

LETTER TO THE EDITORS

An evolving understanding of modifiable risk factors for post-transplant mortality

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Dear Editors,

With great interest, we read the recently published article in *Transplant International* by Upala *et al.* [1] entitled *Underweight and obesity increase the risk of mortality after lung transplantation: a systematic review and meta-analysis*. To date, lung transplant clinical practice guidelines have been based on expert opinions or site-specific experiences. The authors should be commended for recognizing the need to assess articles with rigorous study designs in order to guide evidence-based practice. In their recent work, Upala *et al.* concluded that both pretransplant obese and underweight body mass indices are associated with significant risk of post-transplant mortality. This conclusion could have significant implications for determining which patients will receive transplants, and in the light of organ donor shortages, this is a highly relevant current issue.

Several important questions come to mind when reading the author's work. The authors indicate that only the most recent published data were analysed in their meta-analysis. And, although they considered earlier studies from the same database as 'companion reports', authors failed to provide a detailed justification as to why these earlier publications were not included and would not have contributed relevant results.

Lung transplantation immunosuppression paradigms have varied over the years [2,3], which influence clinical outcomes. Although authors state that 'included studies were published from 1998 to 2015', the data included in these studies originated from databases spanning from

1990 to 2011, an over 20-year span of time. Three studies published data from the United Network for Organ Sharing database. Singer *et al.* [4] included the most recent data from 2005 to 2011, while Lederer and Allen included earlier and overlapping data from 1995 to 2003 [5], and 1998 to 2008 [6], respectively, and thus were not included in analysis. Results of multivariable analysis by Allen *et al.* found a marginally nonsignificant, increased risk of mortality with a hazard ratio of 1.06 (95% CI, 0.99–1.14). Conversely, Lederer *et al.* [5] found, in their multivariate analysis, that being overweight significantly increased the risk of mortality with an odds ratio of 1.27 (95% CI, 1.08–1.49). Without including these studies, results of the meta-analysis results showed a marginally nonsignificant, increased risk of mortality in overweight individuals with a pooled RR of 1.16 (95% CI, 1.00–1.36, $I^2 = 0\%$) [1]. Considering the time span, the aforementioned studies by Lederer and Allen would have fallen within similar eras of immunosuppression paradigms of other included studies, and thus, we believe would have contributed meaningful results.

To mitigate the abovementioned concerns, we recommend that future work include all relevant studies to the research question, while using a cut-off year based on evolving immunosuppressive therapy to guide the search criteria. These recommendations will help ensure that transplant clinical practice guidelines are based on the most prudent and robust scientific research.

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Conflicts of interest

The authors have no conflict of interests to declare.

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