Commentary

Indicator or continuous variable?

Zhongheng Zhang

Department of Critical Care Medicine, Jinhua Municipal Central Hospital, Jinhua Hospital of Zhejiang University, Jinhua 321000, China
Correspondence to: Zhongheng Zhang, MMed. Department of Critical Care Medicine, Jinhua Municipal Central Hospital, Jinhua hospital of Zhejiang University, 351#, Mingyue Road, Jinhua 321000, China. Email: zh_zhang1984@hotmail.com.

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I read with great interest on a recent article by Kaukonen and coworkers (1). The authors concluded that there is no "transitional increase when two criteria were met". The statement is based on unadjusted and adjusted estimates of the increase in mortality risk with each point increase in systemic inflammatory response syndrome (SIRS) score. The author stated that SIRS score was treated as ordinal variable, which would have been transformed to dummy or indicator variable in multivariable model. However, they showed one odds ratio (OR) estimate (OR: 1.13), which is the form of a continuous variable. I make a simulation study by assuming that the risk of death increases dramatically from 1 to 2-criterion, and there is a plateau after 2-criterion (*Figure 1A*). However, when SIRS is treated as continuous variable, the result is a gradual increase in the risk of death (*Figure 1B*). I would like to see the result by including the number of SIRS criteria as an indicator variable (by using 0 as reference).

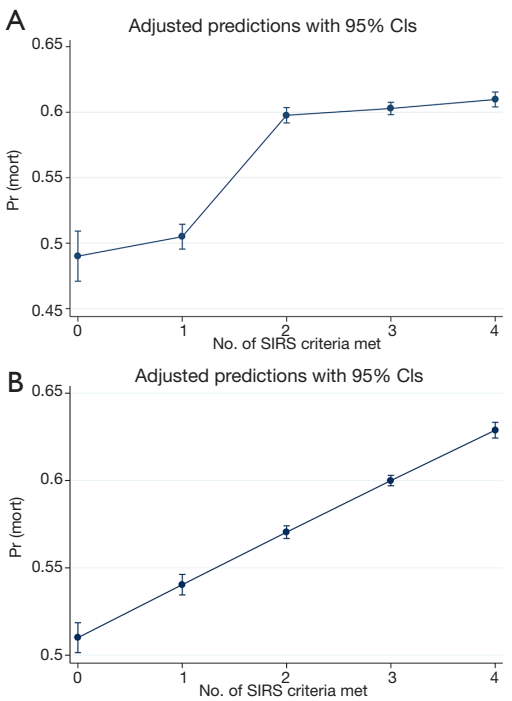

Figure 1 Adjusted marginal plot of the number of SIRS criteria met against the probability of death. (A) SIRS criteria is incorporated as indicator variable and we establish a dataset by assuming the probability of death increases dramatically at 2-criterion; (B) SIRS score is used as continuous variable and only one estimate of OR is presented for the number of SIRS criteria. The curve is falsely linear. SIRS, systemic inflammatory response syndrome; OR, odds ratio.

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Footnote

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References

1. Kaukonen KM, Bailey M, Pilcher D, et al. Systemic inflammatory response syndrome criteria in defining severe sepsis. N Engl J Med 2015;372:1629-38.

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