Comment on: New-Onset Diabetes and Impaired Fasting Glucose After a Liver Transplant: Risk Analysis and the Effect of Tacrolimus Dosage

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Abstract

Several clinical risk factors are associated with new-onset diabetes mellitus after a liver transplant including family history of diabetes, impaired fasting glucose, and increased age. The confounding effect of some of these variables may contribute to the reported significant effect of tacrolimus in causing new-onset diabetes mellitus after a transplant.

Key words: Confounding factors, Epidemiology, Immunosuppression

Dear Editor,

I read with great interest the paper by Lankarani and associates about new-onset diabetes and impaired fasting glucose after a liver transplant.1 The paper had useful information, but additional information may be helpful to interpret the results.

Several clinical risk factors are associated with new-onset diabetes mellitus after a transplant, including family history of diabetes and impaired fasting glucose.2 However, the authors did not exclude patients who had these risk factors, and evaluation of these risk factors was not presented. The confounding effect of these variables may have contributed to the significant effect of tacrolimus in causing new-onset diabetes mellitus after a transplant (NODAT). Omitting these confounding effects may improve the validation of the results.

Patients who had NODAT were ≥ 12 years older than patients who did not have NODAT (Table 1).3 Increased age is associated with NODAT. Therefore, the NODAT may have occurred because of the patients’ older age. Considering age in the logistic regression model may not completely remove the confounding effect, because patients who have NODAT were older, and the dosage of tacrolimus required may vary with patients’ age and body weight. It was unclear from the paper how the authors addressed this problem. This may be important when body weight is higher in patients who have NODAT than in control subjects. Statistical testing may have not shown a significant difference because of small sample size. However, it is offered to enter multivariable analysis, which have had P values < .2 according to their univariate analysis.3 It was unclear from the Methods section how this was analyzed, and I am not aware of authors’ policy. Such criterion is because some variables with a P value < .2 (eg. weight) may enter in multivariable (in this case, mislabeled as “multivariate”) logistic model.

Tacrolimus had a large odds ratio and high upper 95% confidence interval (Table 3).1 A large odds ratio may occur when the sample size is low or there are missing data or colinearity exists that had not been considered during analysis. Considering the above mentioned points in the next papers or even in authors’ reply letter may alter the Results section considerably. In addition, there were missing data on several variables (Tables 1 and 2).1 The approach of the authors to missing data was unclear from the paper.

References