Objectives: The purpose of this study was to find the predictors and develop a predictive scoring system of resistance to intravenous immunoglobulin (IVIG) in patients with Kawasaki disease (KD).

Methods: We performed a retrospective review of patients with KD treated within 10 days of fever onset. To identify independent predictors of IVIG resistance, multivariable logistic regression models were constructed using variables selected by univariable analysis. And the independent predictors were combined into a scoring system. The discriminatory capacity of the scoring system was assessed using the area under the receiver-operating-characteristics (ROC) curve.

Results: According to the logistic regression analysis, polymorphous exanthema, changes around anus, days of illness at initial treatment, percentage of white blood cells representing neutrophils (% neutrophils), CRP, albumin and total bilirubin were proved to be independent predictors of IVIG-resistance. Based on the clinical characteristics of children in our hospital, variables such as polymorphous exanthema, changes around anus, days of illness at initial treatment, % neutrophils and CRP were used to generate the new scoring system, which gave an area under the ROC curve was 0.672. Kobayashi scoring system and Eqami scoring system were tested in our study, respectively. The area under ROC curve was 0.627 for Kobayashi scoring system and 0.614 for Eqami scoring system.

Conclusions: The new scoring system including polymorphous exanthema, changes around anus, days of illness at initial treatment, % neutrophils and CRP, has much higher sensitivity for Chinese children, compared with Kobayashi scoring system and Eqami scoring system.