

## LETTERS

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**Insulin-like growth factor 1 and delirium**

The paper by Morandi *et al.* (2011), entitled “Insulin-like growth factor-1 and delirium in critically ill mechanically ventilated patients: a preliminary investigation,” is of great interest due to its lack of finding a correlation between serum levels of insulin-like growth factor-1 (IGF-1) and delirium in intensive care unit (ICU) patients.

As reviewed recently by Adamis and Meagher (2011), a large body of data supports the involvement of IGF-1 in the pathogenesis of delirium. A role for IGF-1 in delirium was first suggested by Wilson *et al.* (2005). These investigators measured serum levels of IGF-1 in 100 acutely ill medical inpatients at the time of their admission and found that the 12 patients who later developed delirium had lower levels of IGF-1 (OR: 0.822, CI: 0.69, 0.97,  $p=0.027$ ). A role for lower levels of circulating IGF-1 in delirium has been confirmed by two studies from Adamis and Meagher (2011) and a study from our laboratory on postoperative delirium in knee replacement patients (Kwatra and Rivelli, 2008).

From the foregoing, it is clear that a lack of an association between IGF-1 and delirium needs to be scrutinized. To their credit, Morandi *et al.* point out several factors that could have affected their not finding an association between circulating IGF-1 levels and delirium. However, one factor that Morandi *et al.* did not address is the nature of the IGF-1 assay that they employed. From the work

of endocrinologists, we know that measuring IGF-1 in plasma/serum is full of pitfalls, and proper validation of the assay is needed. Unfortunately, Morandi *et al.* do not provide any details of the IGF-1 assay they used, and it is important to know whether they validated the assay according to the guidelines provided by Frystyk *et al.* (2010).

**References**

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**Insulin-like growth factor-1 and delirium: authors' response**

We read with great interest the comments from Motosko and colleagues (2012) regarding our paper, in which we reported that insulin-like growth factor-1 (IGF-1) was not associated with delirium in our prospective study of critically ill patients (Morandi *et al.*, 2011). Based on these results and those of the other four published studies examining IGF-1 and delirium, we take issue with the statement that a large body of evidence supports IGF-1's role in delirium pathogenesis. As

pointed out by Adamis and Meagher (2011) in their recent systematic review, these five studies were small and produced conflicting results, with only three of the five finding an association between IGF-1 and delirium. Important differences in the patients studied may explain, in part, the conflicting results. Investigations of older medical inpatients who were not critically ill found IGF-1 to be associated with delirium, but neither a study of hip surgery patients (Lemstra *et al.*, 2008) nor our study of intensive care unit (ICU) patients found an association. The relative importance of IGF-1 to delirium might be diminished during critical illness given that a multitude of risk factors are involved in the pathogenesis of delirium in this vulnerable