VSL 200

The Effects of DMG on Collagen-Induced Inflammation in Rats

Objective: To evaluate Dimethylglycine for its effects on collagen-induced inflammation in rats.

Summary: Collagen-induced arthritis (CIA) is an acceptable animal model of rheumatoid arthritis and can be used to evaluate the use of substances in reducing inflammation. Dimethylglycine (DMG) has a long history of beneficial uses including modulation of the immune system.

Background: In this model, collagen II injections are used to create inflammation, redness, swelling, and pain to evaluate the effectiveness of specific agents in controlling inflammation and reversing arthritic symptoms. The collagen II used in this experiment was prepared according to the method established by Trentham et al. (1977), which through preliminary testing was found to yield a higher and more consistent induction of arthritis symptoms than other methods tested.

Methods: Eighteen rats were divided into two groups (control & treatment). Collagen II was administered intradermal (i.d.) into the left hind foot-pad with a booster injection into the tail one week later. The nine animals in the treatment group were given intraperitoneal (i.p.) injections of DMG (100 mg/kg/day), starting 14 days prior to administration of collagen II, and continuing for 30 days after collagen II injection. The nine rats in the control group were similarly injected using sterile water instead of DMG.

Results: Under these conditions, of the nine animals receiving DMG, only two developed the characteristic inflammation and swelling to any extent. In contrast, all of the control animals developed severe joint inflammation and swelling.

Effect of DMG on Collagen-Induced Inflammation in Rats	
Group	***Incidence of Inflammation (%)***
Control	**100%**
DMG	**22%**

Conclusion: Only 22% of the rats treated with DMG showed any signs of swelling and inflammation compared to 100% of controls. DMG was found to be effective in reducing the onset of inflammation.

Clinical Relevence: This work was used to support the use of DMG to reduce inflammation resulting in U.S. Patent #5,026,728 on the “treatment of arthritis and inflammation using dimethylglycine” which was granted in June of 1991.

Belkowski S and Lawson J. The effects of DMG on collagen – induced inflammation in rats. Clemson University, 1989.