

INTERVENTIONS TO IMPROVE FLUID ADHERENCE AMONG PATIENTS UNDERGOING HEMODIALYSIS: A SYSTEMATIC REVIEW

Dhea Natasha , Diana Irawati

Abstract

Hemodialysis is the dialysis therapy used more often frequently around the world, however many restrictions of the treatment regimen can lead to the problem of adherence. Education seems to be a promising way to help patients knowing their disease and then develop health behavior to maintain adherence toward hemodialysis treatments regiment although other studies mentioned that education have to combine with other strategic to support adherence behavior improvement among patients undergoing hemodialysis. Better understanding best approach could use to improve adherence especially fluid adherence is necessary in order to minimize the negative effect due to fluid overload. The present review aims to identify trials of intervention applied to improve adherence to fluid intake restrictions imposed on people undergoing hemodialysis. A systematic search of the literature was performed on EBSCO, PUBMED, OVID, and Cochrane Database of Systematic Review. Study quality was graded according to criteria develop by the authors. Three studies were identified as eligible for inclusion. Relevant information from each included study was extracted and entered into a standardized table, all studies showed an effect of intervention to decrease IDWG. A number of method weaknesses in the existing literature were identified. The results show that multifocal strategic (education, cognitive, and behavioral) have significance effect in reducing IDWG between among patient undergoing hemodialysis. The effectiveness of interventions ranges from moderate to large effect size. This is indicating intervention effectiveness. However, confidence regarding to validity of this finding was susceptibility to bias due to limitation of study. Accordingly, even though those interventions seems likely appropriate and effective to improve fluid adherence, further examination toward effectiveness in more long term evaluation have to considered.

Keyword: fluid adherence, interventions, hemodialysis

INTRODUCTION

The number of patients undergoing hemodialysis has been reported to increase in line with the growth in patients with End stage renal disease. Besides direct internal kidney damage, ESRD is a long term consequence of unmanageable non-communicable diseases, such as diabetes mellitus and hypertension (Couser, Remuzzi, Mendis, & Tonelli, 2011), the incidence of which have been predicted to increase steadily (Yodchai, Dunning, Hutchinson, Oumtane, & Savage, 2011). Moreover, since there is no cure, slowing progression and optimize treatments are importance in order to increase live expectancy of such patients.

Hemodialysis is the dialysis therapy used more often frequently around the world (Cicolini, Palma, Simonetta, & Di Nicola, 2012), however many restrictions of the treatment regimen can lead to the problem of adherence (Tovazzi & Mazzoni, 2011). Non-adherence to the HD treatment has been

found to be between 8, 5% and 86% (Matteson & Russell, 2010). For specific part of HD treatment Non- adherence is reported to be between 10 to 60 % for fluid intake, 2% and 57% for dietary advice, 0 and 35% with regard to skipping or shortening dialysis sessions and between 19% and 99% in relation to medications (Denhaerynck et al., 2007). For most patients, the most challenging aspects of HD regimen is fluid restrictions(Christensen, Moran, Wiebe, Ehlers, & Lawton, 2002), and more than 50% of hemodialysis patients estimated do not follow the fluid-restrictions regiment (Barne, 1993; Lin, 1997).

Failure to adhere to fluid intake can result fluid overload and this condition associated with congestive heart failure, hypertension, pulmonary edema and shortened patient survival(Kimmel et al., 2000). In addition, low levels of adherence are related to greater mortality (Idier, Untas, Koleck, Chauveau, & Rascle, 2011), and thus it is necessary for ESRD patients undergoing HD to make dramatic lifestyle changing in order to improve their adherence. Improvement of adherence gives a number of tangible benefits such as decreased cramps, reduction of symptomatic hypotensive episodes, increase activity levels, and a shorter time on dialysis (Sharp, Wild, Gumley, & Deighan, 2005).

Education seems be a promising way to help patients knowing their disease and then develop health behavior to maintain adherence toward hemodialysis treatments regiment (Klang, Bjorvell, & Clyne, 1999). However, other studies mentioned that education have to combined with self-efficacy and self-management strategic to support adherence behavior improvement among patients undergoing hemodialysis (Lingerfelt & Thornton, 2011). Several approaches based on cognitive and behavioral theory believed as the new solutions to improve adherence in the long-term effect (Sharp, Wild, & Gumley, 2005; Tsay, 2003). Better understanding best approach could use to improve adherence especially fluid adherence is necessary in order to minimize the negative effect due to fluid overload.

METHODOLOGY

PICO question, In patient with chronic kidney disease undergoing hemodialysis (P), how does educational program or intervention program (I), affect fluid compliance (IDWG) (O)?

Type of questions: intervention (to determine which treatment leads to the best outcome)

Appropriate study to be search: RCT, quasi-experimental, systematic review

Combine Keyword(s), ((**Hemodialysis**) **AND** (**educational program OR intervention program**) **AND** (**fluid compliance OR fluid adherence**))

Potential articles (107)

EBSCO : 30

PUBMED : 70

OVID : 7

Subheading review from three databases

Potential articles (35)

EBSCO : 12

PUBMED : 16

OVID : 7

Assign the inclusion criteria based on abstract review, a).RCT or experimental design, b).Strategic approach involve educational.c). intervention/session , IDWG as an primary outcomes

Adult >18 years old, undergoing hemodialysis

3 included : a).RCT: 2 ,b).Quasi-experiment : 1

Evidence synthesizing,The present review aims to identify trials of intervention applied to improve adherence to fluid intake restrictions imposed on people undergoing hemodialysis. The

identification of three relevant studies was encouraging given that problematic adherence represent an importance area of renal care.

Among three of article, the results shows significance in reducing IWG between intervention and control groups. Interventions was involved not only educational sections but also cognitive and behavioral strategic (multi focus strategies). This fact might support the expert opinion which stated that collaboration of multi-focus strategies (**education, cognitive and behavioral**) component and the issue of empowering them related to self-care management are necessary to improve adherence among patients undergoing HD.

The effectiveness of interventions ranges from moderate to large effect size. This is indicating intervention effectiveness. It might seem a compromising way to improved fluid adherence as the major problem among patients undergoing hemodialysis. However, even the results were proved significant statistically, clinical significance of the effect is limited or questionable related to variations of desired IWG definitions. The definition of problematic criteria ranged from 2-2.5 and in one study was not reported. Moreover, reduction value of IWG after treatment still in range of non-adherence (above 2, 5 Kg). Accordingly, even though those interventions seems likely appropriate and effective to improve fluid adherence, further examination toward effectiveness in more long term evaluation have to considered.

The methodology limitations among those studies were found including non-blinding method (point out performance bias and detecting bias) although randomizations already perform in each of study; the level of study based on JBI consists of 1c and 2c; sample size among three studies was quite sufficient enough and the author explain the rigor method to calculate sample size estimation. One studies show, from initial phase until treatment done none of patients lost to follow up, one studies was clearly reported the number of patients which lost to follow up.

CONCLUSION

In conclusion, the evidence summarized in the current review indicates some possible benefit of using combination of intervention based on multi focus strategic which involving educational, cognitive and behavioral interventions to improve adherence to the fluid restriction imposed among people undergoing hemodialysis. Health care providers can use this result for basic information to arrange strategic planning program to improve fluid adherence among patients undergoing hemodialysis.

The following is synthesis of intervention program (summary protocol) from three Studies: 1). Educational session: to give brief introduction related to intervention program and influence related to kidney disease management and fluid management.2). Behavioral technique: Instruction for using self-monitoring skills (a daily diary method; recording method); controlling environment

Discussion session related to goal-setting for fluid intake, including barriers (cognitive and psychological approach): 3).Patients given homework assessment to discuss their goal setting with their health care provider, then discuss with instructor in group.

Individual counseling sessions were offered stressing physical and emotional adjustment to the chronic illness. a).Training skills.b).Continuous evaluation.c).Muscular relaxations technique* (Note: *only in two studies)

Based on that, in the context of feasibility and applicability, further examinations have to perform in relation to readiness of health care provider in relation to intervention program, especially in Indonesia due to the involvement of multidisciplinary team and other consideration is intervention content that indicates complex preparations will impose extensive planning, including qualification, content of intervention program, outcome follow up.

In-addition cost effectiveness have to identified if want to apply this program intervention, because it's important to translating evidence into practice. For instance, based on this review, even though effect size range from moderate to large, the evaluation post treatment show that range of IWG patients still in the range of non-adherence. So, comparing how many cost to be incurred and the

effectiveness of treatment and follow up have to be considered. In this study the range of intervention 4 - 12 weeks and the shorter follow up is 8 weeks and longest follow up 6 months.

In my point of view, if this program wants to apply in Indonesia, the arrangement of educational program and counseling session might try first, and use a diary log book for self-monitoring evaluation. However, consensus from expert to arrange best strategic planning (protocols) has to be performed first or might to conduct pilot study.

Another issue that has to be concerned are IWG value reference for non-adherence has to be decided before evaluating the effectiveness of treatment when this program is implemented in the future.

Further study suggestions : a). Include dietary adherence as an intervention and outcome measurement and follow up time more longer or at least 6 months, b). Cost effectiveness to indicate how much budget that has to be prepared to hold this program. c). Include a new updated strategic intervention as a comparison. Recently findings show new approaches that try to involve multi factors strategies and empowerment issues in the strategic framework, namely self-management program.

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