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Prevalence and Associated Factors of Protein-Energy Wasting among Maintenance Hemodialysis Patients in University of Gadjah Gada Hospital, Yogyakarta

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Objectives: Protein-energy wasting (PEW) is a maladaptive metabolic state occurred in Maintenance Hemodialysis Patients (MHD), the prevalence varies between 20-70%. PEW is associated with negative outcomes in MHD patients such as mortality and poor response to Erythropoietin. This study was aimed to determine the prevalence of pew and factors associated among MHD patients in University of Gadjah Mada (UGM) Hospital, Yogyakarta

Methods: This observational research with a cross-sectional study design was conducted in the dialysis unit UGM Hospital, Yogyakarta in January 2019. A total of 70 MHD patients who carried out dialysis 2 times per week were involved. The information collected were: age, gender, education level, Hemodialysis vintage, anthropometry data (Body Mass Index (BMI), Mid Upper Arm Circumference (MUAC), total fat percentage, Visceral Fat, Subcutaneous Fat), Handgrip Strength (HGS), Albumin serum, Endocrine disorder and Comorbidity obtained with Charlson Comorbidity Index (CCI). Protein Energy Wasting (PEW) is categorized by criteria endorsed by the International Society of Renal Nutrition and Metabolism (ISRNM) consensus.

Results: The prevalence of PEW in MHD patients was 30% in this study. Factors that were associated with PEW included gender, age, education level, Hemodialysis vintage, BMI, MUAC, % total fat, Visceral Fat, and HGS. There was no statistically significant association among Subcutaneous Fat, Endocrine disorder, and Comorbidity with PEW.

Conclusions: PEW was more prevalent among older adult MHD patients with longer HD vintage, Poor MUAC, and HGS, lower total fat percentage**.**

Table 1. Determinants factors of PEW

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Variables	PEW		
	PEW n	Not n	p
Gender			
Women	12 (37.5)	20 (62.5)	0.209
Men	9(23.7)	29(76.3)	
HD Vintage			
>5 years	7(50.0)	7(50.0)	0.031*
<5 years	10(20.8)	38(79.2)	
Education level			
No formal education	8(66.7.0)	4(33.3)	0.008*
High school	10(25.0)	30(75.0)	
University degree	3(16.7)	15(83.3)	
BMI			
Poor	21(46.7)	24 (53.3)	<0.001*
Optimum	0(0.0)	25(100.0)	
MUAC			
Poor	20(76.9)	6(23.1)	<0.001*
Optimum	1(2.3)	43(97.7)	
% Total Fat			
Under	15(39.5)	23(60.5)	0.043*
Normal	3(15.7)	19(86.3)	
Over	0	4	
Visceral fat			
Normal	19(41.3)	27(58.7)	0.001*
High	0	19(100.0)	
Subcutaneous Fat			
Low	4(44.4)	5(56.6)	0.311
Optimum	17(27.9)	44(72.1)	
Endocrine Disorder			
DM	9(37.5)	15(62.5)	0.243
Non-DM	9(23.7)	29(76.3)	
Comorbiditiy			
Moderate (3-4)	13(40.6)	19(59.4)	
Mild (1-2)	8(21.0)	30(79.0)	0.075
Severe (≥5)	0	0	
Age (Mean)	55.10±13.67	48.06±13.12	0.036*
HGS (Mean)	14.15±6.46	19.67±10.72	0.032*
MUAC	21.32±2.06	26.30±3.69	<0.001*
% Total Fat	12.74±7.50	21.26±8.26	<0.001*

*p<0.05 is statistically significant