

# **A Systematic Review of Non-Pharmaceutical Interventions to Reduce Fatigue in Adults Receiving Hemodialysis**

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# Learner objectives

- Discuss two types of interventions shown to significantly reduce fatigue in adults receiving hemodialysis.
- Describe two barriers to implementation of fatigue interventions.



# Background

- Hemodialysis is the most common mode of treatment for adults with chronic kidney disease (CKD) stage five.
- Fatigue is a common complaint in 65 to 91% of those receiving hemodialysis.
- Fatigue can lead to decreased physical function and ability to perform activities of daily living, poorer quality of life, and reduced survival.



# Purpose

- Nurses must discover effective ways to assist with management of this bothersome symptom.
- The purpose of this systematic review was to examine the effectiveness of non-pharmacologic interventions used to minimize fatigue in these individuals.



# Methods

- Searched databases through 2011
  - Academic Search Complete, Cumulative Index to Nursing and Allied Health Literature, Cochrane Library, PsycINFO, PubMed, and Web of Science
  - Search terms: fatigue, quality of life, chronic kidney failure, hemodialysis, intervention
- Retrieved 1,388 citations



# Methods

- Sample
  - 25 articles met inclusion criteria
  - Published from 1999 through 2011
- Inclusion criteria
  - Articles: complete information; found in English
  - Sample: Adults  $\geq 18$  years, receiving in-center hemodialysis
  - Intervention: non-pharmacologic



# Results

- Of the 25 studies that met the inclusion criteria, 11 were RCTs and 14 were quasi-experimental studies.
- Fourteen (56%) contained statistically significant improvements in fatigue levels in the study participants (9 of those were RCTs).



# Results: Intervention

Intervention data	Range	Mode (%)
Length of intervention session (minutes)	15-90	30 (44%)
Study duration (months)	1-12	3 (20%)
Timing of intervention	-	Dialysis day - before or during (44%)
Setting	-	Dialysis clinic (72%)





# Results

- Interventions with significant reductions in fatigue included Eastern-medicine based therapies, such as far infrared rays and acupressure.
- Exercise interventions with significant fatigue reductions most often included cycling.



# Results: Study Samples

Study sample data	Range	Mode
Number of study participants	8-256	20, 24
Mean age (years)	37-65	65
Gender (% male)	29-84.5	63.6, 70
Time on dialysis (months)	20.2-84.5	50



# Results: Measures

- 12 different self-report measures of fatigue used
  - Medical Outcomes Study Short Form 36 (SF-36) scale most used (52%)
  - Piper fatigue Scale (16%)
  - Visual analog scale (16%)
  - KDQOL (12%)
- Few (12%) reported reliability and validity in current study.



# Discussion

- Eastern-Medicine based interventions
  - Similar positive findings in small scale studies with acupressure in a review of individuals with cancer related fatigue
  - Mixed results for acupuncture in patients with cancer related fatigue and CHF as compared to CKD stage 5



# Discussion

- Exercise based interventions
  - Similar positive findings in studies with individuals with cancer related fatigue, CHF, and COPD
  - ESRD studies with non-significant results were mainly non RCTs (28%) and varied in intervention timing (dialysis vs. non-dialysis days) and contained smaller sample sizes



# Conclusions

- Possible limited feasibility of implementing Eastern-medicine based therapies in some areas due to lack of experienced providers and the potential time and cost involved.
- Need replication with fully powered RCT designs to determine the value of interventions with no significant effects.



# Conclusions

- Suggest the use of valid and reliable fatigue measures tested in the hemodialysis population
- Suggest use of objective measures of physical fatigue and function as well as self report of perceptions of fatigue to further demonstrate intervention effectiveness in fatigue reduction.



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