

New Screening Tool Improves AAA Detection

BY PATRICE WENDLING

CHICAGO — Researchers have developed a simple scoring system that detects large abdominal aortic aneurysms in a broader at-risk population—including women and those younger than 65 years—than do current screening criteria.

Based on an analysis of 3.1 million patients, the new scoring system estimated the prevalence of 5-cm or greater abdominal aortic aneurysms (AAA) in the United States to be 0.14%, or equivalent to 120,810 aneurysms. The current U.S. Preventive Services Task Force (USPSTF) guidelines would capture just one-third of these large aneurysms, whereas two-thirds would be identified with the new system, principal investigator Giampaolo Greco, Ph.D., said at the annual meeting of the American Surgical Association.

“The score needs to be validated in another cohort, but if validated, we believe



It would take 156 screenings with the current guidelines to get a single AAA, versus 85 with the scoring system.

DR. GRECO

these results argue for fundamentally changing current screening policy,” he said.

Dr. Gregorio Sicard called the findings a “landmark in the area of screening for vascular disease.” Dr. Sicard, an invited discussant who is head of vascular surgery at Washington University in St. Louis, said that the current USPSTF guidelines have not been universally encouraged or adopted by vascular surgeons, and that utilization of Medicare’s one-time ultrasound screening for AAA has been unsuccessful.

“Use of a strategy with this statistical model will significantly increase and clarify this controversy in which patients are best screened,” he said.

The current USPSTF guidelines, which are designed to identify aneurysms greater than 3 cm in males aged 65-75 years who have ever smoked, are both too narrow and too broad, explained Dr. Greco of the department of health evidence and policy at Mount Sinai School of Medicine, New York. They exclude women, who account for 33% of the 20,000 deaths each year from ruptured AAA, and those younger than 65 years, who account for 10% of AAA deaths. They also identify smaller AAAs that are at a lower risk of rupture, thereby resulting in unnecessary anxiety in low-risk individuals.

Dr. Greco and his associates used multivariate logistic regression analysis to identify risk factors for AAAs in 3.1 million patients undergoing ultrasound screening for AAA by Life Line Screen-

VITALS

Major Finding: A new screening tool could increase identification of large abdominal aortic aneurysms from 33.7% to 59.3%.

Data Source: Analysis of 3.1 million patients undergoing ultrasound screening for abdominal aortic aneurysms by Life Line Screening.

Disclosures: Dr. Greco and Dr. Sicard disclosed no conflicts of interest. A study coauthor disclosed employment with Life Line Screening of America.

ing from 2003 to 2008. Not surprisingly, smoking was found to have a profound influence on the risk for a 5-cm or larger AAA; the risk increased with quantity and duration of smoking and decreased following smoking cessation. Odds ratios ranged from 2.6 for smoking a half-pack or less per day for less than 10 years to 14.5 for smoking more than a half-pack

per day for 35 years. The risk of AAA fell dramatically for those who quit smoking for 5-10 years (OR, 0.8) and for more than 10 years (OR, 0.5), reported Dr. Greco and senior author Dr. K. Craig Kent, chair of the surgery department at the University of Wisconsin in Madison.

Others at elevated risk included males (OR, 7.7), those with a

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Waiting for Randomized Trials

MY TAKE

Dr. Greco and his colleagues correctly point out that this scoring system needs to be prospectively validated before it can be used. This is particularly important when the data set is not all comers that arrive in our day to day practice, but those who specifically have sought out screening. This creates a selection bias.

If the authors are able to validate the scoring system, the next question be-

comes "Does the screening make a difference in outcomes?" The reason the current U.S. Preventive Services Task Force guidelines do not recommend screening in women is because screening studies have not demonstrated an improved outcome in women screened for AAA compared to those not screened.



Before this scoring tool is used in practice, it needs to be prospectively tested in a randomized controlled trial demonstrating that it helps improve patient outcomes, and it should be compared in some fashion to the current guideline. I have plenty to do already trying to manage the 30%-plus of the population who is obese, let alone trying to ferret out conditions

that affect 0.14% of the population, when I don't know that finding them with a new screening tool will change outcomes.

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family history of AAA (OR, 3.2), and those aged 85 years or older (OR, 53.1).

Novel findings included a protective effect of exercising at least once per week (OR, 0.8), consuming nuts at least four times per week (OR, 0.9), and being of black (OR, 0.7) or Hispanic (OR, 0.7) ethnicity, Dr. Greco said.

Using these and other factors, the researchers developed a scoring system with a good predictive accuracy, as noted by a C statistic equal to 0.81. If AAA screening were performed on the 6.8 million at-risk individuals identified by current screening criteria, 33.7% of the large AAAs would be captured, he said.

Based on a score of 36 on the new model, the number of individuals who would need to be screened would be reduced to 6.3 million and the number of identified AAAs would nearly double to 59.3%.

"It would take 156 screenings with the current guidelines to get a single AAA, whereas it would take 85 screenings with our scoring system to find one person with AAA," Dr. Greco said.

Alternatively, if the threshold were lowered to a score of 30, the same level of screening would bring the yield of detected AAAs to 84%, he added.

During a discussion of the findings, Dr. Sicard asked whether a separate scoring system should be developed for women, observing that the analysis contained very few women with large AAAs who were younger than 75 years.

One attendee asked whether intervention should begin at a smaller aneurysm size in women, who present with rupture more often than do males and have greater in-hospital mortality. Dr. Greco said that a separate system for women would not be necessary, as they are included in the new model and the stringency of the test on smaller aneurysms is affected by lowering the score threshold.

Ultimately, society would need to decide whether additional funds should be allocated to expand screening to women and younger persons. A cost analysis was not performed at the time of the analysis, but is being planned, Dr. Greco said in an interview.

Several audience members questioned how best to distribute the new scoring system to the public and encourage them to get screened. One attendee suggested that the AAA risk form could be sent to the estimated 40 million members of the AARP. ■