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## Possible predictors of aortic dissection at a diameter less than 55 mm

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**Introduction:** Given the high mortality rate in patients with type A aortic dissection, predictive tools to identify patients at increased risk of aortic dissection, when the diameter of ascending aorta is still under the threshold of 55 mm, are needed to assist clinicians for optimal intervention and to help patients raise their alert.

**Method:** We evaluated 528 consecutive patients of acute type A aortic dissection (AAAD) admitted to Fuwai hospital, Beijing, China between 2009 and 2013. Univariate testing followed by multivariate logistic regression analysis was performed to identify independent predictors of AAAD at a diameter less than 55 mm. A simplified scoring system for predicting aortic dissection at a smaller diameter was then established based on the results of the multivariate analysis.

**Results:** Of the 528 AAAD patients, 375 (71%) were with a diameter less than 55mm at the level of ascending aorta. A total of 25 variables as regard with demographic characteristics, clinical features and imaging were investigated. Logistic regression identified the following presenting variables as predictors of AD at a diameter less than 55 mm: age $\geq$ 50 years (OR, 0.41; 95% CI, 0.26 to 0.65;  $P<0.01$ ), hypertension (OR, 2.02; 95% CI, 1.20 to 3.40;  $P=0.01$ ), history of aortic valve replacement (OR, 0.05; 95% CI, 0.01 to 0.42;  $P=0.01$ ), history of catheterization (OR, 7.45; 95% CI, 1.26 to 44.21;  $P=0.03$ ), hepatic cyst (OR, 2.69; 95% CI, 1.30 to 5.60;  $P=0.01$ ), renal cyst (OR, 3.62; 95% CI, 1.85 to 7.08;  $P<0.01$ ), bovine arch (OR, 6.39; 95% CI, 1.47 to 27.90;  $P=0.02$ ), BAV (OR, 0.19; 95% CI, 0.04 to 0.95;  $P=0.04$ ). Area under the receiver operating curve (ROC) was 0.73. Hosmer-Lemeshow statistic,  $P=0.28$ .

**Conclusion:** Patients with age $<$ 50 years, hypertension, a history of catheterization, hepatic cyst, renal cyst, or bovine arch were more likely to develop aortic dissection at a smaller diameter.

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