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MUSCLE CRAMPS EPISODES AMONG CHRONIC RENAL FAILURE PATIENTS WHO ARE ON HEMODIALYSIS

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ABSTRACT
Involuntary muscle contraction associated with severe pain is called as muscle cramps. Occurs frequently in patients receiving dialysis. Muscle cramps can involve the legs, most commonly occurring in feet and abdominal muscle. It is estimated that 53% to 86% of patients receiving dialysis have experienced cramps frequently. Aim of the study to assess the muscle cramps episodes in hemodialysis patients. Totally 20 patients of both the genders were included in our study. Chronic renal failure patients who are on hemodialysis were observed for muscle cramps episodes for a period of 10 weeks. Cramps often last for few seconds to minute but the episode shows great pain over the affected area. In adequate fluid removal,L-carnitine deficiency and hypotension favors the cramps. From our study we concluded that all twenty patients who are hemodialysis were prone for muscle cramps. Totally around ten weeks of assessment and nearly 30 sessions of dialysis for each patient shows that all patients had the episode of muscle cramps in inter dialysis session. Male has higher episodes when compared to females. Hypotension is the main triggering factor for muscle cramps among the patients.

INTRODUCTION

Muscle cramping of hands, feet and legs is fairly common during hemodialysis. Painful spasms are seen in extremities. The more common site are lower extremities, biceps, deltoid, palmar and abdominal muscles. The major cause underlying behind the muscle spasm includes, rapid removal of fluid and hyponatermia, these factors favors the episodes of muscle cramps. An episode of muscle cramps occurs commonly in intra dialysis session, initially followed by nausea, vomiting, and abdomen discomfort. Lasts far more than 10-15 minutes [1].

Pathophysiology of muscle cramps: Muscle cramps begin with fasciculation our muscle twitches are felt to be related to nerve conduction rather than the muscle contraction. Many factors are involved in muscle cramps in hemodialysis patients, which include hypotension, plasma Osmolality changes, hyponatermia, hypokelemia, hypoxia, hypomagnesemia L-carnitine deficiency, increased serum leptin level. Hyper parathyroidisum is main factor which favours the muscle cramps.
Low sodium dialysate bath, excess fluid removal, increases the risk of muscle cramps.[2,3]

Etiological Causes of Muscle Cramps: [4, 5**]**
1. Electrolyte imbalances such as
    a. Hyponatermia

b. Hypokalemia
c. Hypocalcaemia

2. Excess fluid removal causes hypotension.
3. L-carnitine deficiency, makes the muscles to contract frequently
4. Improper maintenance of dry weight.
5. Frequent dehydration
6. Elevated serum leptin, May decreases the energy supply to the muscle.

MATERIALS AND METHODS

Totally 20 hemodialysis patients were participated in the study. Among them 12 were males and 8 were females. All are under the hemodialysis for a period of 8 to 12 months weekly thrice. Under Regular erythropoietin therapy. Periodically assessment of dry weight, weight gain, and target removal analyzed. The patients were monitored throughout the dialysis session for episodes of muscle cramps for the period of around 10 weeks.

Legend: 1- The below table shows the site and intensity of muscle cramps among hemodialysis patients**.** abdominal muscle cramps seen in -12 patients , upper limb extremities cramps seen in -11 patients, calf muscle cramps seen in -9 patients, others (feet, neck and palmer space) seen in -7 patients

Treatment for muscle cramps: [6,7]

A. Infusion of hypertonic saline (23.4%) with 0.5% dextrose for (3-5) minutes
B. IV- administration of mannitol before the termination of dialysis
C. IV-administration of quinine reduces leg cramps by decreasing excitability of nave stimulation which increases the refractory period, subsequently, prevents prolonged muscle contraction
D. Administration of vitamin E 400 IU per day for 3 weeks reduces the incidence of cramps

Preventive measures to avoid muscle cramps: [8,9]

A. Minimize weight gains between dialysis: Simply restrict your fluids.
B. proper dry weight
C. Sodium modelling
D. Assess for accurate target weight

Table 1. Assessment of Muscle Cramps among Hemodialysis Patients for 10 Weeks

S.No	Site of Cramps (N=20)	Duration & Intensity Cramps	No. of Patients (N=20)
1	Calf muscle	2-3 minutes	9
2	Abdominal muscle	1-2 minutes	12
3	Upper limb extremities	40-60 seconds	11
4	Others (feet,neck and palmerspace)	1-2 minutes	7

CONCLUSION

By assuring the dry weight periodically and by modelling sodium frequently the episodes of muscle cramps can be controlled. Regular administration of vitamin E reduces the symptoms of cramps among hemodialysis patients.

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