

LIGNISUL MSM (Methylsulfonylmethane)

IN THE TREATMENT OF ACUTE ATHLETIC INJURIES

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ABSTRACT:

Twenty-four subjects (both male and female) were seen in a clinical office setting. The subjects suffered from acute injuries (under 30 days) sustained during the course of athletic endeavor. The patient's were selected on a random basis to receive either a placebo or Lignisul MSM (methylsulfonylmethane) in addition to routine chiropractic manipulation, ultrasound and muscle stimulation at each visit. All patients were treated with similar therapy and all patients received unmarked capsules of either a placebo or Lignisul MSM. Patients were discharged from care once all their symptoms were resolved. Of the twelve patients who received placebo four of the twelve graded their results as excellent or good, while of the twelve patients on Lignisul MSM seven of the twelve graded their symptom reduction as excellent or good. This represented a 58.3% of symptom reduction on Lignisul MSM, versus 33.3% on placebo. Of greater significance, however, was the fact that patients on Lignisul MSM had 3.25 visits on an average, while those on placebo had 5.25 visits. This means that patients on Lignisul MSM had 40% fewer visits to the office before reaching a recovery phase. This represents sizable economic advantage.

This paper discusses the chemical nature of MSM, the possible mechanisms involved in treatment of such sports injuries and the implications for future usage of this phytonutrient for the treatment of short term athletic injuries.

INTRODUCTION:

Methylsulfonylmethane (MSM) was first discovered in the late 1970's by researchers at Oregon Health Sciences University in Portland. It is a metabolite of DMSO (Dimethyl sulfoxide). By 1965, more than one thousand five hundred studies had been conducted on DMSO involving about one hundred thousand patients. DMSO is used for a host of problems, primarily musculoskeletal inflammatory conditions. However, by 1978, the FDA approved DMSO only as a prescriptive treatment for interstitial cystitis. When DMSO enters the body, approximately 15% of it is converted to MSM, its major breakdown component. MSM is in reality DMSO 2 (dimethyl sulfone). MSM has had widespread use since the late 1970's in veterinary medicine where it has been used to treat inflammatory conditions, including muscle and bone disorders. (1, 2, 3, 4, 5)

In 1998, one of the authors of this paper, Ronald M. Lawrence, performed a double-blind study using patients with degenerative arthritis. This study showed an 82% decrease in symptomatology after six weeks of usage on a three-times-a-day dosage. (6) It has been postulated that MSM takes anywhere from three to six weeks to produce significant changes in regard to the treatment of arthritic disorders, but to date there has been no study that has evaluated it for acute short-term injuries.

R. D. Moore and J. I. Morton studied the effect of MSM in inflammatory joint disease in MRL/lpr mice. (7) In addition, R.D. Moore and Morton studied the effect of 3% water solutions of dimethyl sulfone (DMSO 2) in P/w mice and found a diminishment in death due to lupus nephritis.(9) B. V. Siegel and J. Morton studied the effects of dimethyl sulfone on murine autoimmune lymphoproliferative disease and explained the benefits of this compound. (9) Since one-third of the DMSO 2 molecule is composed of sulfur, a relationship to sulfur metabolism has been postulated. Several papers have been written about sulfur and it's roles in such disorders of the musculoskeletal type. (10,11) For this reason, and because of the

effective results noted in the treatment of degenerative arthritis, this study was undertaken to evaluate the potential effects of DMSO 2 (MSM) in athletic injuries involving muscles, tendons, and ligaments.

METHODS

Twenty-four subjects were examined in a clinical practice setting (the practice of Daniel Sanchez and Mark Grosman). This practice deals with a large number of athletic injuries on a daily basis. The first twenty-four subjects who came in with complaints of acute injury were admitted into the study and the subjects were divided in a random fashion into two groups (A and B). The twelve subjects in group A received a container labeled "A" which had a thirty-day supply of capsules, while the twelve in group B received a contained labeled "B". The doctors and patients involved were not privy as to whether they received placebo or actual Lignisul MSM. The code, which defined whether bottle A or bottle B contained placebo or active substance, was not broken until after the completion of the study.

Nine of the twelve patients taking bottle A had diagnoses of sprain/strain injuries, one had an acute episode of bilateral chondromalacia patellae, one patient had a right lateral epicondylitis (right elbow), and one patient had a radicular syndrome (bilaterally) in addition to a lumbar strain syndrome. In the group taking bottle B, ten subjects had a sprain/strain diagnoses, while one subject had a radiculopathy involving the left lower extremity along with a lumbar sprain syndrome and one patient exhibited a lateral epicondylitis involving the right elbow.

Each patient received chiropractic manipulation in a standard fashion, ultrasound (five watts for ten minutes) and muscle stimulation (applied in a standard fashion for five minutes). Each subject took the material in either bottle A or bottle B three times a day with meals. The only differential between treatment given to each group was the administration of either the placebo or the phytonutrient Lignisul MSM.

All patients were examined in a similar fashion for angle of motion of the part or parts involved and this was duly recorded. Patients were also quizzed as to subjective complaints at the time of each visit. In addition, palpatory findings in regard to the musculature in the

involved area was recorded on the basis of zero to four plus, with zero being the absence of any type of muscle spasm beyond that of a normal resting state, while four-plus represented extreme muscle spasm based on the rigidity of the muscle involved. This information was recorded at each visit as well. In those injuries involving the upper extremities a Jamar Hand Dynamometer evaluation of grip strength was recorded at each visit. In those exhibiting lower extremity or low back injuries, straight-leg raising testing was performed at each visit and the degrees of elevation from the horizontal were noted and recorded.

RESULTS:

Those patients in the aliquot which consumed the Lignisul MSM, on average, reported a faster reduction of symptomatology than those on the placebo. Four of the subjects taking the MSM reported the “Disappearance” of symptoms after taking the capsules for a very short period of time. (We shall discuss this below). Symptom resolution and evaluation also consisted of the objective findings noted by the examining doctors at each visit. Response of the patients in regard to their symptoms were graded on a scale of zero to ten with ten being the severest pain and zero representing an absence of pain. This evaluation of the symptom level of pain was performed at each of the visits. Therefore the patients were evaluated objectively by the doctor at each visit and there was a subjective evaluation in regard to the patient’s own perception level of pain.

Since we were dealing with very small study groups the excellent and good categories were combined in arithmetic fashion and the satisfactory category and poor category were grouped together, again for purposes of statistical evaluation in using this small group of subjects. Seven out of twelve in the A category showed excellent to good results (58.3%). Those in the B category showed four out of twelve having excellent to good results (33.3%). In the satisfactory to poor categories, the total for the A group was five of twelve (41.66%) versus eight of twelve in the B category (66.66%).

Since economic considerations are very important, we determined the number of visits for each group. The number of visits, on average, for group A was 3.25 versus group B which was 5.25 visits. This represents a 40% reduction in visits. The economic advantages of reduced number of office visits was clearly noted with patients on Lignisul MSM. This is also reflected in reduced disability time.

One patient in group A (who had an acute flare-up of bilateral chondromalacia patellae) noted complete resolution of her pain within two visits. Past episodes of this

problem had usually taken up to four visits to resolve and up to two weeks to clear. This patient had resolution of her problem in less than one week. One patient who had a diagnosis of left ankle sprain/strain of a severe type noted a complete resolution of her problems within three visits over a period of one week, with a reduction of plus-four swelling of the ankle joint, resolving within two days after beginning the test substance (“A”). One patient in group A with a diagnosis of moderate cervical strain with associated radical syndrome of the right upper extremity noted complete relief of her discomfort within one week. Another patient with an episodic flare-up of lumbar radicular syndrome involving the left lower extremity noted a 70% improvement in five days (category A) where typical flare-ups in the past required approximately ten to fourteen days to resolve. One patient with left elbow medial collateral ligament sprain (grade I) needed only two visits and five days of taking bottle A to resolve her symptomatology. One patient with a lumbar strain diagnosis eventually was diagnosed with a herniated nucleus pulposus (ruptured disc) and substance A did not produce a resolution of his symptomatology within thirty days. A male, age sixteen, who fell while playing softball and injured his right elbow (diagnosed with right elbow strain, medial collateral ligament grade I strain) noted a disappearance of symptoms within two days and the examining doctor found full range of motion (which had been impaired by 25%) after two days on bottle A. One patient with lumbar sprain syndrome and associated piriformis syndrome went from severe to slight within two days after starting bottle A.

CONCLUSIONS AND DISCUSSION:

In this small study using Lignisul MSM versus a placebo (both administered in a similar capsule form and both capsules appearing exactly the same to the examiners and the patients) it was discovered that those taking substance Lignisul MSM had a level of significant recovery from short-term injuries or flare-ups of previously induced athletic injuries. From the economic point of view, we were particularly gratified to see a marked reduction (40%) in the number of visits usually required to treat these injuries. It is postulated that MSM has an anti-inflammatory action based upon increased blood flow to the injured part (dilation of blood vessels and enhanced blood supply), reduction in muscle spasm and change in cellular membrane potentials involving sodium-potassium transfer. (12)

Since MSM, a phytonutrient, has been shown to have a very low level of toxicity (comparable to water) and since the substance has also been widely used in veterinary medicine without showing any toxic results as well, the use of Lignisul MSM to treat human sprains, strains and athletic injuries appears to be very beneficial based on this small but intensive study. A larger study involving several hundred subjects is being planned and these subjects will be taken from a sports medicine practice.

It is felt by the authors that Lignisul MSM, in view of its low toxicity, inexpensive costs, and ease of administration, should be considered as an invaluable addition for treatment of short-term athletic injuries of the type that were involved in this study. It was previously shown in a double blind study that Lignisul MSM had a high rate of effectiveness in a chronic painful condition involving osteoarthritis, the physiologic actions of MSM are apparently similar in producing an alleviation of symptoms in both chronic and acute conditions.

SUMMARY:

The present study demonstrated the effectiveness of a natural substance Lignisul MSM on acute athletic injuries, such as muscle sprains and strains, with a negligible level of toxicity and, of even greater importance, a significant reduction in visits necessary to the doctor's office or treatment facility.

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