

Letter to the Editor

Correlation does not imply causation

Dear Editor,

In a recently published manuscript written by Tang et al authors investigated correlation between the mouth diameter of left atrial appendage (LAA) and stroke risk score in patients with atrial fibrillation (AF). They observed larger left atrial mouth diameter in persistent AF patients as a result of atrial remodelling, consistent with literature. Correlation analysis between the mouth diameter of LAA and stroke risk scores did not show significant relationship¹.

Atrial fibrillation is the most common sustained cardiac arrhythmia in clinical practice. Atrial fibrillation can have adverse consequences related to a reduction in cardiac output and increased thromboembolic risks. Conventional risk factors of AF are heart failure, valvular heart disease, coronary heart disease and other risk factors, such as hypertension, diabetes mellitus, obesity and cigarette smoking. Also various genetic mutations and many inflammatory diseases are responsible for AF. In the light of current knowledge we can conclude that AF is an enigmatic multifactorial disease.

Chain of events leads to AF generation. There is no successful models that to predict the risk of development of atrial fibrillation. However, at statistics section of manuscript we understood from table III and IV that Tang et al made a simple logistic regression test. The main goals of treatment are to prevent circulatory instability and stroke. In our opinion risk regression models that aim to improve that goals must be more complex.

In statistics, regression analysis is a statistical process for estimating the relationships among variables. Regression analysis is also used to understand which among the independent variables are related to the dependent variable, and to explore the forms of these relationships. Regression analysis can be used to infer causal relationships between the variables, as we see in this manuscript. However, this can lead to illusions or false relationships, so caution is advisable. We must always keep in mind that correlation does not imply causation. Lastly, AF is a complex disease with a multifactorial etiology risk models in consistent with its pathogenesis.

Conflict of Interest

The Authors declare that there are no conflicts of interest.

References

- 1) B. TANG, H. ZHANG, L. JIANG. The correlation between the mouth diameter of left atrial appendage and stroke risk score in patients with atrial fibrillation. *Eur Rev Med Pharmacol Sci* 2015; 19: 790-794.

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