



Efficacy of Hot Application on Pain Reduction Among Clients Undergoing Hemodialysis

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ABSTRACT

The present study was aimed to identify the efficacy of hot application on pain reduction among clients undergoing hemodialysis. The objectives of the study were to identify the complications experienced by patients undergoing hemodialysis, to determine the effect of hot application on leg pain during hemodialysis among patients with Chronic

Kidney Disease, to determine the association between complications experienced during hemodialysis and selected socio demographic and clinical variables. Methodology used for the study was quantitative approach; the estimated sample size was 40. Result: the mean for the pretest pain score was 5.40 which was decreased to 0.45 after the intervention, it found to be statistically significant ($p < 0.001$). Conclusion: short term complications like hypotension, muscle cramps, nausea and vomiting are more common during hemodialysis, duration of hemodialysis has an influence on muscle cramps, hot application is effective in reducing pain or muscle cramps during hemodialysis.

KEYWORDS : hot application, pain, hemodialysis, chronic kidney disease

Introduction

Chronic kidney disease is a worldwide public health problem with an increasing incidence and prevalence. The annual incidence of end-stage kidney disease (ESRD) has doubled over the past decade. In India the main causes of CKD are diabetes mellitus (41%), hypertension (22%), chronic glomerular nephritis (16%), chronic interstitial disease (5.4%), ischaemic nephropathy (5.4%), obstructive uropathy (2.7%), miscellaneous (2.7%) and unknown cause (5.4%). Hemodialysis is the most commonly used method of dialysis, dialyzer serve as a synthetic semi permeable membrane, replacing the renal glomeruli and tubules for the impaired kidney. Common problems of hemodialysis can be divided as short term and long term complications. Muscle cramps is one of the short term complication of hemodialysis, associated with rapid removal of large amounts of fluid, changes in electrolytes (blood chemistry), rapid sodium removal, low potassium levels and inaccurate fluid removal goal and these can occur anytime in during hemodialysis, especially middle to end of treatment¹⁸. Painful muscle cramps often complicate hemodialysis. They may occur in 35–86% of hemodialysis patients and can be severe enough to compromise hemodialysis treatment. Thus interfering with the muscle cramps and even preventing the occurrence is the major responsibility of the nurses in charge of patients. Since nurses are taking care of hemodialysis patients almost everywhere, it becomes predominantly the nurse's role. Hot application moves the reflex arcs that inhibit the pain by means of heat receptors and vasodilatation effect²⁸. It is cheap and easy to use and it has a minimum amount of side effects than medications when used regularly. It can be applied on surfaces of the affected area. Very few studies have been conducted in this area. So the researcher was interested to conduct the study. Hence the purpose of the study is to determine the efficacy of hot application on pain reduction in patients undergoing hemodialysis.

Statement of the problem

A pre-experimental study on the efficacy of hot application on pain reduction among patients with chronic kidney disease undergoing hemodialysis in a selected hospital at Trivandrum.

Objectives

- To identify the complications experienced by patients undergoing hemodialysis.
- To determine the effect of hot application on leg pain during hemodialysis among patients with Chronic Kidney Disease.
- To determine the association between complications experienced during hemodialysis and selected sociodemographic and clinical variables

Efficacy: refers to the change in the level of leg pain as a result of hot application as measured by pain scales and vital parameters.

Hot application: refers to the application of hot water bag on leg for 15 to 20 minutes to relieve symptoms of pain especially related to muscle tension or spasm during hemodialysis.

Leg pain: refers to a feeling of distress on legs caused by muscle spasm or tension as measured by pain scales and vital parameters.

Hemodialysis: refers to the removal of waste products from the blood of the patient with chronic renal failure by means of dialysis

Patient: refers to persons who are receiving hemodialysis treatment for chronic renal failure

Hypothesis

Hot application has a significant effect on leg pain in patients undergoing hemodialysis

Materials and Methods

A quantitative approach was used for the study and the design was pre experimental design. Variables, independent variable was hot application in the form of hot water bag, dependent variable were pain, blood pressure, pulse, and respiration of clients with leg pain during hemodialysis. Study was conducted in the dialysis unit of Sree Gokulam Medical college Hospital and Research Foundation, Venjar-moodu. The study population comprised of all patients undergoing hemodialysis and developing muscle cramps during hemodialysis. The sample size was 40 and purposive sampling technique was used to select the subjects. In this study the instruments used were socio demographic proforma, check list for assessing complications during hemodialysis, pain assessment scales such as numerical rating scale, behavioral rating scale and clinical variable like heart rate, blood pressure and respiratory rate.

Results

Majority of the subjects (45%) belonged to the age group of above 60 years and majority of the subjects (75%) were male. Half of the subjects (50%) were undergoing hemodialysis within one year period and 42.5% of the subjects were undergoing hemodialysis for the past 1-3years. Only 2.5% of the subjects were undergoing hemodialysis for more than 5 years. 32% had both hypertension and diabetic mellitus, 30% of the subjects had only hypertension, 15% of the subjects had diabetic mellitus alone, 13% of the subjects had other causes like polycythemia and 10% of the subjects had diabetic nephropathy as the cause of renal failure. Nearly half of the subjects (47.5%) were having weight in between 61-70kg and 32.5% of the subjects were having weight in between 51-60kg. 10% of the subjects were having a weight of 41-50 and above 70 kg respectively.

Short term complications

35% of the subjects had complaints of hypotension always during hemodialysis, 7.5% of the subjects had cramps always during hemodialysis and 17.5% of the subjects had nausea and vomiting always during hemodialysis. Majority of the subjects (57.5%) reported having hypotension frequently, 60% of the subjects reported having muscle cramps frequently, 40% of the subjects reported having nausea and vomiting frequently and 47.5% of the subjects reported having hypertension frequently during hemodialysis. 60% of the subjects reported having headache rarely and 67.5% of the subjects reported having fever rarely.

Effect of hot application on leg pain during hemodialysis among clients with Chronic Kidney Disease

Mean value for the pretest numerical pain rating score was 5.40 which was decreased to 0.43 after the intervention. The difference in mean value was -4.97, which was statistically significant ($p < 0.001$). Hence it can be interpreted that hot application has a significant effect on pain reduction in clients with muscle cramps during hemodialysis. Mean value for the pretest behavioural pain rating score was 5.75 which was decreased to 0.1 after intervention. The difference in mean value was -5.557, which was statistically significant ($p < 0.001$). Hence it can be interpreted that hot application has a significant effect on pain reduction in clients with muscle cramps during hemodialysis. Mean value of pulse rate in the pretest was 81.00 which was decreased to 79.00 after the intervention. The difference in mean value was 1.90, which was significant ($P < 0.01$). Hence it can be interpreted that hot application has significant effect on pulse rate of patients with leg pain during hemodialysis.

Association between complications experienced during hemodialysis and selected socio demographic and clinical variables

Among the complications experienced by the subjects undergoing hemodialysis, only muscle cramps had a significant ($P < 0.036$) association with duration of dialysis.

Discussion:

Short term complications like hypotension, muscle cramps, nausea and vomiting are more common during hemodialysis, duration of hemodialysis has an influence on muscle cramps and hot application is effective in reducing pain or muscle cramps during hemodialysis.

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