



FIA NEWS

Visit the FIA Website at www.med.uc.edu/neurology/fia

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A Newsletter for the Familial Intracranial Aneurysm Study

We hope this newsletter finds you in good health! We are very pleased and grateful for all of the help that many of you have given and hope that you continue to do so. We cannot complete this project without you! Feel free to contact us with any questions, suggestions or new updates about your family. We would love to hear from you.

Study Update

To-date, 347 eligible families have been enrolled (over 2500 individuals), with another 295 being investigated. The genome screen has been completed on the first 223 completed families and we are awaiting the results. These results will tell us if there are any common genetic areas of interest for aneurysm formation.



MRA of the brain.
These vessels are analyzed to detect aneurysms.

Study Imaging Update

The FIA offers a study MRA to high-risk family members who are not diagnosed with an aneurysm. A high risk family member is generally over the age of 30 years, has high blood pressure and/or a strong history of cigarette smoking. To-date, 318 study MRAs have been done, and 63 family members have been identified as having a previously unknown aneurysm.

Nutrition for Healthy Arteries

Did you know that eating right can reduce your risk of stroke, by lowering your blood pressure and aid in maintaining healthy arteries? The **American Heart Association (AHA)** recommends a diet that includes a variety of fruits, vegetables, and grains while limiting consumption of saturated fat and sodium. Fruits and vegetables contain lots of antioxidants such as vitamin C and vitamin A. In addition they contain soluble fiber, which has been shown to reduce blood cholesterol levels. Cut down on fat by trimming fat from meats. Remove the skin from poultry and use low fat dairy products, little butter, margarine and oil. Avoid too much salt, as salt can increase blood pressure in some people. Substitute salt with other flavorings such as, garlic, ginger, onion or lemon juice. Avoid saturated fats, they are damaging to your arteries. Monounsaturated fats found in foods such as peanuts and olives may be beneficial, as well as polyunsaturated fats. Polyunsaturated fats are found in fish, nuts and dark leafy vegetables. Salmon, herring and mackerel are good choices in fish. All of these diet changes may contribute to reducing your risk of cardiovascular diseases. Of course, stopping smoking is the quickest way to improve the health of brain arteries and to decrease the risk of brain aneurysm!

Information for Your Brain....

MRI, MRA? What is the difference?

- **MRI** stands for **M**agnetic **R**esonance **I**maging, a very detailed picture of the body using magnets. This includes imaging for the head, abdomen, joints, and other tissues.
- **MRA** stands for **M**agnetic **R**esonance **A**ngiography a more specific form of MRI specifically for the blood vessels of the brain, helpful in detecting aneurysms. Same test, different focus of exam.

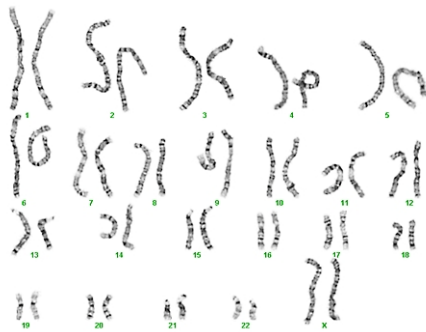
Investigator's Corner

The Genetics of Intracranial Aneurysms

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In order to understand the genetics of intracranial aneurysms (IA), it is first necessary to understand the basics of genetics. Most cells of the body have 46 chromosomes, grouped into 23 pairs (*see figure below*). One member of each chromosome pair is transferred from parent to child during fertilization. These chromosomes are composed of deoxyribonucleic acid (DNA), which is the genetic material. Segments or sequences of DNA consist of genes, which encode many of the characteristics of each individual, including hair and eye color. Often, the variation between individuals in these traits is due to variation in the sequence of the DNA of these genes.



There are some disorders that are due to large changes in the number or amount of DNA in a particular chromosome. For example, Down syndrome, often called trisomy 21, is caused by an extra copy of the 21st chromosome. Studies have not identified any noticeable changes in the chromosomes of individuals with IA. This suggests that the changes in the DNA that might contribute to IA are likely to be small and not visible to scientists when they view the chromosomes through a microscope.

Several studies have shown that genes are an important risk factor for IA. These studies examined the close relatives of individuals who had a ruptured intracranial aneurysm. They estimated that the siblings, parents and children of an individual with a ruptured aneurysm have a

two to four time higher risk of also having an aneurysm as compared with an individual from the general population.

The goal of the FIA Study is to identify genes that increase or decrease the risk for IA. This will be accomplished by studying families who have had multiple members diagnosed with IA. It is through the study of the DNA collected from these families that the FIA Study researchers hope to identify specific chromosomes or chromosomal segments that are inherited in common by family members with IA. This would suggest that a gene or genes affecting the risk for IA resides on that chromosome. This will then be the first step toward finding a gene or genes that increase or decrease the risk for IA.

Importantly, studies have shown that there are other factors, which are just as important as genes in predicting the risk for IA. These factors include smoking and hypertension (high blood pressure). Fortunately, individuals with a family history of IA can reduce the effect of these two risk factors by decreasing or stopping smoking altogether and by better control of hypertension.

Thank you and your family for your participation in the FIA Study. You are critical to the successful identification of genes that contribute to the risk for IA.

Informative Websites:

- Please see <http://clinicaltrials.gov> and search "Familial Aneurysm" to see the current progress of the study.
- Please see <http://www.med.uc.edu/neurology/fia> for our official study website. Here you also can see contact information for participating sites worldwide.
- Two great websites for aneurysm support written by those who share the same experiences.
<http://www.bafound.org>
<http://www.westga.edu/~wmaples>