Assessing productivity impairment in patients with severe or difficult-to-treat asthma: Validation of the Work Productivity Activity Impairment – Asthma questionnaire

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Rationale: To demonstrate the validity of the Work Productivity and Activity Impairment Questionnaire (WPAI) in patients with severe or difficult-to-treat asthma.

Methods: We evaluated the validity of an asthma-specific adaptation of the WPAI (WPAI-Asthma) in the TENOR study, a multi-center, observational cohort study of patients with physician-assessed severe or difficult-to-treat asthma. For this analysis, we used data from 2,529 adults and adolescents who completed the WPAI-Asthma both at baseline and at 12 month follow-up. Item responses for the WPAI-Asthma were used to calculate 'overall work impairment', 'overall school impairment', and 'activity impairment' on a scale of 0-100% (higher percentages indicating greater impairment). Concurrent validity was assessed relative to the Global Initiative for Asthma (GINA) classification system and the Asthma Therapy Assessment Questionnaire (ATAQ) control index at baseline. Responsiveness was assessed relative to change (from baseline) in quality-of-life as measured by the Mini-Asthma Quality-of-Life Questionnaire (AQLQ).

Results: Severe versus mild-to-moderate disease based on GINA criteria was associated ($p<0.001$) with greater mean work impairment (27 vs. 14%; n=1,242), mean school impairment (33 vs. 17%; n=184), and mean activity impairment (41 vs. 21%; n=2,529). At baseline, poorer asthma control (higher ATAQ scores) correlated ($p<0.001$) with greater impairment at work ($r=0.54$), at school ($r=0.39$), and with activity ($r=0.55$). Longitudinally, improvement in quality-of-life (higher AQLQ score) correlated ($p<0.001$) with less impairment at work ($r=-0.42$), at school ($r=-0.36$), and with activity ($r=-0.48$).

Conclusions: The WPAI-Asthma correlates with other asthma-related health outcomes, supporting its validity as a measure of work, school, and activity impairment in patients with severe or difficult-to-treat disease.

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