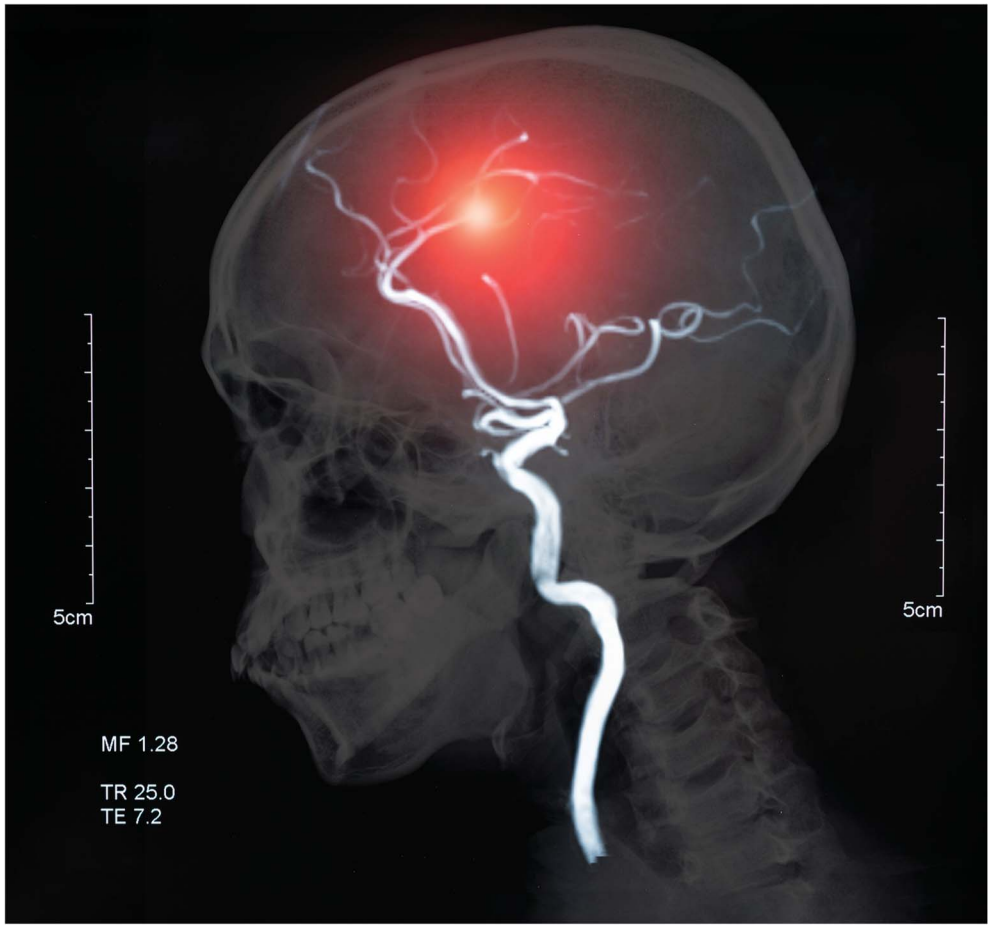

Related Article

Aneurysm Prevalence and Quality of Life During Screening in Relatives of Patients With Unruptured Intracranial Aneurysms: A Prospective Study

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Introduction

In their article "Aneurysm Prevalence and Quality of Life During Screening in Relatives of Patients With Unruptured Intracranial Aneurysms: A Prospective Study," Mensing et al.[1] asked a simple question: Should everyone who is a first-degree relative (parent, sibling, or child) of a person who has an *unruptured* intracranial aneurysm (UIA) be screened for an aneurysm?

Why is this an important question? To better understand, we need to first think about aneurysms and why they can be serious. The risk of an aneurysm is that, as it enlarges, it might burst (or *rupture*), which may then cause a stroke because of bleeding in the brain. It is known that a person who experiences a ruptured aneurysm is at a high risk of dying (30%) from such an event. Furthermore, there is a high risk of long-term neurological problems for someone

with a burst aneurysm. Previous studies have shown that a person who has 2 or more first-degree relatives (FDRs) who have experienced a ruptured aneurysm have an 11% chance of having an aneurysm themselves. For these people, there is a 20% lifetime chance that the aneurysm will rupture. If a person has an FDR who has had a ruptured aneurysm, they should be screened to determine whether they have an existing unruptured aneurysm as well and then monitored over time for the development of an aneurysm. However, what if a person is found to have an aneurysm that has not ruptured? Should their relatives also be screened for aneurysms?

How Was the Study Done?

This study was conducted in the Netherlands between April 2017 and October 2021 at the University Medical Center Utrecht, Leiden University Medical Center, and the Amsterdam University Medical Center. MRI and MR angiography (MRA) are widely available, noninvasive medical tests in the Netherlands. As part of the study, Mensing et al. identified 252 people between the ages of 20 and 70 years who had an unruptured aneurysm appearing on their MRI or MRA. An MRI/MRA was performed on 79% of the FDRs of this group of 252 people. In total, an MRI/MRA was performed in 461 FDRs of the patients with unruptured aneurysm (of a total of 587 FDRs). Some FDRs chose not to participate, saying that they "did not want to know" or that it "was too time-consuming [to participate]."[1]

In addition to MRI scans, Mensing et al. also administered several quality-of-life (QoL) questionnaires. These questionnaires are well-studied tools that assess general health, mood (to identify conditions such as anxiety and depression), and social functioning. Mensing et al. wanted to know: does the identification of an unruptured aneurysm in a patient lead to a lessened QoL for that person?

What Were the Results?

Of the 461 FDRs who were tested, Mensing et al. found 23 (or 5%) who had an unruptured intracranial aneurysm. They measured the size and location of these aneurysms. They found that on average, the aneurysms were small (3 mm). They also calculated the 5-year risk of future bleeding and found that it was low at 0.7%. Twenty-two of the 23 people had a follow-up MRI scan 24 months later (1 participant declined follow-up). At 2 years, there was *no change* in the size or shape of the aneurysms.[1]

The number of FDRs with an unruptured aneurysm was small, which makes an analysis of the data more challenging. However, the authors found 3 factors that increased the risk of developing an unruptured aneurysm: higher age (at the time of screening), smoking, and excessive alcohol intake. In their study, the risk of having an unruptured intracranial aneurysm was 2.3% in nonsmokers. It was 14.7% in those who were smokers and who also drank excessively.

When the researchers analyzed the QoL questionnaires given to the study participants, they found a slight increase in depression and a slight decrease in social participation in those who were found to have an UIA. However, they found that the overall depression level in this group was lower than that of the general population, suggesting that this difference may not be related to whether the participants did or did not have an UIA. Furthermore, they observed that the factors that contributed to a greater chance of depression for this group included a history of psychiatric illness, a passive coping style, higher perceived lifetime stress, and the presence of physical concerns that could affect mood. Because of this, the authors noted that more study in this area was needed before conclusions could be reached regarding the effect of UIA testing on QoL.

When these results were analyzed, the authors concluded that FDRs of people with UIA should likely *not* be screened for aneurysms.

Why Is This Important?

This study was important in several ways. First, other similar studies have only examined the FDRs of people who have *ruptured* aneurysms and not the FDRs of people with *unruptured* aneurysms. Second, this study was *prospective*, meaning that the data were collected *going forward*. In other words, the researchers identified people with unruptured aneurysms and then followed those people for a period, screening them periodically for aneurysm development. This type of study contains fewer biases compared with studies that are *retrospective* (i.e., looking back on previously collected data). One example of a bias in a retrospective study is a person's recall: Did they remember the details correctly? A prospective study eliminates these concerns.

All studies have strengths and "weaknesses." The authors note that one of the limitations of this study is its small number of participants. Because of the small size of the patient group, the authors could not determine the potential risks for people with *multiple* FDRs who had UIAs. In scientific studies, researchers look for other, similar studies to verify or validate their results. Because this study is unique, the authors were unable to verify their findings by making such comparisons. In short, further studies of this kind are needed to confirm (or refute) the results of this study.

About Aneurysm and Stroke

What Is a Stroke?

Stroke is a sudden neurological event.[2-4] There are 2 main types of stroke: *ischemic* and *hemorrhagic*. Ischemic strokes account for about 87% of strokes. This type of stroke is usually caused by clots that block an artery. Because blood cannot get past the blockage, neither can oxygen. Brain cells, needing oxygen to function, begin dying within minutes. Time is critical: The longer brain cells lack oxygen, the greater the number of brain cells that die. In hemorrhagic stroke, bleeding occurs in the brain. This could be due to a weak blood vessel bursting or an aneurysm that has ruptured.

In the United States, about 800,000 people per year have a stroke. One quarter of these are recurrent strokes. This means that about once every 40 seconds, someone in the United States has a stroke. Strokes can be very serious: About once every 3 minutes, someone in the United States dies of a stroke. Although stroke can occur at any age, in the United States, almost two-thirds (62%) of people who experience a stroke were older than 65 years. People who are at the highest risk are those with obesity, who smoke, or who have high blood pressure, high cholesterol, and/or diabetes.[2-4]

The main goal in stroke treatment is actually to prevent strokes from happening in the first place. By aggressively treating risk factors such as high blood pressure or high cholesterol, doctors can lower the risk of stroke (as well as heart attack), thereby preventing injury and death due to this serious neurological condition. Studies have repeatedly shown that eating well, exercising regularly, and eliminating habits such as cigarette smoking greatly improve our overall heart and brain health.

For More Information

Brain & Life
brainandlife.org

American Heart Association
heart.org

American Stroke Association
stroke.org

Brain Aneurysm Foundation
bafound.org

References

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