

# Effectiveness of Intradialytic Massage on Cramping in Dialysis Patients

Diane Mastnardo, BS, LMT; Anne M. Huml, MD; Janice M. Lewis, BA, LMT; Kristi Hall, LMT; Catherine M. Sullivan<sup>1</sup>, MS, RD, LD; Katrice Cain<sup>1</sup>, MA; Jacqueline Theurer<sup>1</sup>, MBA; Ashwini R. Sehgal<sup>1</sup>, MD<sup>1</sup> Case Western Reserve University and MetroHealth Medical Center



## Introduction

- Patients on dialysis experience side effects including edema, fatigue, cramping, sleep disturbances, depression and feelings of hopelessness.
- Pain caused by muscle cramping may result in shortened treatment time which has been linked to worse outcomes in the dialysis population.
- It is estimated that 33% to 88% of dialysis patients experience cramping. In one study 15% of patients that shortened treatment cited cramping as the reason.
- There are no known published research studies on massage for cramping during dialysis in the United States.
- Research studies using massage in cancer patients have shown a decrease in pain, increase in energy, decreased inflammation and decreased feelings of anxiety when done appropriately.
- Massage may be an effective treatment modality for hemodialysis-related lower extremity cramping in carefully selected patients.

## Specific Aims

**Primary Aim.** The primary aim is to determine the effectiveness of intradialytic massage on the frequency and severity of cramping among hemodialysis patients prone to lower extremity cramping during treatment.

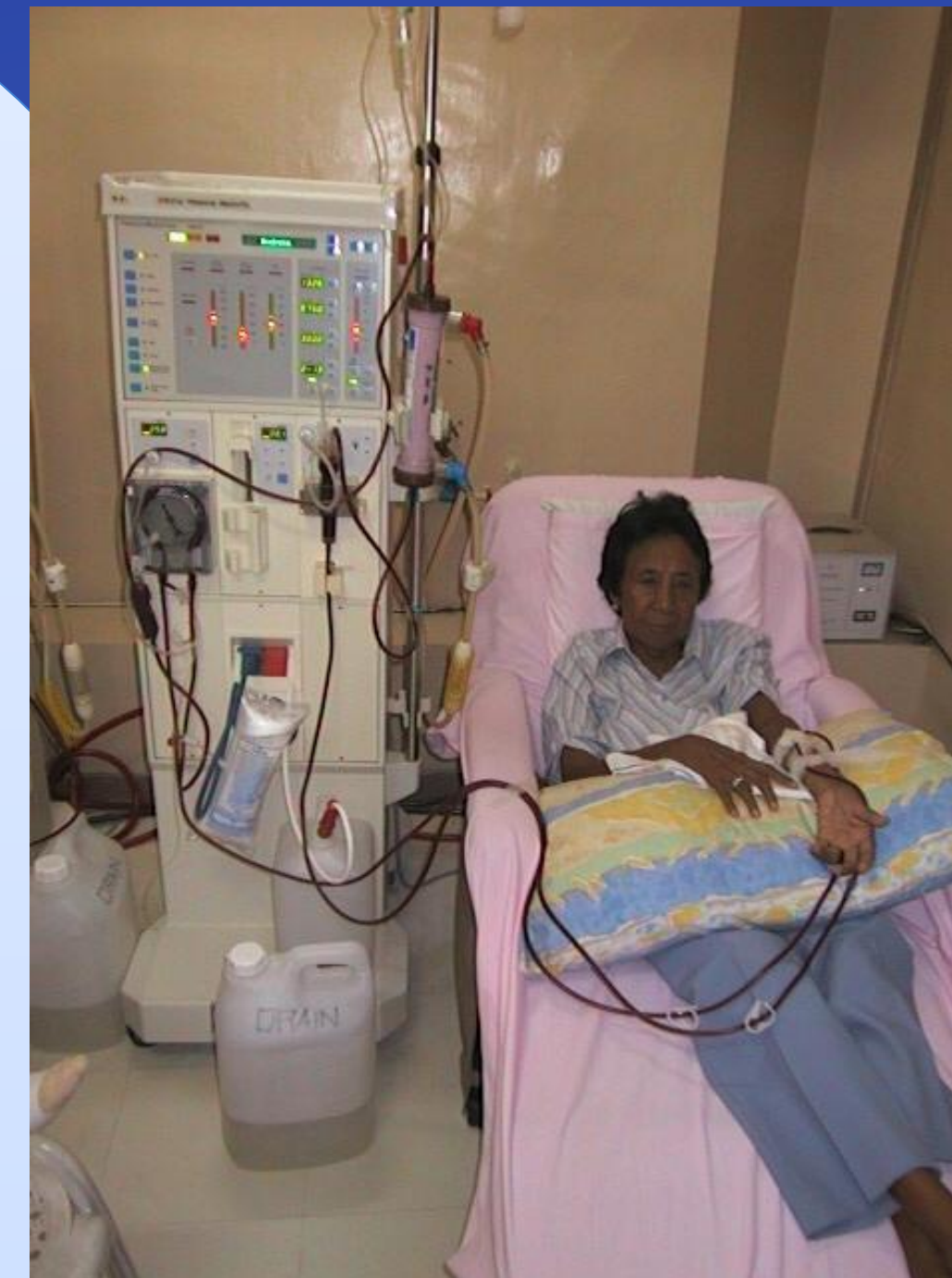
**Hypothesis:** Compared to control patients, intervention patients will be significantly less likely to have intradialytic cramping that requires staff intervention or treatment termination.

## Methods and Design

- Licensed massage therapists were trained in the study massage technique and tested for inter-therapist consistency. Study instruments were developed and pilot tested for reliability and content validity using a group of 3 dialysis patients who meet all study eligibility criteria.
- Participants included 32 (16 intervention, 16 control) hemodialysis patients with frequent lower extremity cramps during treatment. Frequent cramping during dialysis treatments was defined as 1 or more episodes of lower extremity cramps during or after dialysis over the previous 2 weeks. Cramping frequency was determined by chart notes.
- Consenting patients were randomized into intervention and control groups using a random number generator. Intervention subjects received massage by trained massage therapists. All enrolled patients received a \$25 gift card for participating in the study, and intervention patients received the massage free of charge. Massage therapists were compensated for each massage performed.

## Study Procedure

- The intervention group received a 20 minute massage during each hemodialysis treatment for 2 weeks resulting in up to 6 massage sessions.
  - The massage included both feet and legs up to and including the knee. Massage included general light centripetal friction and point compression to bellies and myotendinous junction of muscles of the foot and calf not to exceed a perceived pain of 6 on a scale of 1 to 10.
  - Interviewed by study staff at the beginning and end of the study regarding his/ her experience with cramping and pain.
- The control group received usual care by dialysis staff.
  - Interviewed by study staff at the beginning and end of the study regarding his/ her experience with cramping and pain.



## Results

- Table 1 shows the characteristics for participants that completed the study. Intervention and control participants had similar characteristics.
  - 2 intervention and 1 control participant were not able to complete the study due to exclusionary criteria.
- Patient reported incidents of cramping at home decreased by 2.5 in the intervention group compared to 0.3 in the control group (p = 0.005) (Table 2).
- Patient reported incidents of cramping at dialysis decreased by 1.6 in the intervention group compared to 0.9 in the control group (p = 0.44) (Table 2).

Table 1. Baseline characteristics of intervention and control subjects.

	Intervention (n=11)	Control (n=15)	p value
Age, mean (SD), y	55 (15.7)	52 (8.7)	.72
Male (%), n	6 (55)	6 (40)	.46
Race (%), n			
Black	11 (100)	14 (93)	
White	0 (0)	1 (7)	.29
Cause of renal failure (%), n			
Hypertension	5 (45)	6(40)	
Diabetes	6 (55)	4(27)	.15
Glomerulonephritis	0	4 (27)	
Other	0	1 (7)	
Time receiving dialysis, mean (SD), y	3.9 (2.1)	9.9 (8.9)	.12

Table 2. Change in cramping from baseline to post study period

	Intervention n = 11	Control n = 15	P value
Total massages received, mean (SD), n	5.4 (0.8)	0	
Baseline cramping at home (interview), mean (SD), n	3.2 (2.4)	2.5 (3.3)	0.05
Baseline cramping at dialysis (interview), mean (SD), n	2.7 (2.3)	2.5 (1.7)	1
Change in cramping at home from pre -study to post study (interview), mean (SD), n	-2.5 (2.4)	-0.3 (1.0)	0.005
Change in cramping at dialysis from pre-study to post study (interview), mean (SD), n	-1.6 (2.7)	-0.9 (1.5)	0.44

## Conclusions

- Intradialytic massage appears to be an effective way to address cramping.
- Larger studies of longer duration should be conducted.

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