

LETTERS

doi:10.1017/S1041610208007424

Is suicidality associated with acetylcholine?

Mukadam *et al.* (2008) report cholinesterase inhibitors to be effective in treating delirium. This suggests that cholinesterase inhibitors have a broader spectrum of effect than the treatment of dementia alone. Acetylcholine itself interacts with various other neurotransmitters. Cancelli *et al.* (2004) report that a fall in acetylcholine levels, as occurs in dementia, could increase sensitivity to serotonin agonists. Increased sensitivity to serotonin agonists and cholinergic hypoactivity seems to trigger complex visual hallucinations. It has been reported that selective serotonin reuptake inhibitors (SSRIs) may provoke suicidality, especially in young patients. SSRIs may decrease sensitivity of serotonin agonists and raise acetylcholine levels.

For that reason we hypothesize that suicidality may be associated with augmented acetylcholine levels. Cholinesterase inhibitors augment acetylcholine levels and may thereby raise the risk of suicidality. This corresponds to the observation that these medications may induce psychosis (Cancelli *et al.*, 2004). With respect to glutamate, there is evidence that diminished glutamate levels may induce psychoses. Administration of glutamate antagonists may increase the risk of psychosis. For that reason, non-use of glutamate antagonists and cholinesterase inhibitors seems to be appropriate in the treatment of suicidal or psychotic patients.

References

- Cancelli, T., Marcop, G. and Balestrieri, M. (2004). Factors associated with complex visual hallucinations during antidepressant treatment. *Human Psychopharmacology*, 19, 577–584.
- Mukadam, N., Ritchie, C. W. and Sampson, E. L. (2008). Cholinesterase inhibitors for delirium: what is the evidence? *International Psychogeriatrics*, 20, 209–218.

HELMUT NIEDERHOFER

Child and Adolescent Psychiatry, Regional Hospital of Bolzano, Italy

Email: helmutniederhofer@yahoo.de

doi:10.1017/S104161020800759X

Confirmatory factor analysis of the Revised Scale for Caregiving Self-Efficacy in a sample of dementia caregivers

The number of studies aimed at analyzing caregiving distress among carers of people with dementia has grown exponentially in recent years. The study of

variables that may help reduce the impact of caregiving demands on the health of caregivers is an issue of special interest for researchers. Self-efficacy is one of these variables. Perceived self-efficacy has been described as the subjective belief that one can organize and execute courses of action to manage given situations. Higher self-efficacy expectations regarding the caregiver's own ability to handle caregiving challenges have been significantly related to lower scores on burden, anger, anxiety and depression, even after controlling for objective stressors.

Several measures of caregivers' self-efficacy have been developed but the most commonly used is the Revised Scale for Caregiving Self-Efficacy (Steffen *et al.*, 2002). It measures self-efficacy for obtaining respite and responding to disruptive patient behaviors, but also self-efficacy for controlling upsetting thoughts. The purpose of this research is to confirm the factor structure of this scale.

Face-to-face interviews were conducted with 202 family caregivers of people with dementia in Madrid, Spain. Of these, 157 were female (77.7%); 36.0% were spouses; 57.3% were sons/daughters and 65.7% were caring for a relative with Alzheimer's disease. The caregivers' mean age was 58.8 years (s.d. = 12.9), they had been caring for 53.6 months (s.d. = 46.6), and they devoted an average of 11.6 hours each day to caregiving duties (s.d. = 8.1).

Self-efficacy was measured using the Revised Scale for Caregiving Self-Efficacy (Steffen *et al.*, 2002), a 15-item scale that assesses the caregivers' perceptions of their confidence in coping effectively with different caregiving activities. Three factors were originally proposed through exploratory factor analysis: (1) self-care and obtaining respite, (2) responding to disruptive patient behaviors, and (3) controlling upsetting thoughts activated by caregiving activities.

The fit of the original three-factor model to the obtained data has been assessed through confirmatory factor analysis (CFA), using the AMOS software. Marginally adequate fit indexes were obtained ($\chi^2 = 198.91$; $df = 88$; $p = 0.00$; $\chi^2/df = 2.26$; goodness of fit index (GFI) = 0.89; incremental fit index (IFI) = 0.91; comparative fit index (CFI) = 0.90; root mean square error of approximation (RMSEA) = 0.08) as well as a significant association between factors 2 and 3. A second analysis was performed allowing a covariance between the errors (Byrne, 2001) from items 4 and 5, based on a modification index of 67.06 and the content overlap of both items ("Can ask a friend/family member to stay with my relative for a day when you feel the need for a break" and "Can ask a friend/family member to stay with my relative for a week when you need the time for yourself"). According to the recommended criteria for assessing the goodness of fit of the model (e.g. Hu and Bentler, 1999), the fit indexes of this second model show a good fit of the data ($\chi^2 = 120.86$; $df = 87$; $p = 0.01$; $\chi^2/df = 1.38$; GFI = 0.93; IFI = 0.97; CFI = 0.97; RMSEA = 0.04). This modification significantly improved the fit of the model ($\chi^2 = 78.15$; $df = 1$; $p < 0.001$). Factor loadings, which ranged from 0.45 to 0.94, are shown in Figure S1 (published online as supplementary material attached to the electronic version of this paper at www.journals.cambridge.org/jid_IPG).

The results of this study support the differentiation between caregivers' perceived self-efficacy for coping with three activities that are related to caregivers' distress (obtaining respite, responding to behavioral problems, and

controlling upsetting thoughts). Given the protective factor that self-efficacy has for coping with caregiving demands, this differentiation between self-efficacy subscales may be of special interest when identifying specific areas where caregivers may be at greater risk for adaptive coping.

Given that self-efficacy acts as a significant mediator between participation in interventions and reduction in distress (Gallagher-Thompson *et al.*, 2007), the availability of assessment instruments with strong psychometric support may help to identify more clearly the needs of carers of people with dementia.

References

- Byrne, B. M.** (2001). *Structural Equation Modeling with Amos: Basic Concepts, Applications, and Programming*. New Jersey: Lawrence Erlbaum Associates.
- Gallagher-Thompson, D. et al.** (2007). Impact of in-home behavioral management versus telephone support to reduce depressive symptoms and perceived stress in Chinese caregivers: results of a pilot study. *American Journal of Geriatric Psychiatry*, 15, 425–434.
- Hu, L. T. and Bentler, P. M.** (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.
- Steffen, A. M., McKibbin, C., Zeiss, A. M., Gallagher-Thompson, D. and Bandura, A.** (2002). The Revised Scale for Caregiving Self-Efficacy: reliability and validity studies. *Journals of Gerontology: Psychological Sciences*, 57, 74–86.

CECILIA PEÑACOPA,¹ ANDRÉS LOSADA,¹ JAVIER LÓPEZ²
AND MARÍA MÁRQUEZ-GONZÁLEZ³

¹Departamento de Psicología, Facultad de Ciencias de la Salud, Universidad Rey Juan Carlos, Madrid, Spain

²Departamento de Psicología, Facultad de Medicina, Universidad San Pablo CEU, Madrid, Spain

³Departamento de Psicología Biológica y de la Salud, Facultad de Psicología, Universidad Autónoma de Madrid, Spain