



## EFFECTIVENESS OF MGSO4 APPLICATION AND COLD APPLICATION ON PITTING EDEMA AMONG HOSPITALIZED PATIENT: COMPERATIVE STUDY

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**ABSTRACT** The Researcher aims to evaluate the effect of mgso4 & cold application on pitting edema amongst hospitalized patients. Review of literature shows that mgso4 application and cold application both are effective on pitting edema. Pitting edema most common condition seen in the kidney disease, cardiovascular, anemia, liver disease.

**KEYWORDS :** Effectiveness, Mgso4 Application , Cold Application, Pitting Edema.

### INTRODUCTION

Edema is a soft tissues swelling due to fluid accumulation<sup>1</sup> Edema is caused by the fluid accumulation in the intracellular, it usually occur in the ankle leg and whole body. Pitting edema is visible distended area of body tissues due to fluid collected that can also be confirmed by giving burden to the bulge area( such as depressing the pores and skin with a finger.). If the pressure cause pit that persistent for times after the relieve of the burden, the edema is known as pitting edema. Edema occurs when extra fluid stays inside the body's tissues. There is generally an underlying disease or condition. Symptoms rely on the cause, and they typically increase gradually.

Drugs can also treat edema .Edema can produced in generally older adults , pregnant women, kidney sickness patients, liver disease, anemia.<sup>4</sup>

Drugs also can produced pitting edema. The more general nearby prerequisites that produced edema due to varicose veins and inflammation of the veins of the deep veins of the feet. These prerequisites can reason improper circulation of the blood through the arteries and veins. The ensuing elevated reverse-pressure in the veins forces fluid collected in the limbs, such as ankles and lower extremities .The overloaded fluid then shift into the interstitial tissue spaces, inflicting edema<sup>5</sup>.

Edema can result in the overlap skin become loose their elasticity, growing inflammation. It can also insufficient flow of the blood into the body tissues and veins, arteries<sup>6</sup>.

### MATERIAL METHOD AND FINDINGS

The study is mainly headed on the effect of mgso4 & cold application on pitting edema among hospitalized patient.

### REVIEW OF LITERATURE ON EDEMA

1. F. Cantini, C. Salvarani, was conducted study on lower extremity swollon with pitting edema in PA. The objective of that study was to assess the frequency and the csigns and symptoms of distal extremity swelling with pitting edema in pt PA. A case-control research study of OPD patients with Psoriatic arthritis medical condition seen grater than a 3month time in secondary referral centers in Italy. The socio-demographic and signs and symptoms were examined by clinical examination and review of the clinical reports. Total number of patients with arthritis was 183 and 366 were belongs to control group. Lower extremities pitting edema with swelling was seen in 39/183 (21%) Arthritis pt & in 18/366 (4.9%) controls ( $p < 0.0001$ ). In 8/39 (20%). 8 others it was related with other characteristics of arthritis at diagnosis. The upper 40% & lower 60% were affected ,in the cases.<sup>7</sup>
2. Kimberly G. Brodovicz, Drph, conducted study on to quantitatively reliability & feasibility of methods to evaluate PE. To examine procedure to evaluate PE for reliability, feasibility & correlation with the classic clinical examination of pitting edema. Cross-sectional study. 20 samples collected by using convenience sampling techniques & samples who are having type-2 DM & severity of edema also taking pt with no edema. 8 steps of edema evaluation were inspected : (1) clinical evaluation of pit depth & recovery at 3 place , (2) pt questions, (3) ankle circumference, (4) figure-of- 8 (5) edema tester (6) modified edema tester , (7) indirect leg volume (by series of ankle/leg circumferences), and (8) foot/ankle volumetric by water displacement. Patients were inspected independently by three nurse examiners. Water displacement and ankle circumference had high inter-examiner agreement (intraclass correlation coefficient 0.93, 0.96 right; 0.97, 0.97 left). Agreement was inconsistent for figure-of-eight (0.64, 0.86), moderate for indirect leg volume (0.53, 0.66), and low for clinical assessments at all area .Agreement was low for the edema testers but varied by the pressure administered. Correlation with the classic, subjective clinical assessment was better for the nurse-performed assessments and patient questionnaire. Ankle circumference and patient questionnaires each took 1 minute to complete. Other tools took >5 minutes to complete.<sup>8</sup>
3. R. tripathi, s. gupta, s. rai and p. c. mita Effect of external application of methylsulfonylmethane (msm), edta on pitting edema and oxidative stress in a double blind, placebo-controlled study. A randomized, double blind, placebo controlled study was done in phases 1 and 2. Patients visiting a local physician were screened for lower limb pitting edema. The exclusion criteria were no ulceration, no wounds on swollen limb, no acute problems, no high risk of organ failure; and the inclusion criteria was lower extremities' pitting edema. changes in lower limb edema after local application of active lotion or placebo. Patients who applied the active lotion showed a consistent and statistically significant ( $p < 0.0005$  to 0.2) denial in swelling, ranging from 2.87 to 6.85 per cent, as indexed by average circumference of calf, ankle and foot of both legs, while those on placebo shows changes ranging from 2.67 per cent increase to 0.58 per cent decrease in swelling. A mean decline of 9.75 per cent in computed volume of the measured part of the leg was shown by patients on active lotion while those on placebo showed a 1.65 per cent increase in volume. The difference was statistically significant at  $p < 0.000$ . the 48 values (6 measurements of change in swelling of calf, ankle and foot of left and right legs for 8 patients) available for patients on active lotion, 47 showed a reduction in swelling, ranging from 0.91 to 18.18 per cent (Fig 1), and one value showed no change. Of the 24 values obtained for patients on placebo, 15 showed increase in swelling. Thus, 98 per cent values on active lotion showed a decline in swelling, and 68 per cent values on placebo showed an increase in swelling.<sup>9</sup>
4. Satoshi Tanno ,Masumi Ohhira Tsukasa Nozu The rate of remitting seronegative & pmr symmetrical synovitis with pe group of disoreder in a hospital doctors working in primary care center, japan. To assess the ratio of RS & pmr similar inflammation of sinus with PE with group of disoreder & both category as SIA in older. in an OPD area where doctors were work in japan primary care center. to easily realize epidemiological features of the illness of japan. regularly OPD patients who was first time see at DOGM, AMUH, Japan, in between 2004 & 2010 april to march and were investigate. Every demographic variables like age, genser, clinical symptoms assessment was examined. In the age group of school going child 3 were screened as apolymyalgia rheumatic arthritis

and group of disease respectively. The client with polymyalgia rheumatic arthritis were 7 women and 3 men, and the adult group at screening was 69. Out of all pt over fifteen ( $n = 3,347$ ), the ratio of polymyalgia rheumatic arthritis was 0.36% in women & 0.22%. On the other hand, polymyalgia rheumatic arthritis group of disorder was screened in 3 men.<sup>10</sup>

#### REVIEW OF LITERATURE ON MGSO<sub>4</sub>:

5. Brincy Lo yolla D'souza & Shivakumar was conducted study about on Effectiveness of Magnesium Sulphate Crystal Fomentation versus Paste Application for Phlebitis amongst Children Receiving Peripheral infusion. The rationale of this analyze about was once to check the efficacy of magnesium sulphate crystal material versus glycerin magnesium sulphate combination application for phlebitis amongst teens passed via by using the two peripheral infusion. A quasi-experimental research about avenue with pre-test post-test design was once practice in the study. The discover out about sample correspond of 60 adolescents with phlebitis, the place 30 young people had been separated in group I, dealt with magnesium sulphate crystal fomentation and 30 younger human beings have been separated in crew II, dealt glycerin magnesium sulphate mixture application. Purposive sampling method was once applied to pick the children. The find out about used to be once finished at Regional Advance Pediatric Care Centre (RAPCC), Mangalore. phlebitis evaluation chart and commentary pointers for erythema was once used. The propose pre-treatment scores of phlebitis have been appreciably reduced after the therapy with Mgso<sub>4</sub> application and with glycerin Mgso<sub>4</sub> paste application. The propose put up treatment score of phlebitis at  $p < 0.05$ . Glycerin Mgso<sub>4</sub> combination was tremendous in reducing two swelling and induration when in contrast to Mgso<sub>4</sub> crystal fomentation.<sup>11</sup>
  6. Shalumol C George I, Dr. Sunita H Tata used to be carried out find out about on the Effectiveness of Mgso<sub>4</sub> Crystal Fomentation versus Glycerine Mgso<sub>4</sub> Paste Application for Phlebitis amongst Children Receiving Peripheral Infusion. The goals of this study was To determine the severity of phlebitis amongst adolescents receiving intravenous infusion as measured via using phlebitis dimension chart. To decide the have an effect on of Mgso<sub>4</sub> crystal fomentation on phlebitis, to decide the affect of glycerine magnesium paste utility on phlebitis and to evaluation the influence of every intervention on phlebitis. The examine about design was as soon as Quasi experimental designs. 30 affected person have been acquired by using means of convenient random sampling technique. sizable modified phlebitis ranking scale and anguishing scale had been used to consider the each experimental (Glycerine Mgso<sub>4</sub> paste application) & manipulate team (Mgso<sub>4</sub> crystal fomentation). Statistical findings shows that the median of paired commentary differences of discomfort and phlebitis of glycerine Mgso<sub>4</sub> paste application (experimental group) in youngsters of intravenous therapy related phlebitis is decreased from three on the day one to 1 on the day three. The difference is massive at  $P < 0.01$ . The findings revealed that the glycerine magnesium sulphate paste utility is better excellent than that of magnesium sulphate fomentation in treatment of intravenous remedy related phlebitis.<sup>12</sup>
  7. Xueming J, Yun LA correlative study for managing local tissue damage caused by extravasation of pharmorubicin was conducted at the North Sichuan Medical College, Nanchong. To find an ideal method for treating local tissue injury is the reason of extravasation of pharmorubicin. Methods used were hydropathic compress with vitamin B12 and 50% glucose (Therapy A), hydropathic compress With 50% magnesium sulphate (Therapy B), block damaged tissue in a ring shape with 2% lycodaine and hexadecadrol (Therapy C), and a control group received no therapy. Recovery time of wound, pathological conformation in all group were assessed and compared. It was shows that no significant difference of tissue damage was found among 4 groups after 2 days. Congestion, oedema and inflammatory cell infiltration of local tissue were improved significantly after 7 days. Therapy A produced notable effect. Therapy B acquired good effects in managing congestion and oedema of local tissue. Therapy C achieved satisfactory management. Different methods used to treat tissue damage caused by extravasation of pharmorubicin should be chosen according to different characteristics of tissue damage thus study
- concludes that magnesium sulphate has a better effect on reducing congestion and edema of local tissue.<sup>13</sup>
8. Zhan Q, Zhang WA quasi-experimental study was conducted to assess the effectiveness of the therapeutic effect of tanshinone, magnesium sulphate and hirudoid in the treatment of infusion phlebitis at Tangxia hospital of Dongguan City on 150 in patients with infusion phlebitis. Patients were randomly selected into tanshinone group ( $n=50$ ), hirudoid group ( $n=50$ ) and magnesium sulphate group ( $n=50$ ). The therapeutic effect was evaluate after 5 days treatment. The results shows the excellence rate of 64% in tanshinone group, 36% in hirudoid group and 18% in magnesium sulphate group, the differences was statically significant at level of  $p = 0.05$ . The efficacy rate was 94% in tanshinone group, 80% in hirudoid group and 60% in magnesium sulphate group, the differences was statically significant at level of  $p = 0.001$ .<sup>14</sup>
  9. Saini B, Paul P A quasi experimental study was conducted to assess the effectiveness of cold application, heparinoid application and magnesium-sulphate application on superficial thrombophlebitis among patients in selected hospitals of Indore. Three-group pre -test and post- test design was adopted for the study. 45 patients were selected purposive sampling and they were randomly assigned into three groups. A superficial thrombophlebitis scale and pain intensity distress scale was adopted for data collection. Following the pre-test, intervention with cold application was given to 1<sup>st</sup> experimental group ©, for a period of twenty minute, 2<sup>nd</sup> experimental group (H) was intervened with heparinoid application using thrombophobe ointment by gentle massage and same as previous in 3<sup>rd</sup> experimental group (M), magnesium-sulphate dressing was done by dipping the gauze in the magnesium sulphate glycerine solution and applied on superficial thrombophlebitis three times a day for three days. The finding of the study indicated that the computed 't' value of cold application group ( $t'_{14} = 14.33$ ), heparinoid application group ( $t'_{14} = 11.90$ ) and magnesium sulphate application group ( $t'_{14} = 20.82$ ) were statistically significant, which suggested that all three interventions were effective in reducing the signs and symptoms of superficial thrombophlebitis. The computed 'F' ratio of all the three groups ( $F'_{2,42} = 10.10$ ) showed that three types of application differ significantly. However, the mean difference of magnesium sulphate group (18.34) was increased than the cold application (13.33) and heparinoid application (12.8) group. This study concluded that magnesium sulphate application is more effective intervention in decreased the superficial thrombophlebitis.<sup>15</sup>
  10. Huo G, Ying-Jia L, Hui-Juan M. A study was done on effectiveness assess by glycerine magnesium sulphate emulsion on peripheral phlebitis in China. The aim of the study was to assess the clinical effects of glycerine magnesium sulphate emulsion and 50% magnesium sulphate solution on the treatment of peripheral phlebitis, and a most effective method to reduced peripheral phlebitis. 57 children with peripheral phlebitis caused by intravenous indwelling needle were randomly divided into observing group ( $n=29$ ) and control group ( $n=28$ ). The patients in the control group were treated by 50% magnesium sulphate solution, while those in the evaluating group were treated by glycerine magnesium sulphate emulsion, and treatment time in both groups was studied. The treatment time in the assessed group and control group was (2.16 & 0.39) days and (5.17 & 1.15) days respectively ( $P < 0.01$ ). It is suggested that glycerine magnesium sulphate emulsion can effectively decreased the treatment time of peripheral phlebitis, and it is a safe, simple and effective method with many advantages.<sup>16</sup>

#### REVIEW OF LITERATURE ON COLD APPLICATION:

11. Zandi M<sup>1</sup>, Amini P<sup>2</sup>, Keshavarz A<sup>3</sup> Efficacy of cold therapy in reducing pain, trismus, and oedema after impacted mandibular third molar surgery: a randomized, self-controlled, observer-blind, split-mouth clinical trial. Cold therapy is a conventional and widely used modality for reducing pain, trismus, and oedema after dent alveolar surgeries. However, information reported in the literature on its effectiveness is insufficient and controversial. This study was performed to evaluate the effect of local cold application in reducing pain, trismus, and swelling after impacted mandibular third molar surgery. Thirty patients (seven males and 23 females) with bilateral symmetrical mandibular impacted third

molars were enrolled in this randomized, self-controlled, observer-blind clinical trial. The pt were aged bt 18 -30 yr. After surgical removal of the tooth on one side , ice pack therapy was given for 24h after surgery; for the other side (control), no cold therapy was given. The time interval bt the 2 surgeries was minimum four wk The of pain sevarity , trismus and facial swelloen was see on 2 & 7 post of day & pt satisfaction with the ice pack vs. no application was evaluate . The sevarity of pain, & face swelling, & the extent of pt satisfaction were not significantly different bt the application & control sides. Cold therapy had no advantage effects on postop squeal after effect mandibular 3<sup>rd</sup> molar operation.<sup>17</sup>

12. Brosseau L<sup>1</sup>, Yonge KA, Thermotherapy for rx of oa. To assess the effect of thermotherapy in the rx of OA of the knee. The main goal is reduce of pain, relive edema, & enhacement of the lower exterimities. R&C clinical trials involving pat with hospital or ratept of OA of the knee; and management utilized heat / cold liken to standard rx or placebo were considered for included.3RCT, including 179 pt, were invited in the study. The involved trials varied in terms of design, goal evaluate cold therapy rx and total techniques values . In first trial, gave intervention of 20 minutes of cold therapy, 5dy/wk , for 3wk, compared to control demonstrated a hospital advantages of knee OA on raised strongness 29 percent. Other study also says that cold application can reduced edema& hot water can not give good effect on the edema in compared with cold application.<sup>18</sup>

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