Predictors of Anaphylaxis in Korean Adults

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Our understanding of anaphylaxis has greatly evolved since its fortuitous discovery by Portier and Richert,[1] but it is nowhere near enough. Uncertainty is more intensified in a lack of comprehensive understanding of predictors associated with severity or serious outcomes of anaphylaxis. In this sense, the article by Ye et al.[2] in this issue of the AAIR is greatly informative. They collected as many as 1,806 cases from 15 nationwide university hospitals. Although their study was retrospectively designed, an enormous number of cases enhance the value of this report considering that the incidence of anaphylaxis in Korea was reported to be 0.014%.[3] Major findings are summarized as follows: (1) the anaphylaxis rate in adults was significantly increased; (2) the important causes were drugs, food, and insect stings; (3) the severity was dependent on age, the presence of comorbidities, and specific causes; and (4) drug-associated anaphylaxis, multiorgan involvement, and older age were independent predictors of serious outcomes.

A clinical diagnosis of anaphylaxis in epidemiologic studies, especially with a retrospective design, is difficult to make. Both overdiagnosis and underdiagnosis can occur.[4] Inaccuracy of diagnostic coding which was used to collect cases in the article by Ye et al.[2] is one of the contributing factors. A study of food-induced acute allergic reactions encountered in the emergency department found that among 678 patients identified according to the International Statistical Classification of Diseases (ICD) codes, 51% should actually have been classified as having anaphylaxis.[5] Even if anaphylaxis is accurately recognized, only a part of patients sometimes receive the proper ICD codes. Decker et al.[6] reported that as many as 25% of the anaphylaxis cases identified had received less specific codes. Even though there are concerns about accuracy in diagnosis, recent epidemiologic studies showing a steady increase in the rate of occurrence of anaphylaxis may enable us to say "We are in the anaphylaxis epidemic era."[6-9] Likewise, Ye et al.[2] reported that the anaphylaxis rate in Korean adults was significantly increased from 7.74 per 100,000 in 2007 to 13.32 per 100,000 in 2011. This is the first report in Asia. Recently, social actions to meet the needs of growing numbers of people at high risk of anaphylaxis have been initiated and become more important. The anaphylaxis campaign in the United Kingdom is a good example.[10] Taken together, further prospective investigations in conjunction with Asian nations are warranted to determine exact anaphylaxis rates in Asia.

The importance of risk prediction is growing in importance, both for the individual and at the public health level. Unfortunately, there is no prospectively validated grading system to link clinical features of anaphylaxis with its severity. Ye et al.[2] demonstrated that the severity of anaphylactic reactions is significantly associated with age, comorbidities including diabetes and hypertension, and history of allergic disease. Among specific causes, radiocontrast media, antibiotics, and wheat flour were significant etiologies. However, interactions between the factors should be recognized, and combinations of factors rather than single factor need to be considered in predicting the severity of anaphylaxis. For example, in patients at less than 30 years of age, food (34.2%) was most significantly associated with anaphylaxis, while drugs (36.3%) were so in those at older than 51 years. Prediction of serious outcomes is likely to be more pragmatic than that of the severity of anaphylaxis. In the article by Ye et al.,[2] serious outcome was defined as a new admission or prolongation of hospitalization related to anaphylaxis. Multiorgan involvement, drugs, and age were independent predictors of serious outcomes that were also important for the prediction of severity. Of particular interest, history of allergic disease was a risk factor for the development of severe anaphylaxis, but it was favorably associated with outcomes. They found that patients with history of allergic disease more

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quickly visited nearly clinics and more frequently used self-injectable epinephrine kits when their symptoms started. Specifically, this observation suggests us that we need to establish nationwide educational programs to improve social awareness of anaphylaxis.

Anaphylaxis is a rare allergic reaction of sudden onset; however, if it occurs, it can be potentially life-threatening. For the prompt and proper management of anaphylaxis, identification of factors predicting severity and serious outcomes, development of comprehensive grading systems, and prospective validation are essential. Hopefully, factors demonstrated by the above-mentioned study will be utilized to provide better tools to predict subjects with anaphylaxis.

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