The Difference of Depression Score of Patients Failed Ultrafiltration Compared to Successful at Continuous Peritoneal Dialysis Patients in Dr. Sardjito General Hospital Yogyakarta

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Abstract

Background. High mortality and morbidity in patients with Chronic Kidney Disease (CKD) are associated with psychological problems and poor quality of life. Depression is a psychological problem most often found in groups of CKD patients undergoing renal replacement therapy. Specific research that links the failure of ultrafiltration in Continuous Ambulatory Peritoneal Dialysis (CAPD) patients with depression does not yet exist today. So that further research is needed regarding this matter so that various depression intervention approaches can be carried out in the group of patients undergoing CAPD.
Aim of Study. This study aimed to determine the difference in depressive score of patients who failed ultrafiltration compared to those who did not fail in patients undergoing Continuous Ambulatory Peritoneal Dialysis (CAPD) in RSUP dr. Sardjito Yogyakarta.
Method. A cross-sectional analytic study to assess differences in depressive score of CAPD patients with ultrafiltration failure compared to those who did not fail ultrafiltration in CAPD Clinic of RSUP dr. Sardjito Yogyakarta. The research subjects consisted of 41 people who fulfilled the inclusion and exclusion criteria. Depression assessment was carried out by calculating the total score of the BDI-II questionnaire and analyzing it using the Mann-Whitney method.
Result. The average value of BDI-II in this study was 12 ± 8. 1. Depression scores based on BDI-II are if the score is equal to or more than 17. In this study 7 research subjects (17.1%) are depression. BDI –II values in the non-ultrafiltration failure group 10,96±7,25 and in the failed group 13,38±9,73 with p= 0,633.
Conclusion. There were no significant differences in BDI-II score between groups that failed and those that did not fail ultrafiltration.

Keywords : *CKD, CAPD, Ultrafiltration, Depression, BDI -II Score*

Abstrak

Latar Belakang. *Angka mortalitas dan morbiditas yang tinggi pada pasien Penyakit Ginjal Kronik (PGK) berhubungan dengan permasalahan psikologis dan kualitas hidup yang buruk. Depresi merupakan permasalahan psikologis yang paling sering ditemukan pada kelompok pasien PGK yang menjalani terapi pengganti ginjal. Penelitian secara khusus yang menghubungkan antara gagal ultrafiltrasi pada pasien Continuous Ambulatory*

Peritoneal Dialysis (CAPD) dengan depresi belum ada hingga saat ini. Sehingga diperlukan penelitian lebih lanjut terkait hal tersebut dan dapat dilakukan berbagai pendekatan intervensi depresi pada kelompok pasien yang menjalani CAPD.

Tujuan Penelitian. *Mengetahui adanya perbedaan skor depresi pasien gagal ultrafiltrasi dibandingkan yang tidak gagal pada pasien yang menjalani tindakan Continuous Ambulatory Peritoneal Dialysis (CAPD) di RSUP dr. Sardjito Yogyakarta.*

Metode. *Penelitian potong lintang analitik untuk menilai perbedaan skor depresi pasien CAPD dengan kegagalan ultrafiltrasi dibandingkan dengan yang tidak gagal ultrafiltrasi di Poli CAPD RSUP dr. Sardjito Yogyakarta. Subjek penelitian terdiri dari 41 orang yang memenuhi kriteria inklusi dan eksklusi. Penilaian depresi dilakukan dengan menghitung skor total kuesioner BDI-II dan dilakukan analisis dengan metode Mann-Whitney.*

Hasil Penelitian. *Nilai rerata BDI-II pada penelitian ini adalah 12 ± 8. 1. Skor depresi berdasarkan BDI – II adalah jika nilai sama atau lebih dari 17. Pada penelitian ini 7 subjek penelitian (17,1%) mengalami depresi. Nilai BDI –II pada kelompok tidak gagal ultrafiltrasi 10,96±7,25 dan pada kelompok gagal 13,38±9,73 dengan p= 0,633.*

Kesimpulan. *Tidak terdapat perbedaan yang bermakna nilai BDI-II antara kelompok yang gagal dengan yang tidak gagal ultrafiltrasi.*

Kata Kunci. *PGK, CAPD, Ultrafiltrasi, Depresi, Skor BDI -II*

Background

The diagnostic and therapeutic approach in patients with Chronic Kidney Disease (CKD) has developed quite rapidly in the last few decades. In addition to the various achievements of diagnosis and therapy efforts in patients with CKD, the mortality and morbidity rates in this group of patients are still quite high. High mortality and morbidity rates in CKD patients are associated with psychological problems and poor quality of life [1].

Psychological problems are conditions that are often found in the CKD patients, including depression, dementia, anxiety, personality disorders, and drug abuse [2]. Depression is a psychological problem that is most often found in groups of CKD patients undergoing renal replacement therapy, either with Hemodialysis (HD) or Peritoneal Dialysis (DP). The prevalence of the incidence of depression is quite high and has vary results depending on the research methodology used. Most studies provide results in the prevalence of depression in CKD patients reaching 30%. Research shows that depression in CKD patients is a predictor of increased mortality and hospitalization in the group of patients undergoing dialysis [1]. Depression is a comorbid factor associated with worsening clinical conditions and an increase in the need for hospitalization in patients with chronic diseases, including a group of patients with CKD [3]. The condition of depression in CKD is often not recognized and not treated even though this problem is often encountered [4].

The success of CAPD as a renal replacement therapy depends on the ability of CAPD to remove fluid and solute. In the CAPD technique known several terms to find out the CAPD function. Ultrafiltration is the amount of excess fluid released as a result of differences in osmotic pressure produced by dialysate fluid in peritoneal dialysis techniques. Ultrafiltration failure is a major cause of technical failure in CAPD. Ultrafiltration failure is when CAPD ultrafiltration is less than 200 ml after four hours dwell time with two liters of 2.5% dialysate fluid or if

ultrafiltration is less than 400 ml after four hours dwell time with two liters of 4.25% dialysate fluid or if there is failure to reach daily ultrafiltration target of more than 750 mL in anuric patients. The technical failure of CAPD is if the patient cannot continue peritoneal dialysis as a therapy for kidney replacement. Medical factors and mechanical factors are two causes of ultrafiltration failure. Mechanical factors causing ulrafiltration failure are due to peritoneal dialysis catheter dislocation caused by omentum wrapping, scaling, and malposition during catheter placement. Medical factors causing ultrafiltration failure include membrane function, lymphatic absorption, dialysate fluid volume, osmolarity and peritoneal blood flow. The amount of ultrafiltration is related to the survival rate of CAPD patients. Ultrafiltration was a predictor of survival in peritoneal dialysis patients in a prospective observational European Automated Peritoneal Dialysis Outcome Study (EAPOS) study [5].

Ultrafiltration failure causes excessive fluid volume status in CAPD patients. Poor control of volume status will aggravate the symptoms of the disease. Adaptation to the condition of this illness causes changes in the patients life. The psychological impact on patients can be manifested as behavioral changes, including insecure feeling, losing hope of long live, and causing suffering that arises a state of depression [6].

The aim of this study was to determine the differences in depression score of patients who failed ultrafiltration compared to those who did not fail in patients undergoing Continuous Ambulatory Peritoneal Dialysis (CAPD) in RSUP dr. Sardjito Yogyakarta.

Methods

This study was a cross-sectional analytic study to assess differences in depression score in terminal CKD patients undergoing CAPD with ultrafiltration failure compared to those who did not fail ultrafiltration at RSUP dr. Sardjito Yogyakarta. This research was conducted at CAPD Internal Medicine in RSUP dr. Sardjito Yogyakarta in November to December 2018.

The target population of this study was terminal CKD patients in CAPD therapy. The affordable population of the study was terminal CKD patients in CAPD therapy at RSUP dr. Sardjito Yogyakarta. The study sample was terminal CKD patients in CAPD therapy at RSUP dr. Sardjito Yogyakarta that fulfills inclusion and exclusion criteria. Subjects who met the inclusion criteria were asked to fill out the BDI - II questionnaire.

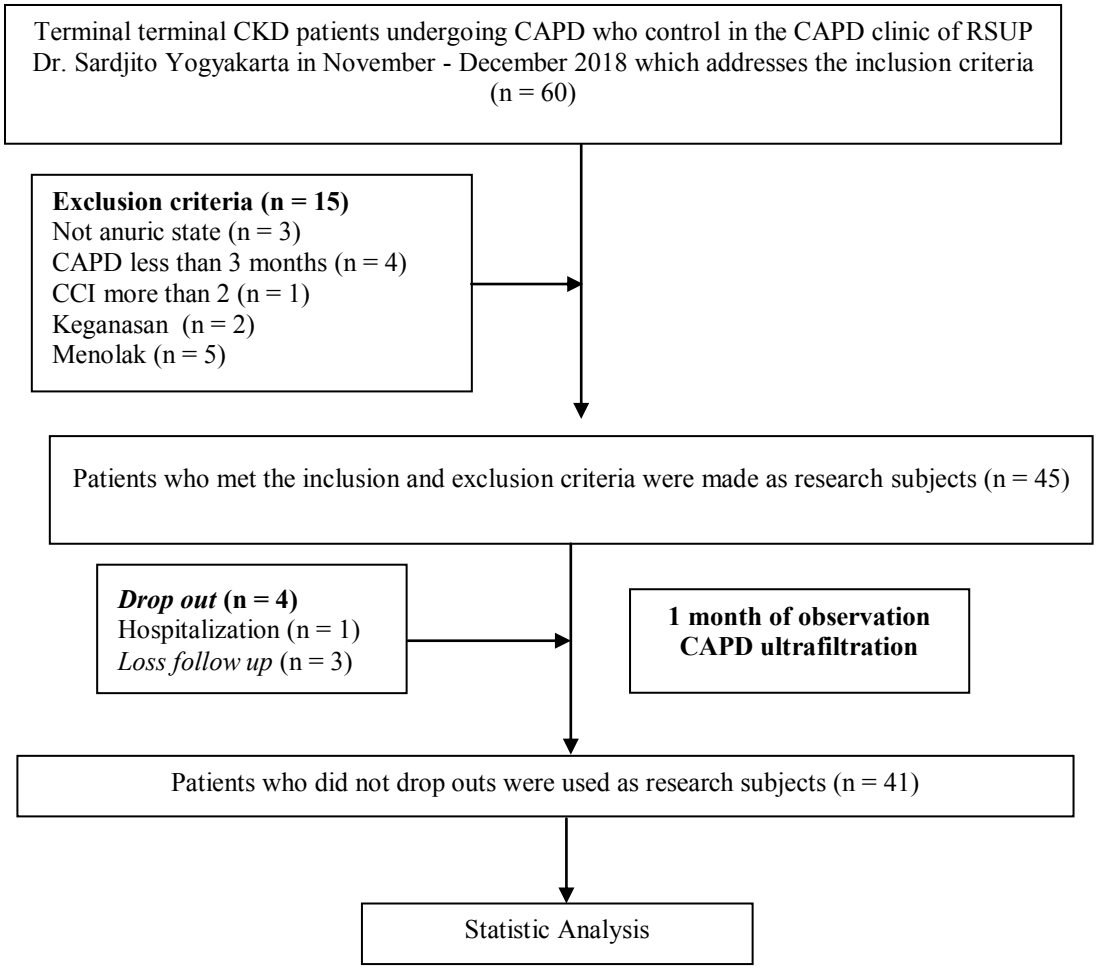
Inclusion criteria include: (1) At least 18 years old, (2). Terminal CKD patients in CAPD therapy at RSUP dr. Sardjito Yogyakarta, and (3). Available to participate in research by signing a statement of willingness to take part in the study. While the exclusion criteria include: (1). Patients are not anuria with the definition of anuria if the amount of urine is less than 100 ml in a day, (2). Patients with CAPD therapy are less than three months, (3). Patients with high comorbidity and severe symptoms were based on three or more Charslon Comorbidity Index (CCI) criteria, (4). Patients who did not adhere to therapy with the definition from the patient's medical record had no control period in 3 consecutive months and had been hospitalized due to volume overload, uremic syndrome, and hyperkalemia, (5). CAPD patients who experience technical

failure, which is a condition where the CAPD can not continue and must be replaced with hemodialysis, and (6). Patients with known malignancies from medical records.

The criteria for drop out in this study were subjects experiencing technical failure or experiencing hospitalization during the study period or loss to follow-up or patients did not have good compliance for CAPD use. Subjects are said to be obedient if there is no absence or reduction in dwelling time of more than 20% in one month.

The research subjects were terminal CKD patients in CAPD therapy at RSUP dr. Sardjito Yogyakarta. Subjects who have met the inclusion and exclusion criteria, measured the number of ultrafiltrations based on the patient's CAPD diary and filled each time peritoneal dialysis by the patient. Depression score were measured using the BDI-II questionnaire.

Data from the results of this study are displayed using a mean, standard deviation, and percentage. To determine whether there were differences in depression values between patients who had failed ultrafiltration with patients who did not have ultrafiltration failure, the analysis of unpaired T test was used if the data distribution was normal. If there are data distribution abnormalities, the Mann-Whitney



Picture 1. Flow of Research

analysis is carried out. To see the normality of the data, it was analyzed using the Shapiro-Wilk method. Significance was statistically determined if the value of P <0.05. Analysis of this study used SPSS version 21.

Result

Data has been taken in the CAPD clinic of RSUP dr. Sardjito Yogyakarta in November to December 2018. The study sample was terminal CKD patients who underwent CAPD and control to the CAPD clinic of RSUP dr. Sardjito Yogyakarta. Patients who met the inclusion and exclusion criteria were subjected to the study and informed consent was made.

A total 60 patients who met the inclusion criteria there were 15 subjects who fulfilled the exclusion criteria which consisted of three subjects who were not anuric, four with CAPD use less than 3 months, one subject with CCI 4, two subjects with malignancy (myelodysplasia syndrome and tongue carcinoma), and five subjects refused. There were 45 subjects who were followed to ultrafiltration observation for one month. In one month's, ultrafiltration observation of 45 study subjects, there were 4 drop out subjects consisting of three subject's loss to follow-up and one subject got peritonitis and admit to hospital. The case of loss to follow-up occurred because the patient's address was outside Yogyakarta and the patient did not come regularly to the CAPD clinic (represented by caregiver). The questionnaire data could not be taken so that there were 41 patients who could be analyzed as research subjects.

The research subjects consisted of 41 people consisting of 24 male (58.5%) and 17 females (41.5%) with a median age of 37 (18 - 69) years. The education level of the research subjects was mostly high school graduates as much as 48.8% and 63.4% of the research subjects were still actively working. The economic level of research subjects based on criteria by Safaruddin (2012) is mostly medium economic level as much as 61.0% [7]. The main risk factors for kidney failure taken from medical record data show that hypertension was 36.6% followed by chronic glomerulonephritis by 19.5%.

Data on baseline clinical characteristics in this study showed an average hemoglobin level of 9.31 ± 1.65 g / dl with most subjects being mild anemia (10 - 12 g / dl) as much as 39.0%. The average blood BUN level was 40.00 (17.10 - 80.70) mg / dl, blood creatinine was 12.12 ± 3.97 mg / dl, and albumin was 3.72 (2.41 - 4.36) g / dl. The median duration of CAPD for the study subjects was 36 (5.0 - 144.0) months with the highest proportion of one to three years CAPD amounting to 41.5%. The table below shows the socio-demographic data of the research subjects.

Measurement of ultrafiltration values within one month showed an average daily ultrafiltration value of 906.59 ± 339.17 ml per day. Ultrafiltration failure in this study is if ultrafiltration in one day does not reach 750 ml. Ultrafiltration failure in this study occurred in 13 subjects (31.7%).

In this study, 31.7% of subjects experienced ultrafiltration failure. The table below shows differences in clinical characteristics based on ultrafiltration failure.

The table 2 above shows that there was a significant difference of body mass index in clinical characteristics between groups that failed and those that did not fail ultrafiltration.

Depression assessment of the research subjects was carried out by the BDI-II questionnaire. After the research subjects filled out the BDI-II questionnaire accompanied

Table 1. Baseline Clinical Characteristics and Socio-Demographic Data of Research Subjects

Variable	N (%) or mean ± SD or median (min-max)
Sex	
Male	24 (58,5)
Female	17 (41,5)
Age (year)	37 (18 – 69)
Weight (kg)	56,76 ± 12,07
Height (m)	159,90 ± 10,09
Body Mass Index (kg/m^2)	21,97 ± 3,10
Underweight (<18,5), n (%)	7 (17,1)
Normal (18,5 – 22,9), n (%)	18 (43,9)
Overweight (23 – 24,9), n (%)	7 (17,1)
Obese I (25 – 29,9), n (%)	9 (22,0)
Obese II (30 atau lebih), n (%)	0 (0,0)
Education	
Illiterate, n (%)	0 (0,0)
Primary School, n (%)	2 (4,9)
Junior High School, n (%)	5 (12,2)
Senior High School, n (%)	20 (48,8)
Diploma, n (%)	1 (2,4)
Bachelor, n (%)	13 (31,7)
Postgraduate, n(%)	0 (0,0)
Occupation	
Unemployment, n (%)	15 (36,6%)
Employee, n (%)	26 (63,4%)
Caregiver	
Spouse, n (%)	13 (31,7)
Children, n (%)	5 (12,2)
Sibling, n (%)	2 (4,9)
Relative, n (%)	0 (0,0)
Other, n (%)	0 (0,0)
Patient, n (%)	12 (29,3)
Parent, n (%)	9 (22,0)
Socio-economic status	
Low, n (%)	9 (22,0)
Medium, n (%)	25 (61,0)
High, n(%)	7 (17,1)
Major Risk Factor of CKD	
Hypertension, n(%)	15 (36,6)
Diabetes mellitus, n(%)	5 (12,2)
Kidney stone, n(%)	1 (2,4)
Hyperuricaemia, n(%)	2 (4,9)
Polycyst Kidney, n(%)	1 (2,4)
Glomerulonephritis/GNC, n(%)	8 (19,5)
Nefrotoxic, n(%)	4 (9,8)
Unknown, n(%)	5 (12,2)
Charlson Comorbidity Index (CCI)	
0, n (%)	24 (58,5)
1, n (%)	12 (29,3)
2, n (%)	5 (12,2)
Comorbidity	
Hypertension, n(%)	33 (80,5)
Diabetes meliitus, n(%)	5 (12,2)
CHF, n(%)	2 (4,9)
Stroke, n(%)	1 (2,4)
Laboratorium	
Haemoglobin (g/dl)	9,31 ± 1,65
BUN (mg/dl)	40,00 (17,10 – 80,70)
Serum Creatinine (mg/dl)	12,12 ± 3,97
Albumin (g/dl)	3,72 (2,41 – 4,36)
Anaemia	
Normal (>12 g/dl), n(%)	1 (2,4)
Mild (10-12 g/dl), n(%)	16 (39,0)
Moderate (8-10 g/dl), n(%)	15 (36,6)
Severe (<8 g/dl), n(%)	9 (22,0)
CAPD duration (months)	36 (5,0 – 144,0)
3 – 6 months, n(%)	1 (2,4)
6 – 12 months, n(%)	3 (7,3)
1 – 3 years, n(%)	17 (41,5)
3 – 5 years, n(%)	10 (24,4)
>5 years, n(%)	10 (24,4)
Dialysate consentration	
1,5, n(%)	11 (26,8)
2,5, n(%)	0 (0,0)
Combination, n(%)	30 (73,2)
Ultrafiltration (ml/hari)	**906,59 ± 339,17**
Fail Ultrafiltration	**13 (31,7)**

by researchers, the questionnaire results sheet was given a total score and interpreted. The average value of BDI-II in this study was 12 ± 8. 1. Depression scores based on BDI-II are if the score is equal to or more than 17. In this study 7 research subjects (17.1%) experienced depression. To assess the difference in the value of BDI-II based on ultrafiltration failure, a statistical test is shown in the table below.

Table 3 above shows that there is no significant difference in the value of BDI-II between groups that fail and those that do not fail ultrafiltration with p= 0.633.

Table 2. Clinical Characteristics Based on Ultrafiltration Failure

Variable	N (%) or mean ± SD		p Value
	Not Fail Ultrafiltration	Fail Ultrafiltration	
Sex			
Male	14 (50,0)	3 (23,1)	0,24[m]
Female	14 (50,0)	10 (76,9)	
Age (year)	42,11 ± 16,87	35,23 ± 13,41	0,103[c]
Weight (kg)	59,11 ± 9,8	51,69 ± 15,09	0,067[i]
Height (m)	160,71 ± 8,51	158,15 ± 13,09	0,457[i]
Body Mass Index (kg/m^2)	22,81 ± 2,69	20,15 ± 3,24	0,009[i]
Underweight (<18,5), n (%)	2 (7,1)	5 (38,5)	0,049[c]
Normal (18,5 – 22,9), n (%)	12 (42,9)	6 (46,2)	
Overweight (23 – 24,9), n (%)	6 (21,4)	1 (7,7)	
Obese I (25 – 29,9), n (%)	8 (28,6)	1 (7,7)	
Obese II (30 atau lebih), n (%)	0 (0,0)	0 (0,0)	
Education			
Illiterate, n (%)	0 (0,0)	0 (0,0)	0,248[c]
Primary School, n (%)	0 (0,0)	2 (15,4)	
Junior High School, n (%)	3 (10,7)	2 (15,4)	
Senior High School, n (%)	14 (50,0)	6 (46,2)	
Diploma, n (%)	1 (3,6)	0 (0,0)	
Bachelor n (%)	10 (35,7)	3 (23,1)	
Post Graduate, n(%)	0 (0,0)	0 (0,0)	
Occupation			
Unemployment, n (%)	12 (42,9)	3 (23,1)	0,305[f]
Employee, n (%)	16 (57,1)	10 (76,9)	
Caregiver			
Spouse, n (%)	7 (25,0)	6 (46,2)	0,087[c]
Children, n (%)	5 (17,9)	0 (0,0)	
Sibling, n (%)	2 (7,1)	0 (0,0)	
Relative, n (%)	0 (0,0)	0 (0,0)	
Other, n (%)	0 (0,0)	0 (0,0)	
Patient, n (%)	10 (35,7)	2 (15,4)	
Parent, n (%)	4 (14,3)	5 (38,5)	
Socio-economic Status			
Low, n (%)	4 (14,3)	5 (38,5)	0,114[c]
Moderate, n (%)	20 (71,4)	5 (38,5)	
High , n(%)	4 (14,3)	3 (23,1)	
Major Risk Factor of CKD			
Hypertension, n(%)	12 (42,9)	3 (23,1)	0,663[c]
Diabetes mellitus, n(%)	3 (10,7)	2 (15,4)	
Kidney Stone, n(%)	0 (0,0)	1 (7,7)	
Hyperuricaemia, n(%)	1 (3,6)	1 (7,7)	
Polycyst Kidney, n(%)	1 (3,6)	0 (0,0)	
Glomerulonephritis/GNC, n(%)	6 (21,4)	2 (15,4)	
Nefrotoxic, n(%)	2 (7,1)	2 (15,4)	
Unknown, n(%)	3 (10,7)	2 (15,4)	
Charlson Comorbidity Index (CCI)			
0, n (%)	15 (53,6)	9 (69,2)	0,410
1, n (%)	10 (35,7)	2 (15,4)	

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2, n (%)	3 (10,7)	2 (15,4)	
Comorbidity			
Hypertension, n(%)	22 (78,6)	11 (84,6)	1,000[f]
Diabetes mellitus, n(%)	3 (10,7)	2 (15,4)	0,645[f]
CHF, n(%)	2 (7,1)	0(0,0)	1,000[f]
Stroke, n(%)	1 (3,6)	0 (0,0)	1,000[f]
Laboratorium			
BUN (mg/dl)	42,19 ± 14,82	38,88 ± 14,64	0,245[m]
Serum Creatinine (mg/dl)	12,86 ± 4,03	10,53 ± 3,47	0,081[i]
Albumin (g/dl)	3,62 ± 0,50	3,64 ± 0,54	0,801[m]
Haemoglobin (g/dl)	9,20 ± 1,64	9,56 ± 1,71	0,518[i]
Anaemia			
Normal (>12 g/dl), n(%)	0 (0,0)	1 (7,7)	0,504[c]
Mild (10-12 g/dl), n(%)	11 (39,3)	5 (38,5)	
Moderate (8-10 g/dl), n(%)	11 (39,3)	4 (30,8)	
Severe (<8 g/dl), n(%)	6 (21,4)	3 (23,1)	
CAPD duration (months)	46,32 ± 28,53	35,69 ± 38,13	0,079[m]
0 – 6 months, n(%)	0 (0,0)	1 (7,7)	0,189[c]
6 – 12 months, n(%)	1 (3,6)	2 (15,4)	
1 – 3 years, n(%)	11 (39,3)	6 (46,2)	
3 – 5 years, n(%)	9 (32,1)	1 (7,7)	
>5 years, n(%)	7 (25,0)	3 (23,1)	
Dyalisate Consentration			
1,5, n(%)	6 (21,4)	5 (38,5)	0,280[f]
2,5, n(%)	0 (0,0)	0 (0,0)	
Combination, n(%)	22 (78,6)	8(61,5)	

[c]Chi square test, [f]Fisher exact test, [i]Independent T test, [m]Mann whitney test

Table 3. BDI-II Scores Based on Ultrafiltration Failures

Ultrafiltration	n	BDI-II Score					p
		Mean	Standard Deviation	Median	Min	Max	
Fail	28	10,96	7,25	10,00	2,00	30,00	0,633*
Not fail	13	13,38	9,73	10,00	3,00	36,00	

*Mann Whitney

Discussion

This study was conducted to assess differences in the value of depression based on ultrafiltration in patients with terminal renal failure undergoing CAPD therapy. Depression in this study was assessed by the Indonesian language version of the BDI-II questionnaire and the ultrafiltration score was assessed based on the patient's CAPD diary record. Ultrafiltration is the amount of excess fluid released as a result of differences in osmotic pressure produced by dialysate fluid in peritoneal dialysis techniques. Ultrafiltration failure is when CAPD ultrafiltration is less than 200 ml after four hours dwell time with two liters of 2.5% dialysate fluid or if ultrafiltration is less than 400 ml after four hours dwell time

with two liters of 4.25% dialysate fluid or if there is failure to reach daily ultrafiltration is more than 750 ml in anuric patients [5,8].

In this study the definition of ultrafiltration CAPD failure was the failure to achieve a daily ultrafiltration target of more than 750 ml in anuric patients. The results of this study indicate the failure rate of ultrafiltration of CAPD patients in RSUP dr. Sardjito reached 31.7%. This result shows the failure rate of ultrafiltration in RSUP dr. Sardjito is bigger than data from other countries. Research conducted in Amsterdam Netherlands showed ultrafiltration failure reached 23% [9]. The European APD Outcomes Study reported ultrafiltration failure in Europe at 26% [10]. Until now no data has been obtained regarding the ultrafiltration failure rates of CAPD patients in Indonesia.

The level of depression in this study reached 17.1% with the definition of depression if the value of BDI-II is equal to or more than 17. This result is lower when compared to some previous studies. The research conducted by Guney *et al.* (2015) showed the results of the prevalence of depression in patients with chronic kidney failure reached 25.8% [11]. While Andrade and Sesso (2012) reported the prevalence of depression in chronic renal failure groups undergoing hemodialysis therapy by 41.6% while those undergoing conservative therapy amounted to 37.3% [12]. The meta-analysis of 5105 subjects showed that the prevalence of depression in chronic renal failure reached 20.3% [13].

In this study depression score measurements using a validated BDI –II questionnaire for the Indonesian population which is found a higher depression score limit. A mild depression score based on the BDI-II score validated for the Indonesian population is 17 [14]. Based on the BDI-II manual, depression scores were categorized into four, a score of ≤ 13 indicating minimal depression, a score of 14 - 19 indicating mild depression, a score of 20 - 28 indicating moderate depression, and a score of 29 - 63 indicating severe depression [15,16].

Depression can be influenced by several factors including loss of function of organs, loss of livelihood, changes in lifestyle and other. In accordance with the theory of loss in the initial stages, a person feels denial where at this stage there is sadness that can quit a few seconds, minutes, or several days. This stage is a form of self-defense, until finally someone begins to accept (acceptance stage) the reality that happened. Adaptation phase which can reduce depression levels in patients undergoing dialysis therapy. This adaptive coping behavior is needed by patients undergoing dialysis to reduce psychological disorders [17]. In this study, no coping mechanism measurements were taken of patients undergoing CAPD.

There have been no studies analyzing differences in the value of depression based on the number of ultrafiltration in CAPD patients including in Indonesia. The results of this study showed that there was no difference in the value of BDI-II or the prevalence of depression among patients who managed ultrafiltration with those who failed ultrafiltration. This can occur other than because lack of the number of research subjects but there is other factor that influence symptoms of depression in addition to ultrafiltration status. The dialysis process in CAPD includes ultrafiltration (osmotic water movement) and diffusion movement of the solute. The severity of physical symptoms that can cause depression in patients with CAPD other than being affected by fluid volume status is also influenced by the status of the solute.

In this study there was no assessment of the function of solute diffusion (adequate CAPD) to assess the function of solute removal. Further research needs to be done to assess the effect of coping mechanism and solute diffusion (CAPD adequacy) function on symptoms of depression.

Conclusion

1. The failure rate of ultrafiltration of CAPD patients in RSUP dr. Sardjito Yogyakarta reached 31.7%
2. The level of depression in patients with terminal kidney failure who underwent CAPD in RSUP dr. Sardjito Yogyakarta reaches 17.1%
3. There was no difference in depression symptom between the ultrafiltration failure group and the successful ultrafiltration group in terminal renal failure patients undergoing CAPD in RSUP dr. Sardjito Yogyakarta.

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