

## INTISARI

**Latar Belakang :** Dukungan gizi perlu diberikan kepada pasien hemodialisis, dan dapat dipenuhi dari campuran keong sawah (*Pila ampullacea*), tempe, daun kelor (*Moringa oleifera*). Belum pernah dilakukan penelitian mengenai pembuatan makanan pengganti suplemen efektif yang baru, berkualitas, dan murah untuk memperbaiki kualitas hidup pasien hemodialisis dengan formula berbahan campuran keong sawah, tempe, daun kelor.

**Tujuan :** Menganalisis formula yang paling optimal berbahan keong sawah, tempe, daun kelor, menganalisis besaran pengaruh yang menguntungkan terhadap status gizi, status imun, status inflamasi pasien hemodialisis.

**Metode Penelitian :** Penelitian klinis berjenis kuasi eksperimental ini dilaksanakan di RSUP Dr. Sardjito. Penelitian melibatkan 50 subjek pasien hemodialisis, terbagi menjadi kelompok intervensi dan kontrol. Output penelitian meliputi status gizi (Indeks Massa Tubuh, massa otot, kadar albumin, kadar kalsium, kadar fosfat, *Malnutrition Inflammation Score*), status imun (kadar imunoglobulin G), status inflamasi (kadar hsCRP). Data dianalisis univariat, bivariat, multivariat.

**Hasil :** Pemberian formula dukungan gizi oral meningkatkan massa otot 2,6% lebih besar, menurunkan nilai MIS 3,5 poin lebih banyak daripada kelompok kontrol secara signifikan (massa otot  $p$ -value = 0,032; MIS  $p$ -value = 0,001); meningkatkan kadar kalsium 0,1 mmol/L lebih besar, meningkatkan kadar IgG 24,0 mg/dL lebih besar, menurunkan kadar fosfat 0,1 mg/dL lebih besar, menurunkan kadar hsCRP 0,1 mg/L lebih besar daripada kelompok kontrol tetapi tidak signifikan (kadar kalsium  $p$ -value = 0,188; kadar IgG  $p$ -value = 0,073; kadar fosfat  $p$ -value = 0,455; kadar hsCRP  $p$ -value = 0,214); tetapi tidak mampu meningkatkan kadar albumin pada kedua kelompok dan kelompok intervensi mengalami penurunan IMT 0,2 kg/m<sup>2</sup> lebih besar daripada kelompok kontrol (kadar albumin  $p$ -value = 0,907; IMT  $p$ -value = 0,256).

**Kesimpulan :** Pemberian formula dukungan gizi oral meningkatkan massa otot dan menurunkan nilai MIS secara signifikan, meningkatkan kadar kalsium, meningkatkan kadar IgG, menurunkan kadar fosfat, menurunkan kadar hsCRP secara tidak signifikan, namun tidak mampu meningkatkan kadar albumin dan IMT pasien hemodialisis.

**Kata Kunci :** Daun kelor (*Moringa oleifera*); Dukungan gizi oral; Keong sawah (*Pila ampullacea*); Pasien hemodialisis; Tempe.

## ABSTRACT

**Background:** Nutritional support needs to be given to hemodialysis patients, and can be met from a mixture of the snails (*Pila ampullacea*), tempeh, and moringa leaves (*Moringa oleifera*). There has never been a study on the manufacture of a new effective food supplement substitutes, high-quality, and inexpensive to improve the quality of life of hemodialysis patients with a formula made from a mixture of snails, tempeh, and moringa leaves.

**Objective:** To analyze the most optimal formula made from the snails, tempeh, moringa leaves, analyze the magnitude of the beneficial effect on nutritional status, immune status, inflammatory status of hemodialysis patients.

**Methods:** This quasi-experimental clinical research was carried out at Dr. Sardjito Hospital. The study involved 50 hemodialysis patient as subjects, divided into intervention and control groups. The research outputs include nutritional status (Body Mass Index, muscle mass, albumin levels, calcium levels, phosphate levels, Malnutrition Inflammation Score), immune status (immunoglobulin G levels), inflammatory status (hsCRP levels). Data were analyzed univariate, bivariate, multivariate.

**Results:** The oral nutritional support formula increased muscle mass 2.6% greater, decreased the MIS value 3.5 points more significantly than the control group (muscle mass p-value = 0.032; MIS p-value = 0.001); increased calcium levels 0.1 mmol/L greater, increased IgG levels 24.0 mg/dL greater, decreased phosphate levels 0.1 mg/dL greater, decreased hsCRP levels 0.1 mg/L greater than the control group but not significant (calcium p-value = 0.188; IgG p-value = 0.073; phosphate level p-value = 0.455; hsCRP p-value = 0.214); but not able to increase albumin levels in both groups and the intervention group experienced a decrease in BMI 0.2 kg/m<sup>2</sup> greater than the control group (albumin p-value = 0.907; BMI p-value = 0.256).

**Conclusion:** The oral nutritional support formula increased muscle mass and decreased MIS significantly, increased calcium levels, increased IgG levels, decreased phosphate levels, decreased hsCRP levels not significantly, but was not able to increase albumin levels and BMI in hemodialysis patients.

**Keywords:** Moringa leaves (*Moringa oleifera*); Oral nutritional support; Snails (*Pila ampullacea*); Hemodialysis patients; Tempeh.