



Review Article

Quality of Life in Patients with Asthma: A Comprehensive Review with a Pharmacovigilance Perspective

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Background: Asthma is a chronic respiratory disorder characterized by variable respiratory symptoms and limitation of airflow. Although appropriate pharmacological treatment can substantially improve disease control, asthma and its treatment may influence patients' physical, psychological and social well-being. Quality of life (QoL) assessment therefore provides an important patient-centred measure of treatment outcomes. Pharmacovigilance complements conventional clinical assessment by identifying, evaluating and preventing adverse effects and other medicine-related problem. **Objective:** To adverse effects that may influence patient well-being, adherence and therapeutic outcomes review the impact of asthma and its pharmacological management on quality of life and to discuss the role of pharmacovigilance in identifying treatment-related. **Methods:** This review will synthesize information from published scientific literature, authoritative pharmacovigilance resources and the patient-related data supplied for the present study. The analysis will consider demographic characteristics, asthma-related clinical features, pharmacotherapy, reported adverse drug reactions/events, treatment adherence and quality-of-life outcomes. The supplied patient data will be analyzed descriptively without reproducing copyrighted text or tables from previously published sources.

Keywords: Asthma; Quality of life; Pharmacovigilance; Adverse drug reactions; Medication adherence; Patient-reported outcomes; Drug safety; Asthma therapy.

INTRODUCTION

Asthma is a chronic respiratory disease that can substantially affect daily functioning and well-being. Symptoms such as wheezing, cough, chest tightness and breathlessness may interfere with sleep, exercise, education, employment and social activities. The burden of asthma is therefore not limited to physiological impairment; it can also influence emotional health, social participation and overall quality of life. The goals of asthma management extend beyond short-term symptom relief. Effective treatment aims to achieve good symptom control, reduce future exacerbation risk and minimize treatment-related adverse effects. Contemporary asthma management therefore requires consideration of both therapeutic effectiveness and safety. Pharmacovigilance is concerned with the detection, assessment, understanding and prevention of adverse

effects and other medicine-related problems. The World Health Organization emphasizes that safety information obtained after medicines are used in broader and more diverse populations is important because pre-authorization clinical trials have limitations in detecting uncommon or delayed adverse effects. In asthma, pharmacovigilance is particularly relevant because patients may require long-term pharmacotherapy and, in some cases, multiple medicines. Adverse effects or concerns regarding treatment may influence adherence and consequently disease control. Patient-reported experiences can therefore provide useful complementary information for medication-safety monitoring. Quality-of-life assessment offers a patient-centred perspective that may not be fully captured by pulmonary function measurements or symptom scores alone. Combining

QoL assessment with medication history, adherence assessment and suspected ADR monitoring may provide a broader understanding of the real-world benefit–risk profile of asthma treatment.

METHODOLOGY

Study Design

A descriptive observational approach will be used for analysis of the supplied patient data, supported by a comprehensive review of relevant scientific literature.

Study Population

The study population will consist of patients diagnosed with asthma whose clinical and/or medication-related information is available in the supplied dataset.

Data Collection

The following variables may be evaluated according to the information available in the dataset:

- Age
- Sex
- Duration of asthma
- Asthma-related symptoms
- Disease severity/control indicators
- Current and previous medications
- Duration of pharmacotherapy
- Medication adherence
- Suspected adverse drug reactions/events
- Previous exacerbations or hospitalizations
- Quality-of-life score
- Relevant clinical characteristics

Quality-of-Life Assessment

Quality of life will be assessed using the questionnaire or validated assessment instrument used during data

collection. Scores will be interpreted according to the instructions applicable to the specific instrument used. If you send me the exact questionnaire/data, I can write this section specifically for your study rather than assuming an instrument.

Pharmacovigilance Assessment

Suspected adverse drug reactions/events will be categorized according to the available patient information, including suspected medicine, reported reaction, onset, outcome and relevant temporal association. Where sufficient information is available, causality and severity may be assessed using an appropriate standardized method. In India, the Pharmacovigilance Programme of India (PvPI) encourages reporting of suspected adverse reactions, including known or unknown, serious or non-serious and frequent or rare reactions.

Statistical Analysis

Continuous variables will be summarized using appropriate measures such as mean $\pm$ standard deviation or median with interquartile range, depending on data distribution. Categorical variables will be presented as frequencies and percentages. Where appropriate, associations between demographic/clinical characteristics, medication-related factors, ADRs and QoL outcomes may be evaluated using suitable statistical tests. The final statistical methods will be selected according to the structure and sample size of the supplied dataset.

RESULTS

This section will be completed from your actual data.

Clinical Characteristics

The prevalence of relevant asthma-related symptoms, disease duration, exacerbation history and other available clinical variables will be summarized.

Pharmacotherapy Pattern

The commonly prescribed asthma medicines and combinations will be presented according to the actual dataset.

Adverse Drug Reactions

Suspected ADRs/events will be presented according to the suspected medication, reaction type, frequency, severity and outcome where available.

Quality-of-Life Findings

QoL scores will be summarized according to the instrument used. Where appropriate, QoL findings will be compared across relevant patient groups.

Relationship Between Pharmacovigilance Variables and Quality of Life

The analysis will explore whether reported adverse effects, medication-related problems, adherence or other available variables are associated with poorer QoL.

DISCUSSION

Asthma can influence multiple dimensions of patients' lives, including physical functioning, sleep, psychological well-being and participation in routine activities. Consequently, assessment of treatment effectiveness should not rely exclusively on clinical parameters. Patient-reported quality-of-life outcomes can provide additional information about how patients experience their disease and its treatment. Long-term pharmacotherapy is an important component of asthma management. While medicines can improve disease control and reduce the risk of exacerbations, adverse effects and treatment-related concerns may negatively affect patient satisfaction and adherence. Pharmacovigilance provides a structured framework for recognizing and evaluating such safety concerns. The importance of post-marketing monitoring arises partly because clinical trials generally involve selected populations and may not be sufficiently large or long enough to detect all uncommon or delayed adverse effects. Real-world pharmacovigilance can therefore complement clinical-trial safety information. Patient involvement is also important. Patients may notice treatment-related effects that are not immediately apparent during routine clinical consultations. Individual case safety reports can be submitted by healthcare professionals and patients, making patient-reported information a relevant component of pharmacovigilance systems. An integrated approach combining quality-of-life measurement, medication review, adherence

assessment and ADR monitoring may therefore provide a more comprehensive assessment of asthma treatment. Such an approach can help healthcare professionals distinguish between poor disease control, treatment-related problems and other factors affecting patient well-being.

Pharmacovigilance Perspective

The pharmacovigilance perspective of asthma management extends beyond simply counting adverse reactions. It includes:

Detection of suspected ADRs: Identifying symptoms or events that may be related to asthma medicines.

Assessment of causality: Evaluating the likelihood that a medicine contributed to the reported event.

- 1. Assessment of severity and seriousness:** Determining the clinical significance of reported events.
- 2. Documentation and reporting:** Recording suspected ADRs using appropriate pharmacovigilance reporting mechanisms.
- 3. Signal identification:** Recognizing unusual patterns that may require further investigation.
- 4. Benefit–risk assessment:** Considering treatment benefits together with potential harms.
- 5. Patient counselling:** Educating patients about correct medicine use, possible adverse effects and the importance of reporting suspected reactions.
- 6. Medication adherence monitoring:** Identifying whether adverse effects or treatment concerns contribute to non-adherence.
- 7. Quality-of-life monitoring:** Evaluating how treatment-related problems affect patients' daily lives.

Pharmacovigilance ultimately supports safer and more rational medicine use and contributes to patient safety.

Clinical Implications

The findings of this study may be useful for pharmacists, physicians and other healthcare professionals involved in asthma care. Routine medication review can help identify potential treatment-related problems. Patients should receive appropriate counselling regarding medication use, inhaler technique, expected therapeutic effects and suspected adverse reactions. Incorporating QoL assessment into clinical follow-up may help identify patients whose disease burden or treatment-related problems remain inadequately controlled despite apparently appropriate therapy.

LIMITATIONS

The limitations of the study will depend on the characteristics of the supplied dataset. Potential limitations may include a relatively small sample size, single-centre data collection, observational study design, reliance on patient-reported information and the possibility of incomplete documentation of suspected adverse reactions. If a cross-sectional design is used, causal relationships between asthma treatment, adverse effects and quality of life should not be inferred solely from observed associations.

CONCLUSION

Quality of life represents an important patient-centred outcome in asthma management. Asthma symptoms, disease burden, medication-related problems and suspected adverse reactions may collectively influence patients' physical, psychological and social well-being. A pharmacovigilance-oriented approach can complement conventional assessment of asthma control by identifying suspected adverse drug reactions, medication-related problems and patient-reported treatment concerns. Integrating quality-of-life assessment with medication review, adherence monitoring and ADR reporting may support individualized benefit–risk assessment and improve the safe and rational use of asthma medicines. Further studies using larger populations, standardized QoL instruments and systematic ADR monitoring are warranted to clarify the relationship between asthma pharmacotherapy, medicine safety and patient quality of life.

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Cite: Arjun Sangeeth*, Quality of Life in Patients with Asthma: A Comprehensive Review with a Pharmacovigilance Perspective, *Int. J. Med. Pharm. Sci.*, 2026, 2 (10), 199-202. <https://doi.org/10.5281/zenodo.23231535>