

A Real Life Longitudinal Study on Asthma-Related Quality of Life in a Secondary Care Center

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RATIONALE: Asthma negatively impacts health-related quality of life (HRQL). Many cross-sectional studies have already explored the factors associated with HRQL in asthma. To the best of our knowledge, no real life studies have investigated the longitudinal relationship between HRQL in asthma and disease control, demographic and clinical objective parameters in an adult population. **METHODS:** We conducted a longitudinal study on asthmatics recruited from Liege University Hospital Asthma Clinic (Belgium) between 2011 and 2019. We selected those who were ≥ 18 years old at visit one, had two visits, and completed each time two patient-reported outcome measures (PROMs), the asthma control test (ACT) and the mini asthma quality of life questionnaire (AQLQ) (N=290). AQLQ and its dimensions (symptoms, activity, emotional and environmental dimensions) were the dependent variables. Demographic, functional and inflammatory (blood and sputum) characteristics, asthma control and exacerbations were the independent variables. We applied a multivariate regression mixed model (MRMM) to identify the factors associated with change in AQLQ and its dimensions. In addition, we also performed multivariate logistic regression mixed model (MLRMM) to identify the factors associated with reaching an optimal quality of life (AQLQ ≥ 6). **RESULTS:** Median (IQR) time interval between the two visits was 7 (5-19) months. Median (IQR) global AQLQ increased from 4.1 (3-5.1) to 4.6 (3.4-5.9) with significant improvement in all dimensions ($p < 0,0001$) but the environmental one. AQLQ improved irrespective of any treatment change. The proportion of patients with global optimal AQLQ (≥ 6) raised from 8 % at visit-1 to 22% at visit-2. MRMM indicated that change in ACT was the main determinant of change in global AQLQ and all its dimensions ($p < 0,0001$ for all). Change in BMI inversely impacted global AQLQ ($p < 0,01$) and its activity dimension ($p < 0,0001$). MLRMM model found that rise in ACT significantly increase the probability of achieving optimal global AQLQ and its four dimensions (OR = 1.92 for global, $p < 0.0001$; OR = 1.68 for symptoms, $p < 0.0001$; OR = 1.56 for activity, $p < 0.0001$; OR = 1.45 for emotional, $p < 0.0001$; OR = 1.20 for environmental, $p < 0.0001$). Moreover, optimal AQLQ in the activity dimension was inversely related to change in BMI (OR = 0,87; $p < 0.01$) and positively associated with change in fractional exhaled nitric oxide (FeNO) (OR = 1,012; $p < 0.01$). **CONCLUSIONS:** Asthma control is the main determinant of change in asthma quality of life, but BMI and FeNO may significantly impact the activity dimension in an opposite direction.

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