



Technique

## A technique to reduce arms fatigue on intradialytic

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### ABSTRACT

**Background:** The hemodialysis process that takes 4 to 5 hours may lead to various problems, including arms' fatigue on the forearm with attached Cimino access. A technique is required to overcome this fatigue.

**Technique:** By using a supportive hand pillow made by adjusting the position of the elbow and the length of the arm. The pillow is placed under the patient's forearm with Cimino access. Trial usage of this pillow was conducted on two persons for two cycles of hemodialysis. Both stated that arm fatigue was reduced and more comfortable.

**Conclusion:** Using hand pillows for hemodialysis patients is favorably beneficial to reduce forearm fatigue during the Intradialytic phase.

### INTRODUCTION

Hemodialysis therapy (HD) is one of the interventions generally performed on patients with chronic kidney disease.<sup>1,2</sup> The duration of the hemodialysis process, which takes about 4 to 5 hours, may cause discomfort, fatigue, headaches, and cold sweats due to decreased blood pressure; HD therapy will also affect the psychological state of patients.<sup>3-5</sup> One of the problems experienced by patients during hemodialysis is a sense of discomfort since the HD process takes a long period and causes patient fatigue because the forearm attached to the Cimino access must be in a stationary position; these complaints also affect the quality of life of the patients.<sup>6,7</sup>

Previous research found that musculoskeletal complaints were the highest percentage complained by patients undergoing HD therapy totaled to 76.4%.<sup>8,9</sup> The survey results of 10 patients who underwent HD therapy also complained of fatigue and soreness on the arm attached to the Cimino access. Musculoskeletal complaints are also closely related to the quality of life of kidney failure patients undergoing HD therapy.<sup>9,10</sup> Musculoskeletal complaints occur due to excessive static muscle contractions due to a

heavy workload with a long duration of loading. When muscle contraction exceeds 20%, blood circulation to the muscles decreases, resulting in decreased oxygen supply to the muscles so that carbohydrate metabolism is inhibited; as a result, there is an accumulation of lactic acid that causes muscle pain.<sup>7,10,11</sup>

The primary research advised overcoming patient fatigue by doing foot and ankle toes massage and deep breathing relaxation or mind body therapy interventions.<sup>12,13</sup> Research on the treatment of pillows to reduce intradialytic phase fatigue has never been studied. Therefore, to fill the gap, this study attempts to overcome arm fatigue by using a pillow placed under the forearm with attached Cimino access. The purpose of this study was to determine whether pillows can reduce fatigue in the forearm attached to Cimino access during the HD process.

### TECHNIQUE

Place a hand pillow with a size of 25 cm x 40 cm, adjusted to the patient's arm length, with a pillow height of 4 cm. The pillow is placed precisely under the forearm with Cimino access and adjusted to the elbow and arm length.

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**Figure 1.** Forearm Without Pillow



**Figure 2.** Forearm With Pillow

Figure 1 demonstrates the patient in the intradialytic phase without using a support pillow, and Figure 2 illustrates the patient using a support pillow. The procedure for using the pillow can be viewed in video 1.

## DISCUSSION

The trial of using hand pillows during the intradialytic process on the Cimino-attached forearm was carried out on two patients for two HD cycles. The two patients stated that after using the hand pillow support, the patient felt more comfortable, and the arm soreness was reduced. The patients also said that they felt sore and tired all this time because their arms were not allowed to make excessive movements during the HD process. The finger movements that the patient had been doing were insufficient to relieve fatigue in the arm. Comfort in both patients was experienced from the use of pillows adjusted to the size of the elbow and the length of the patients' arms so that the patient sensed that their arm was supported.

Other studies related to the importance of pillows for patients with musculoskeletal complaints are advised to consider the size of the pillow when buying a new pillow and adjust it to the patient's needs to increase comfort and improve sleep quality.<sup>14,15</sup> The innovations are tailored to end-stage renal disease patients undergoing HD therapy. In addition, patients' comfort is one of the nurse's duties. Various nursing theories state that comfort is a basic necessity of patients, which is the goal of nursing care.<sup>16,17</sup> Kolcaba defines comfort as a state that basic human needs have been fulfilled.<sup>16,18,19</sup>

The advantages of this hand pillow are lightweight, easy to carry because it is not too big, the size is fitted so that it feels comfortable, and the production cost of this pillow is affordable. In addition to the advantages, this innovation also has disadvantages, including the color selection of pillow material; it may be possible to choose a brighter or more attractive color. Moreover, the material used is not waterproof; it might be better to use a waterproof material because it is very likely to be exposed to splattered blood during injection or when removing the injection.



**Video 1.** The technique to reduce arms fatigue on intradialytic using the pillow  
(Use Adobe Flash Player to view videos)

## CONCLUSIONS AND RECOMMENDATION

The technique of using hand pillows on the forearm with Cimino access has been proven to reduce musculoskeletal complaints, relieve fatigue and improve patients' comfort. This study's recommendation is to apply standard operating procedures throughout hospitals with HD rooms to use supportive hand pillows.

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