Abstract Submission No. : 1343

Validity of Dialysis Malnutrition and Malnutrition Inflammation Score Compared to GLIM Criteria to Assess Malnutrition in Maintenance Hemodialysis Patients

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Objectives: Malnutrition is prevalent among Maintenance Hemodialysis (MHD) patients worldwide. Early detection to distinguish malnutrition is essential to plan the nutrition care process. GLIM Criteria is a novel tool proposed to assess malnutrition in various diseases, however, the study is still scarce in the Indonesian setting. This study aimed to assess the validity of DMS and MIS to detect malnutrition among MHD patients.

Methods: A cross-sectional study design was conducted on 2 dialysis units in Yogyakarta, Indonesia. Data collection included patients' characteristics and nutritional status. A total of 118 MHD patients who carried out dialysis 2x/ week were screened using DMS and MIS. Patients who scored >14 points in DMS and >5 in MIS were categorized as malnourished. The Global Leadership Initiative on Malnutrition (GLIM) criteria were administered as the gold standard, hence, the patient who develop at least one phenotypic and one etiologic criterion was categorized as malnourished. Data analysis was performed using Chi-square and ROC methods.

Results: Among 118 patients recruited, 58.5% were female, aged 44 years, and had a Body Mass Index (BMI) of 22.6 kg/m^2 on average. The prevalence of malnourished MHD patients according to GLIM criteria, MIS and DMS was 29.7%, 44.0%, and 33.5% respectively. The sensitivity and specificity for MIS and DMS for detecting malnutrition compared to GLIM criteria were 34.6% vs 50.0% and 74.6% vs 61.2% respectively. The AUC of ROC of MIS and DMS tools were 0.570 and 0.578.

Conclusions: MIS was more sensitive to screen patients at risk for Malnutrition and DMS has a higher value of specificity to diagnose malnutrition in MHD patients.

Figure 1. Prevalence of Malnutrition according to MIS, DMS, and GLIM criteria

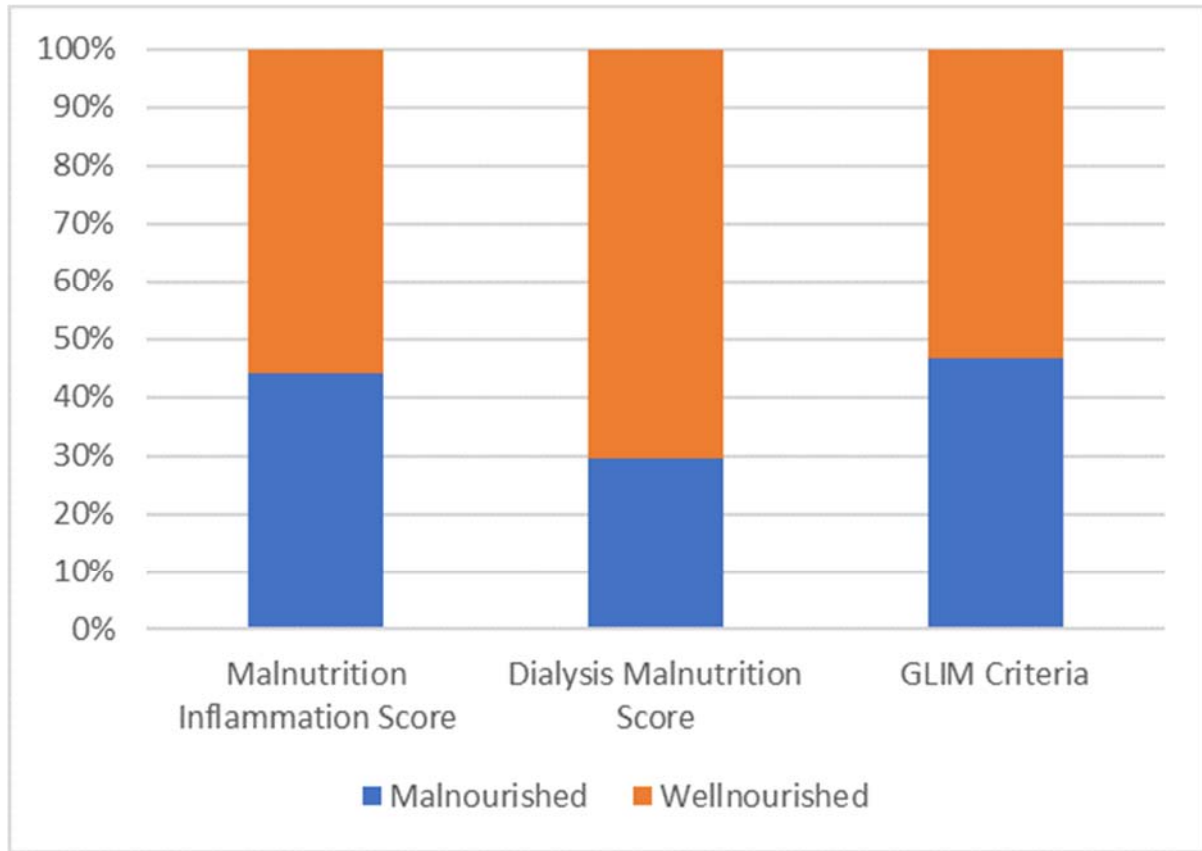Table 2. Validity comparison of MIS and DMS according to GLIM criteria

Variable	AUC	p	Se(%)	Sp(%)	MSS	+LR	-LR	kappa
DMS	0.578	0.185	34.6	74.6	109.2	1.36	0.74	0.096
MIS	0.570	0.150	50.0	61.2	111.2	1.29	0.81	0.112

DMS : Dialysis Malnutrition Score; MIS : Malnutrition Inflammation Score; GLIM : Global Leadership Initiative on Malnutrition