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Letter to the Editor

Risk factors associated with cardiac arrest



To the Editor,

We read the innovative article by Ohlsson et al.,¹ the authors should be commended for combining polygenic genetic risk scores with traditional risk factors to form a novel composite risk score to help identify individuals who will suffer cardiac arrest (CA). Though this study sounds scientific, some critical issues should be discussed.

First, in the study by Ohlsson et al.,¹ some variables were included and adjusted in their multivariate cox proportional model, however, anemia had not been included. Actually, anemia is closely correlated with CA, a Korean cohort study containing 494,948 subjects indicated that 1-unit decrease in hemoglobin was associated with 21–24% increase in the risk of sudden CA,² hence, anemia is an independent risk factor of CA and should not be ignored.

Second, in the commented paper,¹ factors like smoking, diabetes mellitus, hypertension, serum lipid, obesity were included and adjusted without checking the interactions between these covariates, nevertheless, these covariates might be correlated with each other,³ the authors had better check the multicollinearity of these variables.

Third, Table 1 showed that both systolic blood pressure (BP) and diastolic BP both distributed statistically differently between the control group and cardiac origin arrest group. As we all know, BP can be divided into 3 categories: hypertension, hypotension and normal BP. But in the study by Ohlsson et al.,¹ only hypertension was chosen as covariate, in practice, hypotension or shock was more frequent in CA patients and shock was verified to be an independent risk factor of CA patients,⁴ thus we suggest BP should be divided into 3 groups – hypertension group, hypotension group and normal BP group to reduce biases.

Fourth, Ohlsson et al. tried to develop a novel composite risk score model for patients with future cardiac arrest, however, the events of cardiac origin CA ($n=181$) and non-cardiac origin CA ($n=71$) were so small which could result in non-significant statistical values and subsequent biases. Furthermore, internal and

external validity procedures should be performed to check the comprehensive validity of this model to make the results more precise.⁵

In a word, the results of this innovative study should be interpreted prudently and more work should be done in the future.

Conflict of interest

None declared.

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