Systematic Review and Meta-analysis of Briakinumab, a Fully Human Interleukin 12/23 Monoclonal Antibody, for the Treatment of Moderate to Severe Chronic Plaque Psoriasis

INTRODUCTION

Psoriasis is a chronic autoimmune disease characterized by formation of red, itchy, scaly patches of abnormal skin.  
Psoriasis is estimated to affect 2-3% of the population worldwide.  
Psoriasis has systemic manifestations as well.  
Severe psoriasis may increase the risk for cardiovascular events such as acute myocardial infarction.  
Immune pathways mediated by a variety of cytokines appear to have an important role in psoriasis disease mechanisms.  
Important cytokines believed to be involved in the pathogenesis of psoriasis include TNF-α, IL-12, IL-23, IL-17, and IL-22.  
Briakinumab is a fully human anti-IL-12/23 monoclonal antibody which has been shown to be efficacious in the treatment of moderate-to-severe psoriasis.

OBJECTIVE

To evaluate the efficacy and safety of Briakinumab, a fully human interleukin 12/23 monoclonal antibody, in the treatment of moderate-to-severe chronic plaque psoriasis (CPP)

MATERIALS AND METHODS

Literature search was conducted in MEDLINE, EMBASE, Cochrane Library, and clinicaltrials.gov without any language or date restrictions.  
In addition, references of the included studies were screened for additional studies.  
All RCTs examining the efficacy and safety of briakinumab in adult patients with moderate-to-severe chronic plaque psoriasis were included.  
Study quality of included trials was assessed using the Cochrane Risk of Bias Tool.  
Two authors independently selected papers, extracted data and assessed quality.  
Our primary outcome was improvement in symptom severity assessed by Psoriasis Area Severity Index (PASI) 12 week score and Global Physician Assessment (GPA-10) 12 week score.  
Secondary outcomes were quality of life, assessed using Dermatology Life Quality Index (DLQI) and adverse events.  

RESULTS

A total of 8 RCTs with 2659 CPP patients were analysed.  
After 12 weeks of therapy, patients receiving Briakinumab (in comparison with Control) showed:  
Better achievement of PASI 75  
Better improvement in symptom severity (PASI)  
Better improvement in PASI 90  
Better improvement in DLQI scores  
Similar adverse event profile  
Removal of Gordon 2012 study from analysis reduced the heterogeneity.

DISCUSSION

Current therapy of psoriasis includes:  
A topical agent such as cortisone, corticosteroids, adalimumab, and etanercept.  
Systemic agents such as methotrexate and cyclosporine.  
Biological therapy includes anti-IL-12/23p40 monoclonal antibodies (Briakinumab, Ustekinumab, and Danalizumab).  
Disadvantages of biologics are their high cost and strictly parenteral route of administration.  
In developed countries, biologicals are being widely used for moderate-to-severe psoriasis.  
The pathogenesis of psoriasis involves activation of T cells and cytokines; Psoriasis is now recognized as one of the most common T cell-mediated disorders.  
Antigen-inducation activation of T cells leads to initiation of cellular cascade  
This leads to proliferation and differentiation of cutaneous T cells—keratinocyte alterations—psoriasis plaques.  
As part of this cellular cascade, many proinflammatory cytokines are released, including TNF-α and various interleukins.  
More recently, the role of structurally related cytokines IL-12 and IL-23 in psoriasis has become apparent.  
IL-12 and IL-23 are thought to be involved in controlling differentiation of T helper cells, during the psoriasis immune response.  
Briakinumab, a fully human anti-IL-12 /23p40 monoclonal antibody, has been shown to be highly effective and well tolerated in the treatment of psoriasis in many studies.

CONCLUSION

Briakinumab associated with significant improvement in symptom severity compared to other treatments among patients with moderate to severe CPP.  
As the reported outcomes show wide confidence intervals, results should be interpreted with some caution.

REFERENCES


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