Journal of Nutrition Science Research

Mori, J Nutr Sci Res 2022, 7:6

Perspective Open Access

Nutritional Disorder Evaluated By the Geriatric Nutritionary Risk Index Predicts Death Once Hospitalization for Infection in Patients Undergoing Maintenance Haemodialysis

Katsuhito Mori*

Department of Nephrology, Osaka City University Graduate School of Medicine, Osaka, Japan

Abstract

Infection is expounded to a better rate of hospitalization and ulterior death in patients undergoing haemodialysis. Restricted knowledge area unit obtainable concerning factors related to death when hospitalization for infection. Organic process disorder conjointly called supermolecule energy wasting is deeply related to poor consequences. The Geriatric organic process Risk Index (GNRI) could be an easy however helpful organic process screening tool to predict mortality. We tend to examined whether or not the GNRI might predict hospitalization for infection and ulterior death [1, 2].

Keywords: Geriatric nutritional risk index (GNRI); Protein-energy wasting (PEW); Infection; Mortality; Hospitalization; Haemodialysis

Introduction

Infection may be a common explanation for death in patients undergoing qualitative analysis.1,2 though infection is additionally associated with a better rate of hospitalization,3,4 restricted knowledge square measure accessible to look at the outcomes once hospitalization for infection in patients undergoing dialysis. within the HEMO (Hemodialysis) study, fifty eight of patients with a primary hospitalization for infection had severe outcomes together with medical care unit keep, prolonged hospitalization, and death.5 A retrospective cohort study mistreatment the USA nephritic system showed terribly high rates of 30-day admittance and death once initial hospitalization for infection.6 However, factors related to the long-run mortality once hospitalization for infection square measure mostly unknown [3].

Nutritional disorder in patients undergoing dialysis is characterised by loss of muscle mass and fuel reserves. The International Society of nephritic Nutrition and Metabolism planned the idea of macromolecule energy wasting (PEW) to specific adverse changes in nutrition and body composition.7 bench is closely associated with poor consequences together with frailty, sarcopenia, infection, upset (CVD), and resultant death.8 As a possible tool for the assessment of bench, the International Society of nephritic Nutrition and Metabolism remarked the Malnutrition-Inflammation Score (MIS),9 that may be a comprehensive rating system however is needed for subjective assessment by a well-trained examiner.7 In distinction, the Geriatric organic process Risk Index (GNRI) may be a easy screening tool, that is well calculated solely by weight, height, and albumen.10 Among five candidates for organic process screening tool, the GNRI was most correlative to the MIS in patients undergoing dialysis.10 it's been rumoured that the GNRI was a major predictor of all-cause,11,12 CVD-related,13 and infection-related mortality14 in patients undergoing dialysis. However, it's not clear whether or not a lower GNRI was related to the onset of infection or consequent death.

The aim of this study was to look at the association of the GNRI with all-cause mortality and hospitalization for infection in an exceedingly prospective cohort of Japanese patients undergoing maintenance dialysis. Additionally, we have a tendency to investigate whether or not the GNRI might predict death once hospitalization for infection [4].

Materials and Methods

Study site and study area

Essam Government Hospital is a 96-bed capacity hospital which provides health needs including ART services for communities located within the Bia-West Districts and beyond. Bia-West District is located in the Western North Region of Ghana, with Essam as its capital, and has a total surface area of 1,287.265 square kilometres. The district shares boundaries with the Bia-East District to the north and east, the Republic of La Cote d'Ivoire to the west, and Juaboso District to the south. According to the 2010 population and housing census, the population of the district stands at 88,939 with 45,717 males and 43,222 females.

Study design and study population

We employed a hospital-based retrospective study with a longitudinal approach in this study. Records from 180 HIV infected patients' folders before and after initiation of combination Active Anti-Retroviral Therapy (cART) were reviewed at the ART Clinic of the Essam Government Hospital. Eligibility criteria included being on treatment without change in regimen for at least one year and without defaulting in scheduled visits [5].

Sampling technique

Convenience and purposive sampling techniques were used to retrieve folders of HIV/AIDS registrants at the ART Clinic of the Essam Government Hospital.

***Corresponding author:** Katsuhito Mori, Department of Nephrology, Osaka City University Graduate School of Medicine, Osaka, Japan, E-mail: ktmori@med.osaka-cu.ac.jp

Received: 01-Nov-2022, Manuscript No. snt-22-83328; **Editor assigned:** 04-Nov-2022, PreQC No. snt-22-83328 (PQ); **Reviewed:** 18-Nov-2022, QC No. snt-22-83328; **Revised:** 25-Nov-2022, Manuscript No. snt-22-83328 (R); **Published:** 30-Nov-2022, DOI: 10.4172/snt.1000184

Citation: Mori K (2022) Nutritional Disorder Evaluated By the Geriatric Nutritionary Risk Index Predicts Death Once Hospitalization for Infection in Patients Undergoing Maintenance Haemodialysis. J Nutr Sci Res 7: 184.

Sample size determination

Using the total number of registrants of PLHIV on ART at the ART Clinic of the Essam Government Hospital as of January 2018 (2000 patients), the Raosoft Online Sample Size Calculator was used to calculate the minimum sample size of 176 at 95% confidence interval, a 6% margin of error and a response distribution of 23.6% being the prevalence of nutritional abnormalities reported.

Data collection

Information relevant for the study was extracted from patients' folders. Data extracted included patients' demography, nutritional parameters and medication history.

Nutritional assessment

PLHIV were classified using the subjective global assessment (SGA) tool. The SGA tool includes five components of a medical history (weight change, dietary intake, gastrointestinal (GI) symptoms, functional capacity, and metabolic stress). Also, three components of a brief physical examination were used. This includes signs of fat loss (lipodystrophy), muscle wasting and alterations in fluid balance. All these aforementioned parameters were obtained from patient's folders. A qualified dietician assessed the SGA scores and these were used to classify PLHIV as "normally nourished," "moderately malnourished" or "severely malnourished" as previously described [6].

Discussion

In the present study, a lower GNRI was significantly associated with all-cause mortality but not hospitalization for infection. However, a lower GNRI was an independent risk factor for death after hospitalization for infection during the subsequent 2.5-year follow-up period. These findings suggest that nutritional disorder evaluated by the GNRI could predict long-term death after infection as well as mortality.

Although the GNRI is a simple and objective tool with no need of special equipment and technique, it seems to be equivalent to other nutritional scoring systems such as the MIS, which is recognized to be a comprehensive standard tool for assessment of PEW. Previous studies reported that the GNRI was a predictor of all-cause mortality in patients undergoing haemodialysis. The GNRI was also associated with CVD mortality in patients undergoing incident haemodialysis. A recent report showed that the GNRI was a significant predictor of infection-related mortality as well as all-cause mortality in patients undergoing haemodialysis. To our knowledge, this is the first study to show that the GNRI can predict not only mortality but also death after hospitalization for infection [7].

Two studies reported short-term morbidity and mortality after hospitalization for infection and factors associated with these poor outcomes in patients undergoing haemodialysis. Allon et al reported the poor outcomes after hospitalization for infection in analyses of secondary endpoints in the HEMO study. Among 783 patients with the first hospitalization for infection, 224 (28.6%) were hospitalized longer than 7 days, 120 (15.3%) were treated in the intensive care unit, and 108 (13.8%) died. Advanced age and low albumin level were associated with these worse outcomes. On the other hand, Dalrymple et al focused on 30-day outcomes after discharge using the US Renal Data System [8]. Of patients who survived the initial hospitalization (n = 54,996), 15,113 (27%) were readmitted and survived the 30 days, 1,624 (3%) were readmitted and then died within 30 days of discharge, and 2,425 (4%) died without hospital readmission. They found that lower albumin level, lower BMI, physical inability, absence of nephrology care prior to dialysis, and non-Hispanic ethnicity were associated with readmission and death without readmission. Thus, poor nutritional status as indicated by low albumin level was a common risk factor for short-term prognosis in these previous reports. In this study, we followed up patients after the first hospitalization for infection during relatively longer period (2.5 years). Our results indicate that poor nutritional status evaluated by the GNRI could predict longer-term mortality after hospitalization for infection.

Recent works focus on the long-term management after sepsis rather than acute-phase treatment. Medical progress has improved in-hospital and 28-day mortality, whereas long-term mortality remains considerably high in patients with chronic critical illness (CCI) including survivors from sepsis. The patients with CCI suffer from recurrent infections, organ dysfunction, malnutrition, weakness, and resultant death. Although there is no established treatment for CCI, nutritional support is one of the approaches for optimal outcomes. It is likely that the GNRI is useful for the detection of high-risk patients undergoing haemodialysis and that early nutritional intervention may lead to favourable long-term outcomes in patients after hospitalization for infection [9].

Our study has several limitations. First, we evaluated the GNRI at baseline. The single evaluation of the GNRI might fail to detect the true association with the outcomes. Second, since this was a single-centre study which consisted of only Japanese participants, the generalizability of our findings was limited. Larger, multicenter studies are necessary to confirm our findings in different ethnic groups. Third, we did not compare the GNRI with other nutritional screening tools such as the MIS. Finally, we did not know the detailed information about causes and types of infection as well as the severity of infection, that is, sepsis or not. On the other hand, it was one of the strengths of this study that we had a unique outcome variable, namely the death after hospitalization for infection. The association between nutritional status and the death after hospitalization could not have been analysed in studies which recorded only the dates and causes of all-cause deaths.

In conclusion, we found the significant association of the GNRI with all-cause mortality but not hospitalization for infection. Importantly, the GNRI was significantly associated with death after hospitalization for infection. These findings suggest that baseline nutritional disorder evaluated by the GNRI could predict not only mortality but also long-term death after hospitalization for infection in patients undergoing haemodialysis [10].

Conclusion

Nutritional aberrations manifesting as deficiency disease, lipodystrophy and body muscle wasting exist among individuals living with HIV infection within the Bia-West District. These adverse nutritionary effects could also be modulated by illness severity, ARV medication and length. This implies that interventions to handle deficiency disease could also be essential to cut back the prevalence of morphological changes in PLHIV on ART.

Acknowledgement

None

Conflict of Interest

None

References

1. Duncan A (2018) Nutrition support in HIV infection. Adv Nut Dietet Nut Support 14: 367-375.

2. Ezeonwu B, Ikefuna A, Oguonu T, Okafor H (2014) Prevalence of hematological abnormalities and malnutrition in HIV-infected under five children in Enugu. Niger J Clin Pract 17: 303-308.

3. Njelekela M, Mpembeni R, Muhihi A, Ulenga N, Aris E, et al. (2017) Lipodystrophy Among HIV-Infected Patients Attending Care and Treatment Clinics in Dar Es Salaam. AIDS Research and Treatment 24: 465.

4. Carr A (2003) HLCDS Group. An objective case definition of lipodystrophy in HIV-infected adults: a case-control study. Lancet 361: 726-735.

5. Verolet CM, Delhumeau-Cartier C, Sartori M (2015) Lipodystrophy among HIV-infected patients: a cross-sectional study on impact on quality of life and mental health disorders. AIDS Res Ther 12: 21.

6. HIV Wasting Syndrome. (1997) HIV/AID News Report .

7. Badowski ME, Perez SE (2016) Clinical utility of dronabinol in the treatment of weight loss associated with HIV and AIDS. HIV/AIDS 8: 37.

8. Palenicek JP, Graham N, He YD Weight loss prior to clinical AIDS as a predictor of survival. Multicenter AIDS Cohort Study Investigators 10 :366-73.

9. Acquir J (1995) Immune Defic Syndr Hum Retrovirol: official publication of the International Retrovirology Association 10: 366-373.

10. Smit E, Skolasky RL, Dobs AS (2002) Changes in the incidence and predictors of wasting syndrome related to human immunodeficiency virus infection 1987–1999. Am J Epidemiol 156: 211-218.