A RANDOMISED, DOUBLE BLIND, PLACEBO-CONTROLLED PILOT STUDY OF THE CLINICAL AND LABORATORY EFFECTS OF A MIXTURE OF BETA-SITOSTEROL AND BETA-SITOSTEROL GLUCOSIDE IN ACTIVE RHEUMATOID ARTHRITIS

AMERICAN JOURNAL OF CLINICAL NUTRITION (200) 75, ABSTACT 40 351S

I.C.Louw[1], A.M. Halland[1], P. Bouic[2], M. Freestone[2], J. Lamprecht[3].

[1]Rheumatology Unit, Panorama Hospital, Cape Town, South Africa; [2]Department of Medical Microbiology, Stellenbosch University, South Africa; [3]Department of Pharmacology, Stellenbosch University South Africa.

Introduction: The mixture of beta-sitosterol (BSS) and beta-sitosterol glucoside (BSSG) has been shown to have anti-inflammatory activities in vitro, inhibiting the secretion of IL6 and TNF α from activated monocytes. Both of these factors are implicated in the pathogenis of RA.[1] In vivo it has been shown to up regulate the levels of DHEA, low serum DHEA levels have been reported in patients with RA and SLE.[2]

Objective: It is proposed that the use of BSS:BSSG mixture may result in the improvement of active rheumatoid arthritis as assessed by ACR 20% response criteria.

Methods: After a two week placebo run-in phase, patients (N=18) with active rheumatoid arthritis were randomised to receive 20mg BSS plus 0,2mg BSSG on 205mg carrier tds or 225mg carrier (placebo) tds for 24 weeks. Mean demographics of the patient groups were similar 94% female, age 54 years, disease duration 5 years. All patients had active RA with at least 2 of the following; 4 swollen joints or 6 tender joints or morning stiffness more than 30 minutes or raised ESR or CRP. Stable DMARD doses were required for 3 months prior to the start and the duration of the study. No new DMARD therapy could be initiated during the study. Oral or intra-muscular steroid use was not allowed within 4 weeks prior to the start, or during the study. NSAID use was restricted to Diclofenac 25mg tds and paracetamol use was restricted to 4g per day. Patient response was assessed in terms of ACR response criteria (> 20% improvement) at weeks 0, 8, 24 and 4 weeks after completion of study. Comparative data to determine significant changes between active and placebo groups was calculated with the Kruskal-Wallis 2-sample test. Changes within a group relative to baseline was calculated with the Wilcoxon rank test.

Results: 18 Patients were entered into the trial (8 on BSS:BSSG mixture and 10 on placebo). In the active group a statistically significant decrease in mean tender joint count was seen from baseline to 24 weeks (6 vs 0,88, 85% ACR response rate improvement). The mean swollen joint count decreased from 4,8 at baseline to 3 at 24 weeks, not statistically significant but 37,8% ACR response rate improvement. Patient's assessment of pain was significantly decreased from baseline to 24 weeks (4,2 vs 3, p = 0,04; 28% ACR response rate improvement. Patient's global assessment of disease activity improved by 33% ACR response rate from baseline to 24 weeks. Physician's global assessment of pain improved by 47% ACR response rate from baseline to 24 weeks (p = 0,02). The MHAQ decreased from baseline to 24 weeks (7,1 vs 3,7; p = 0,05; 47% ACR response rate improvement). The ESR decreased from baseline to 24 weeks (31 vs 13,4; p = 0,01; 56% ACR response rate improvement).

The placebo group had no significant improvement in the ACR 20% improvement criteria. At 24 weeks, improvement was found in active vs placebo in regards to tender joint count, MHAQ, physician's global assessment and patient's assessment of disease activity. ($p < 0,05$). The BSS:BSSG mixture was well tolerated. No serious adverse events occurred in the active group.

Conclusion: The result of this pilot study, taken with the safety profile of BSS:BSSG justifies further studies in a large group of active rheumatoid arthritis patients.

References

1. Bouic P, Lamprecht J (1999) Plant sterols and sterolins : a review of their immune modulating properties. Alt. Med. Rev. 4, 170-177.

2. Bouic PJD, Clark A, Lamprecht J, etal (1999): The effects of BSS and BSSG mixture on selected immune parameters of marathon runners; inhibition of post marathon suppression and inflammation. Int J. Sports Med 20, 258 – 262