Metform shows promise for slowing AAA growth
CHICAGO, Illinois, March 29, 2019 – Researchers’ hopes that metformin could reduce the growth of abdominal aortic aneurysms got a substantial boost from a large study, which found that the diabetes drug reduced aneurysm growth by 23 percent.

As reported in the March 2019 edition of the Journal of Vascular Surgery, Dr. Nathan Itoga and colleagues from Stanford/UCSF, led by vascular surgeon Dr. Ronald Dalman, performed a retrospective cohort study of 13,834 patients treated in the Veterans Affairs Health Care System to determine if metformin reduces AAA progression.

A medical therapy has long been an unmet need for patients with small aneurysms. Meanwhile, treatment has centered on early detection and subsequent intervention based on aneurysm growth and size.

Previous studies have observed a paradoxical relationship between diabetes mellitus and AAA disease. Two prior clinical trials—the Aneurysm Detection and Management trial and the United Kingdom Small Aneurysm Trial—noted reductions in AAA growth rate in diabetics. Population-based studies designed to corroborate this evidence, however, have been difficult to perform given the low prevalence of AAA in diabetics.

“To our knowledge, this study is the first to use national VA data to examine longitudinal AAA diameter changes and associations within this population of patients,” notes Dr. Dalman. “The VA database allows long-term analysis of VA patients nationwide, with follow-up extending to 15 years. The high prevalence of diabetes in the VA population of AAA patients allows analysis of risk factor and demographic influences on AAA enlargement in diabetic patients, a population previously difficult to study.”

A review of the records of more than 13,000 veterans adds more weight to previous small studies that pointed at the connection.

Current therapies to limit the impact of AAA, the 15th leading cause of death in men over 65 years old, center on early detection and subsequent intervention based on aneurysm growth and size. Missing, however, are proven medical
therapies to reduce AAA growth rate.

Demographic data of the 13,834 diabetic patients with AAA studied included:

- Mean age of 70 +/- 8 years
- Males, 99%
- Active smokers, 29%
- Prescribed Metformin, 40%
- Mean baseline AAA diameter of 38 +/- 1.7mm

Compiling 58,833 radiographic studies to evaluate AAA size over a 4.2-year time span, the researchers found:

- Metformin reduced growth by 23% (95% confidence interval, 16 to 31%)
- Active smoking, chronic obstructive pulmonary disease, chronic renal disease metastatic solid tumors and baseline AAA size/10mm increased growth rate by 27%, 12% and 58%, respectively

Given the results of this study, Dr. Dalman suggests, “prospective testing is needed to validate the efficacy of metformin in limiting AAA disease progression in patients regardless of glycometabolic status.”

The JVS article is open source until April 30 at www.vsweb.org/JVS-metformin .

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