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EVALUATION OF QUALITY OF LIFE IN DIABETIC PATIENTS WITH RESPIRATORY INFECTIONS EXPERIENCING STEROID INDUCED HYPERGLYCEMIA USING WHOQOL-BREF: A SYSTEMATIC LITERATURE REVIEW

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Abstract:
Respiratory infections remain a significant cause of morbidity and mortality among diabetic patients. Corticosteroids are commonly used in the management of respiratory diseases due to their anti-inflammatory effects; however, prolonged or high-dose steroid therapy can lead to Steroid Induced Hyperglycemia (SIH), especially in individuals with pre-existing diabetes mellitus. Steroid Induced Hyperglycemia adversely affects glycemic control, increases the risk of complications, prolongs hospitalization, and negatively impacts the Quality Of Life (QOL) of patients. The World Health Organization Quality of Life (WHOQOL) assessment tools provide a standardized method to evaluate physical, psychological, social and environmental domains of quality of life in diabetic patients. This systematic literature review focuses on evaluating the quality of life among diabetic patients with respiratory infections experiencing Steroid-Induced Hyperglycemia using WHOQOL assessment methods. The review highlights the prevalence of SIH, factors affecting quality of life, clinical consequences, and the role of healthcare professionals in improving patient outcomes.
KEYWORDS: Diabetes Mellitus, Respiratory Infections, Steroid-Induced Hyperglycemia, Quality of Life, WHOQOL-BREF

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INTRODUCTION:

Diabetes mellitus is a chronic metabolic disorder characterized by persistent hyperglycemia resulting from impaired insulin secretion, insulin action or both. Patients with diabetes are more susceptible to respiratory infections such as pneumonia, chronic obstructive pulmonary disease exacerbations, influenza, and COVID-19[1]. Corticosteroids are widely prescribed in respiratory illnesses to reduce inflammation and improve respiratory function. However, glucocorticoids can impair glucose metabolism and precipitate steroid-induced hyperglycemia, thereby worsening glycemic control and increasing disease burden[2].

Quality of life assessment is an important aspect of chronic disease management. The WHOQOL-BREF instrument developed by the World Health Organization evaluates physical health, psychological well-being, social relationships, and environmental factors[3]. Assessing quality of life in diabetic patients with respiratory infections and SIH helps healthcare providers understand the overall impact of disease and treatment on patient well-being[4].

PREVALENCE OF STEROID-INDUCED HYPERGLYCEMIA

Steroid-induced hyperglycemia is commonly observed in hospitalized patients receiving corticosteroid therapy. Studies report that glucocorticoid therapy significantly increases blood glucose levels in both diabetic and non-diabetic individuals[5]. The prevalence of SIH is particularly high among patients with respiratory illnesses requiring systemic corticosteroids. Poor glycemic control in such patients is associated with increased complications, prolonged hospital stay, and reduced quality of life[6].

FACTORS AFFECTING QUALITY OF LIFE

1. Disease-related factors
• Severity of respiratory infection
• Duration of hospitalization
• Presence of diabetic complications

2. Therapy-related factors
• Long-term corticosteroid therapy
• Polypharmacy
• Adverse drug reactions

3. Psychological factors
• Anxiety and depression
• Fear of complications
• Reduced social functioning

4. Healthcare-related factors
• Inadequate patient counselling
• Poor follow-up and monitoring
• Limited awareness regarding SIH

WHOQOL-BREF ASSESSMENT

The WHOQOL-BREF is a validated quality of life assessment tool developed by the World Health Organization[7].

Structure:
• 26 items
• Four domains:
- Physical health
- Psychological health
- Social relationships
- Environment

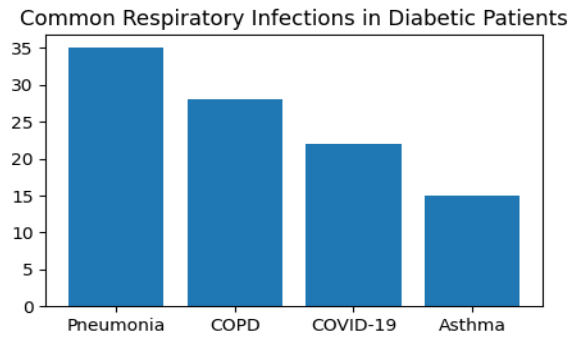
Interpretation:
Higher scores indicate better quality of life, whereas lower scores reflect impaired quality of life and increased disease burden[8].

CLINICAL CONSEQUENCES OF SIH

Steroid Induced Hyperglycemia can lead to poor clinical outcomes including uncontrolled diabetes, delayed recovery from infection, increased risk of secondary infections, prolonged hospitalization, and increased mortality. SIH also negatively affects psychological well-being and daily functioning, thereby reducing overall quality of life[9].

EPIDEMIOLOGY OF RESPIRATORY INFECTIONS IN DIABETIC PATIENTS

Diabetic patients are at increased risk of developing respiratory infections due to impaired immune function, chronic inflammation and altered pulmonary physiology[10]. Pneumonia, influenza, tuberculosis, Chronic Obstructive Pulmonary Disease (COPD) exacerbations, and COVID-19 are commonly reported respiratory illnesses in diabetic populations. Studies indicate that diabetic individuals experience higher hospitalization rates, severe complications, and increased mortality compared to non-diabetic patients[11].



MECHANISM OF STEROID-INDUCED HYPERGLYCEMIA

Glucocorticoids increase insulin resistance and stimulate hepatic glucose production. They reduce

peripheral glucose utilization and impair pancreatic beta-cell function[12]. Hyperglycemia commonly develops within hours of corticosteroid administration and is more pronounced in patients with pre-existing diabetes mellitus[13].

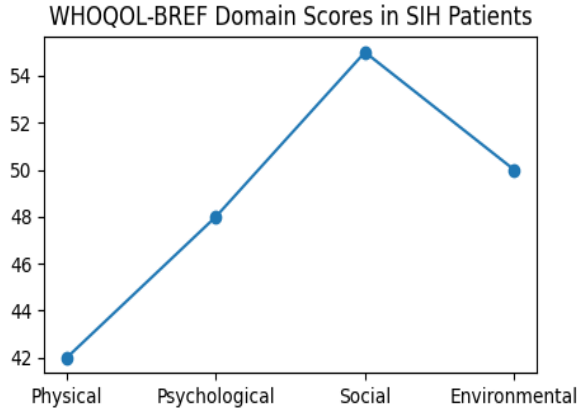
IMPACT OF SIH ON WHOQOL DOMAINS

Physical Domain:
- Fatigue
- Reduced mobility
- Sleep disturbances
- Increased dependence on medical treatment[14]

Psychological Domain:
- Anxiety
- Depression
- Emotional stress

Social Domain:
- Social isolation
- Reduced interpersonal interaction

Environmental Domain:
- Financial burden
- Frequent hospital visits
- Reduced access to healthcare resources[15]



MULTIDISCIPLINARY MANAGEMENT

Management of steroid-induced hyperglycemia requires collaboration between physicians, endocrinologists, pharmacists, nurses, dieticians, and respiratory therapists[16]. Regular glucose monitoring, insulin adjustment, dietary modifications, and patient counseling significantly improve quality of life outcomes[17].

CLINICAL CONSEQUENCES OF STEROID-INDUCED HYPERGLYCEMIA

Complication	Clinical Impact
Poor Glycemic Control	Delayed recovery and increased complications
Secondary Infections	Increased morbidity
Hospitalization	Longer hospital stay
Psychological Stress	Reduced quality of life

INTERVENTIONS TO IMPROVE QUALITY OF LIFE

Intervention	Benefit
Blood Glucose Monitoring	Early detection of hyperglycemia
Patient Education	Improved medication adherence
Dietary Counseling	Better glycemic control
Clinical Pharmacist Support	Optimization of therapy[18]

ROLE OF PATIENT EDUCATION AND CLINICAL PHARMACIST

Patient education regarding blood glucose monitoring, medication adherence, lifestyle modification, and awareness about steroid therapy is essential[19]. Clinical pharmacists play an important role in identifying drug-related problems, monitoring glycemic control, counselling patients, and optimizing therapy to improve patient outcomes and quality of life[20].

CONCLUSION:

Steroid-induced hyperglycemia significantly affects the quality of life of diabetic patients with respiratory infections. WHOQOL assessment tools provide a reliable method for evaluating patient well-being across multiple domains. Early identification of SIH, proper glycemic monitoring, patient counselling, and multidisciplinary management are essential to improve quality of life and reduce disease burden. Further studies are required to explore effective interventions for improving QoL in this patient population.

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