Systematic Review and Meta-Analysis of the Magnitude of the Effect on the AQLQ and ACQ in Asthma Clinical Trials

Eric D Bateman,1 Dirk Esser,2 Costal Chirila,3 Maria Fernandez,3 Andy Fowler,4 Petra Moroni-Zentgraf,2 J Mark Fitzgerald5

1Department of Medicine, University of Cape Town, South Africa; 2Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany; 3RTI Health Solutions, Research Triangle Park, NC, United States; 4Boehringer Ingelheim Ltd, Bracknell, Berkshire, United Kingdom; 5UBC and VGH Divisions of Respiratory Medicine, Institute for Heart and Lung Health, Vancouver, British Columbia, Canada

BACKGROUND

- There is increasing interest in combining treatments to address asthma-related exacerbations, modulate symptoms, and ensure good adherence to treatment.
- New treatment modalities, such as exerts, biologics, and anticholinergic agents, are being evaluated in multiple clinical trials.
- Selecting appropriate endpoints for studies of treatments in asthma requires great care.
- Many health authorities require evidence of benefits in patient-reported outcomes for the registration and positioning of new treatments.

RESULTS

- The AQLQ model was compared to other outcomes, such as the Asthma Quality of Life Questionnaire (ACQ), between any two treatments. The inverse of the standard error adjusted least squares means and adjusted mean differences were calculated using the PROC MIXED procedure in SAS.

METHODS

- A systematic literature review was conducted evaluating Asthma Quality of Life Questionnaire (AQLQ) and Asthma Control Questionnaire (ACQ) in asthma clinical trials, with the study registered at clinicaltrials.gov.
- Double-blinded randomized controlled trials (RCT) of adolescent and adult patients with asthma or chronic obstructive pulmonary disease (COPD) were included. The primary outcome was change from baseline to the time of the primary endpoint (positive mean change lower than 0.5).

CONCLUSIONS

- In clinical studies of new established asthma therapies, the AQLQ was sensitive to treatment effects with changes from baseline of the MID. However, when comparing placebo plus placebo plus treatment groups, mean changes in AQLQ were generally below the MID.
- The magnitude of AQLQ score changes was sensitive to trial design factors, such as the presence of a run-in period, treatment during the run-in, background ICS and treatment, type of medication used for the run-in, type of medication used for the treatment.
- Use of ICS during run-in and as background is associated with marked placebo effects, and may reduce the likelihood of detecting beneficial effects of new add-on therapies.
- The AQLQ results were largely in line with those for the ACQ, but should be interpreted with caution due to the small number of studies analyzed.

DISCLOSURE

- This study was funded by Boehringer Ingelheim.

CONTACT INFORMATION

Eric Bateman, MD
Professor of Respiratory Medicine
Head, Division of Pulmonology
Department of Medicine, University of Cape Town
Groote Schuur Hospital, Groote Schuur Campus
Cape Town, South Africa
Phone: +27 21 767 6991
E-mail: bateman.e@uct.ac.za