

# NIH Public Access

Author Manuscript

*Psychoneuroendocrinology*. Author manuscript; available in PMC 2008 August 1

Published in final edited form as:

Psychoneuroendocrinology. 2007 August ; 32(7): 856. doi:10.1016/j.psyneuen.2007.04.012.

## **Cortisol and Insulin in Depression and Metabolic Syndrome**

#### Nicole Vogelzangs, MSc and Brenda W Penninx, PhD

Department of Psychiatry and EMGO Institute, VU University Medical Center, AJ Ernststraat 887, 1081 HL Amsterdam, The Netherlands

In their letter to the Editor, Castillo-Quan et al. suggest that hyperinsulinemia might be an underlying factor explaining the relationship between depression, hypercortisolemia, metabolic syndrome and diabetes. Although this is indeed a potentially interesting mechanism, our data do not provide much evidence for a large effect of hyperinsulinemia. In our study among 867 older persons (Vogelzangs et al., 2007), we showed that hypercortisolemic depression was associated with the metabolic syndrome in an older population. Although we found a weak association between 24-h urinary cortisol and serum glucose in the total sample (adjusted  $\beta = 0.08$ , p = .02), among depressed persons (N=179) cortisol appeared to be associated more strongly with the obesity-related components of the metabolic syndrome such as waist circumference, triglycerides, and high density lipoprotein cholesterol than with serum glucose. Actually, for the latter, the correlation with urinary cortisol was not found to be significant ( $\beta = -0.07$ , p = .39, see Table 3 in our paper).

In our study, we also had assessments of serum insulin available. When exploring the association between urinary cortisol levels and serum insulin, we found a significant but not very large association ( $\beta = 0.07$ , p = .04). However, as with glucose, the association between cortisol and insulin was not significant among the depressed ( $\beta = 0.05$ , p = .48). It seems therefore rather unlikely that in our conducted study insulin was the driving force behind the association between hypercortisolemic depression and the metabolic syndrome.

### Acknowledgements

Partly supported by grant R01 HL72972-01 from the National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health.

#### References

Vogelzangs N, Suthers K, Ferrucci L, Simonsick EM, Ble A, Schrager M, Bandinelli S, Lauretani F, Giannelli SV, Penninx BW. Hypercortisolemic depression is associated with the metabolic syndrome in late-life. Psychoneuroendocrinology 2007;32:151–159. [PubMed: 17224244]

Phone: +31 20 788 5632, Fax: +31 20 788 5664, Email: E-mail: nicolev@ggzba.nl.

All authors have no financial conflicts or other conflicts of interest in this area.

**Publisher's Disclaimer:** This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.