



## DIETARY ADVICE IN PATIENTS WITH HUMAN IMMUNODEFICIENCY VIRUS ACONSELHAMENTO DIETÉTICO EM PACIENTES COM VÍRUS DA IMUNODEFICIÊNCIA HUMANA CONSEJO DIETÉTICO EN PACIENTES CON VIRUS DE INMUNOFICIENCIA HUMANA

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### ABSTRACT

**Objective:** to verify the influence of dietary advice in the maintenance or recovery of the nutritional status of patients newly diagnosed with HIV. **Method:** prospective cohort study, with the participation of 21 subjects, followed individually in the Day Hospital of the Federal University of Mato Grosso do Sul, through anthropometric assessment of food consumption and dietary advising for 12 months after approval of the project by the Research Ethics Committee Protocol 654. **Results:** greater difference between the theoretical body weight and final weight in those patients who did not follow the nutritional guidelines. The group followed the guidelines presented the greatest difference between theoretical and final weight ( $p=0.005$ ) and reduced the total caloric value at the end of the study ( $p=0.030$ ) and those who did not follow it, presented a food increased in the final consumption ( $p=0.038$ ). **Conclusion:** the 16 patients who followed the nutritional guidelines, showed improvement in food consumption; although 7 (43.8%) were not using antiretroviral therapy, a fact which favored adherence to dietary advice ( $p=0.029$ ). **Descriptors:** Nutritional Evaluation; Nutritional Status; Advising; Nutritional Therapy; AIDS Diagnosis.

### RESUMO

**Objetivo:** verificar a influência do aconselhamento dietético na manutenção ou recuperação do estado nutricional de pacientes recém diagnosticados com o vírus HIV. **Método:** estudo de coorte prospectiva, com participação de 21 sujeitos, acompanhados individualmente no Hospital-Dia da Universidade Federal de Mato Grosso do Sul, por meio de avaliação antropométrica do consumo alimentar e aconselhamento dietético durante 12 meses, após a aprovação do projeto pelo Comitê de Ética em Pesquisa, Protocolo n. 654. **Resultados:** houve maior diferença entre o peso corporal teórico e o peso final naqueles pacientes que não seguiram as orientações nutricionais. O grupo que seguiu as orientações apresentou maior diferença entre peso teórico e final ( $p = 0,005$ ) e reduziram o valor calórico total no final do estudo ( $p = 0,030$ ) e os que não seguiram apresentaram um consumo alimentar aumentados no final ( $p = 0,038$ ). **Conclusão:** os 16 pacientes que seguiram as orientações nutricionais apresentaram melhora no consumo alimentar; e, destes, 7 (43,8%) não utilizavam terapia antirretroviral, fato que favoreceu a adesão ao aconselhamento dietético ( $p = 0,029$ ). **Descritores:** Avaliação Nutricional; Estado Nutricional; Aconselhamento; Terapia Nutricional; Sorodiagnóstico da AIDS.

### RESUMEN

**Objetivo:** verificar la influencia del consejo dietético en el mantenimiento o recuperación del estado nutricional de pacientes recién diagnosticados con el virus HIV. **Método:** estudio de cohorte prospectivo, con participación de 21 sujetos, acompañados individualmente en el Hospital-Día de la Universidad Federal de Mato Grosso do Sul, por medio de evaluación antropométrica del consumo alimentar y consejo dietético durante 12 meses, luego de la aprobación del proyecto por el Comité de Ética en Investigación, Protocolo n. 654. **Resultados:** hubo mayor diferencia entre el peso corporal teórico y el peso final en aquellos pacientes que no siguieron las orientaciones nutricionales. El grupo que siguió las orientaciones presentó mayor diferencia entre peso teórico y final ( $p=0,005$ ) y redujeron el valor calórico total en el final del estudio ( $p=0,030$ ) y los que no siguieron, presentaron un consumo alimentar aumentado en el final ( $p=0,038$ ). **Conclusión:** los 16 pacientes que siguieron las orientaciones nutricionales, presentaron mejora en el consumo alimentar; de estos, 7 (43,8%) no utilizaban terapia antiretroviral, hecho que favoreció la adherencia al consejo dietético ( $p = 0,029$ ). **Descriptors:** Evaluación Nutricional; Estado Nutricional; Consejo; Terapia Nutricional; Serodiagnóstico de SIDA.

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## INTRODUCTION

Patients living with Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) need to improve the nutritional status in order to guarantee a life with quality, since the nutritional disorders, occurring in “ripple effect” and the rapid consumption of lean body mass are common situations.<sup>1</sup>

In clinical practice, it is observed that malnutrition and side effects of antiretroviral therapy directly affect the nutritional status of patients living with HIV/AIDS (PVHA), whether asymptomatic or AIDS in force. It is recommended, nutritional therapy to be instituted as soon as diagnosed HIV infection. This surveillance contributes mainly to survival, by delaying the immunosuppression of nutritional origin and the occurrence of opportunist infections.<sup>2</sup>

Studies classified by the level of recommendation and the strength of clinical evidence shows that weight loss and depletion of body cell mass identify characteristics of early HIV infection.<sup>3,4</sup> Particularly, loss of metabolically active cell mass is associated with increased mortality, accelerated disease progression in decreased muscle strength and worsening the functional state.<sup>5-7</sup>

The identification of the nutritional changes in the early stages of infection, through anthropometric and systematic physical, prevents clinical repercussions related to lean mass loss and malnutrition.<sup>8</sup> The nutrient intake when inadequate in people infected with HIV, plays a role as a facilitator of development of AIDS because food not only affects health but the response to treatment.<sup>9</sup>

Therefore, evaluation of nutritional status, being fundamental to the proper diagnosis of protein-energy malnutrition and identify risk factors, shows how it is essential to effective institution of nutritional therapy. Once the evaluation process is concluded, the information obtained from this process will be used as a base to plot the nutritional care plan.<sup>10,11</sup>

Appropriate evaluation techniques detect nutritional deficiency in the early stages of disease development, allowing the improvement of food intake through dietary advising and individualized support.<sup>12</sup>

Evidences suggest that dietary advice plus the teaching process, training and facilitation through an understandable language when the exchange of information related to nutrition, may favor the accession of a new eating

behavior. Thus, individuals are effectively helped to select and implement desirable behaviors of nutrition and lifestyle.<sup>13</sup>

The AIDS control and treatment programs should include dietary advice, since the healthy and balanced diet is essential for the survival of all individuals, regardless of the “status” evolution of the disease, including the influence of diet and nutrition to improve adherence and effectiveness of medication therapy.<sup>14</sup>

However, when the protein need is around 1.2 g/kg current weight / day and energy demand for asymptomatic patient around 30-35 kca/kg/day the stable phase of the disease is recommended.

In the acute phase, the protein requirement increases to about 1.5 g/kg/day. In symptomatic patients with the disease, that is AIDS and less than 200 CD4 cells, the energy requirement is 40 kcal/kg/day. There is special needs micronutrients such as vitamins A, B, C, E, zinc and selenium which should not be less than 100% of the dietary reference intakes (Dietary Reference Intakes - DRIS).<sup>2</sup>

The need for fluids should be between 30 to 35 ml/kg, with additional amounts to compensate for losses resulting from diarrhea, nausea and vomiting, night sweats and prolonged fever. The replacement of electrolytes (sodium, potassium and chloride) in the presence of vomiting and diarrhea is also recommended.<sup>10</sup>

Therefore, the diet should contain all food groups without excesses and also without exclusions; varying the types of cereals, meats, vegetables, fruits and legumes, in order to maintain both characteristics of physical and financial access, as the taste, variety, harmony, color and security to hygiene and health aspects, since risks to gastrointestinal infections are great.<sup>15,16</sup>

Several factors affect the result of nutritional intervention, being imperative that PVHA take the responsibility for treating these changes as those related to eating habits and lifestyles. Thus, the assessment and dietary advising process are considered strategic because they are part of support measures to be instituted as soon as possible and during the course of the disease.<sup>17,18</sup>

When considering that the feeding behavior of PVHA can be improved if there is nutritional advising from the beginning to diagnose HIV and throughout treatment, this study aims to:

- Verify the effect of dietary advising in the maintenance or recovery of the nutritional status of patients newly diagnosed with HIV.

## METHOD

Quantitative study of epidemiological approach, with cohort prospective, conducted in Hospital-Day Prof. Esterina Corsini, belonging to the Center of the University Hospital Maria Aparecida Pedrossian, from the Federal University of Mato Grosso do Sul (HU/UFMS).

The study population was HIV-infected diagnosed patients, followed for the service under study. The sample consisted of individuals of both genders, newly diagnosed with HIV/AIDS, totaling 21 participants.

There were those aged 18 or older included, who do not perform any type of antiretroviral treatment on the date of inclusion in the study and agreed to participate after signing the Informed Consent and Informed Form. The main condition for inclusion was the fact that they are newly diagnosed to evaluate from the start of the diagnosis. Pregnant women, the Indians, with the use of antiretroviral therapy and those patients who did not receive nutritional counseling during the 12 months were excluded.

When the patients included in the study, they were submitted to the interview aimed to clarify the procedures used during the 12 months of nutritional monitoring. The nutritional consultation the patients were evaluated for anthropometry, dietary intake and adherence to dietary guidelines.

As variables studied, the study has sociodemographic aspects; body weight, macronutrients and caloric values of the diets at the beginning and end of 12 months of monitoring compared with theoretical needs.

For the anthropometric evaluation, weight was measured in anthropometric scale platform, Welmy brand for adults, with an accuracy of 100 grams and up to 150 kilograms. Patients were placed in the center of the platform, on standing, barefoot position, using their own clothing, removing their coats, with arms hanging down beside the body and look along the lines of the horizon.<sup>19</sup>

To calculate the theoretical weight the physical type method was used and for calculating the energy requirements, the method of Basal Metabolism Rate was used, from Body Weight and Physical Activity Type.<sup>20,21</sup>

The anthropometric assessment occurred since the first consultation. Through the reports on food routine, it was checked

whether or not there was compliance to dietary guidelines for previous consultations.

The analysis of dietary intake was assessed using the Recall instrument of 07 days and 24 hours, a method that defines and quantifies all food and beverages ingested during the period preceding nutrition consultation. These data were compared with the qualitative and quantitative information provided by the Food Frequency method.<sup>22</sup>

To evaluate the habitual food intake, the method of Food History was applied for informing eating habits, number of meals, portion sizes, food likes and dislikes, which provided data on the quality of the usual diet and possible to identify the nutritional changes from inadequate dietary intake.<sup>22</sup>

The calculation of dietary intake in the first and last nutrition consultations was carried out using Diet Pro 4.0 professional program.

The dietary advice was carried out through nutrition education techniques, with individual guiding of patients to modify their eating patterns.

In the first nutritional consultation the diet therapy attendance with use of the instrument called Form Nutrition Service was held, with structured questions and variables directed on healthy eating knowledge, care with hygiene and food consumption.

The dietary advice was characterized as orientation of the individual meal plan with basic precepts of a safe and balanced diet, according to the manuals that establish the guidelines and recommendations of appropriate feeding practices to HIV infected people.<sup>14,17</sup>

In this study, the results of body weight adjustments and calorie intake diet at the end of the 12 months were considered as adhesion or not to dietary advice.

Data were analyzed and described in the form of descriptive statistics, using a statistical package. For comparing the difference between the theoretical weights and measured body weight and total calorie diets (before and after 12 months) and to assess the frequency of visits of patients who followed and those who did not follow the nutritional guidelines, Mann Whitney was used, after checking the normality of the distributions, at a significance level of 5%.

The research protocol was submitted to the Ethics Committee in Research of the Federal University of Mato Grosso do Sul, approved in its ethical and methodological aspects in Protocol 654, according to Resolution 196/1996 of the National Health Council

(CNS), withdrawn by Resolution 466/2012 of the CNS.

RESULTS

Out of the 21 patients studied, 16 (76.2%) probably followed the nutritional guidelines conducted by dietary advice. Therefore, they reached the adjustments in body weight and/or total caloric value of the diet at the

end of 12 months of nutritional monitoring. Those who did not follow it, showed major difference between the theoretical body weight and final weight (p=0.038) compared to the beginning of the study. Compared with the group that followed the guidelines after 12 months, they also showed greater difference between theoretical and final weight (p=0.005), as data in table 1.

Table 1. Difference between the theoretical and body weight (BW) measured and total calorie diets (TCD) before and after 12 months of nutritional guidance. Campo Grande/MS - 2006/2007 (n=21).

| Variables                     | Nutritional guidance |       |         |                     |       |         | p     |
|-------------------------------|----------------------|-------|---------|---------------------|-------|---------|-------|
|                               | Following (n=16)     |       |         | Not following (n=5) |       |         |       |
|                               | Med                  | Min   | Max     | Med                 | Min   | Max     |       |
| Theoretical BW -initial BW    | 6,0                  | 0,0   | 15,2    | 4,7                 | 0,6   | 29,5    | 0,451 |
| Theoretical BW -final BW      | 3,6                  | 0,0   | 16,8    | 12,5                | 9,0   | 37,5    | 0,005 |
| p                             |                      | 0,214 |         |                     | 0,038 |         | -     |
| Theoretical TCD - initial TCD | 800,8                | 18,6  | 1.921,6 | 232,8               | 40,8  | 1.112,8 | 0,049 |
| Theoretical TCD - final TCD   | 402,4                | 1,3   | 1.618,9 | 922,7               | 235,5 | 1.604,3 | 0,020 |
| p                             |                      | 0,030 |         |                     | 0,038 |         | -     |

Note: Med = Median; Min = minimum value; Max = amximum value. Mann Whitney Test. Se  $p \leq 0,05$  - statistically significant difference.

When checking the difference between the theoretical caloric value of the diet of those who followed and did not follow the nutritional guidelines for 12 months, it is observed that patients who followed the reduced total caloric value at the end of the study (p=0.030) and those who do not followed showed an increased food consumption at the end (p=0.038).

There was no statistically significant difference (p=0.650) in the amount of nutritional consultations among patients who followed the nutritional guidelines. Of the patients who followed the nutritional

guidelines (n=16), 7 (43.8%) of these did not use Antiretroviral Therapy (ART). There was no statistically significant difference in body weight and total calorie diets among those who used and who did not use ART (Table 2). But those who did not undergo ART showed improvement in food consumption when compared at the beginning and the end of nutritional monitoring for 12 months, which characterizes the adherence to dietary advice (p=0.029).

Table 2. Difference between the theoretical and body weight (BW) and the total calorie diets (TCD) before and after 12 months of nutritional guidance between patients submitted or not to Antiretroviral Therapy (ART). Campo Grande/MS - 2006/2007 (n=16)

| Variables                   | ART       |       |         |          |       |         | p     |
|-----------------------------|-----------|-------|---------|----------|-------|---------|-------|
|                             | Yes (n=9) |       |         | No (n=7) |       |         |       |
|                             | Med       | Min   | Max     | Med      | Min   | Max     |       |
| Theoretical BW-initial BW   | 5,9       | 0,0   | 15,2    | 6,0      | 1,0   | 14,9    | 0,479 |
| Theoretical BW-final BW     | 3,7       | 0,5   | 16,8    | 3,5      | 0,0   | 10,5    | 0,317 |
| p                           |           | 0,475 |         |          | 0,166 |         | -     |
| Theoretical TCD-initial TCD | 568,4     | 18,6  | 1.921,6 | 974,5    | 117,3 | 1.693,4 | 0,214 |
| Theoretical TCD-final TCD   | 405,9     | 1,3   | 699,4   | 351,3    | 4,1   | 1.618,9 | 0,317 |
| p                           |           | 0,241 |         |          | 0,029 |         | -     |

Nota: Patients who joined the nutritional guidance (n = 16), excluding those who did not join it (n=5). MED = median; Min = minimum value; Max = maximum value. Mann Whitney Test. Se  $p \leq 0,05$  - statistically significant difference.

DISCUSSION

Out of the 21 patients diagnosed with HIV/AIDS, 12 were male and nine were female. These findings corroborate current data when the average ratio is 1.5 men to 1 woman, a phenomenon called feminization. These results differ from the onset of infection of HIV/AIDS in Brazil, when the ratio

was 15 cases of the disease in men for one woman.<sup>23</sup>

In this study, the dietary advice was considered a method of nutritional intervention based on a comparison of body weight and total calorie diet at the beginning and after 12 months of nutritional advising. The results showed that 16 patients achieved the desired adjustment of body weight,

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according to individual needs with an increase, maintenance or decrease.

Thus, it was essential that these patients receive guidance on preventive and control measures, which included hygiene practices that should be adopted in order to ensure the health quality of food; guidance on adopting good eating habits that result in an improvement or state nutritional recovery.<sup>12,24</sup>

Improving eating habits and adopting food safety measures are the result of the nutrition education process, which should be established at an early stage of knowledge of the disease diagnosis.<sup>14</sup>

In the first nutritional assessment, not only the type of nutrition therapy to be employed was identified, but also its intensity. It was established how much the patient would need to modify or maintain their nutritional status, requiring suitability of care to monitor the effectiveness of therapies used.<sup>10</sup>

In tables 1 and 2 it is possible to check that out of 21 patients, 16 (76.2%) probably followed the nutritional guidelines made through dietary advice in consultations with nutrition (mean=4.9). Therefore, they reached the adjustments of body and the total caloric value of the diet at the end of 12 months nutritional advising. There were 7 of them (43.8%) that did not use antiretroviral therapy, which indicated that the adjustments of body weights and amounts of calories of the diets were affected by dietary advice.

When discussing the theoretical weight, it was observed that there was adherence to nutritional guidelines. Those patients who had no indication to the use of antiretroviral therapy demonstrated change in their eating habits with an adequate diet at 12 months monitoring. This situation was corroborated by the study that rescues the concept of advising in the context of nutritional care, as a theoretical model for the service activity that involves education and nutritional guidance.<sup>25</sup>

Five patients did not follow the nutritional guidelines and at the end of monitoring left the nutritional status of eutrophy and reached the overweight rating because although they had attended the nutrition consultations, did not change their eating habits. A fact confirmed in the study regards the use of participatory approach in the intervention group, but was difficult to significant change in dietary changes of patients researched.<sup>26</sup>

Malnutrition was one of the first complications of AIDS, recognized as Consumptive Syndrome, characterized by 10-15% less lean body mass. Because it is a common complication in HIV worldwide,

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responsible for an increase in morbidity and mortality, it is fundamental to improve the progress of treatment maintaining body weight around 95-100% of normal levels of body weights and preventing loss of additional weight through early nutritional intervention.<sup>27-28</sup>

When considering the different signs and symptoms that affect the PVHA, especially those related to the digestive system by contributing to the development or worsening of protein-calorie malnutrition, nutritional intervention should be instituted as soon as the diagnosis of HIV status in order to minimize the consequences adverse of the disease.<sup>29</sup>

This study demonstrated that advising centered on the patient enhanced the understanding of dietary risks, discusses nutritional facts, increases self-confidence to introduce changes and improves understanding of compliance.

The intervention and individualized nutrition monitoring effectively contributed also in another study conducted in chronic renal failure patients on hemodialysis treatment.<sup>30</sup> Studies confirm the positive impact on implementation of educational strategies to improve patient compliance, demonstrating the effect of dietary counseling in their patients.<sup>31-33</sup>

It was identified significant improvement in clinical parameters in patients with metabolic syndrome associated with previous motivation and the use of nutritional intervention related to treatment adherence. Researchers corroborate this idea when they mention that dietary intervention can bring good results to health and is part of caring for people living with HIV/AIDS.<sup>34</sup>

Therefore, dietary advising should be considered as an integral nutritional health care of PVHA, as it prioritizes dietetics interventions according to the accessibility of each of the food enables improvement of choices in their eating routine and determines greater attention and discipline as the aspect of hygiene and healthy food consumption, in order to make patients less vulnerable to nutritional deficiencies.

## CONCLUSION

Through dietary advising there was a greater adherence to nutritional guidelines, according to the results obtained. It is worth emphasizing that out the total number of patients in this study, 7 of them have not made use of antiretroviral therapy during the monitoring period.

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The dietary advising can supply nutritionists with a theoretical instrument that also allows the improvement of their skills and expertise, intervening on the feeding behavior of the patient, respecting their autonomy and increasing their potential as historical subject.

It is then up to the nutritionist and other members of the healthcare team work since the early diagnosis of HIV/AIDS through dietary advice in order to prevent nutritional deficiencies, maintaining or restoring lean body mass and sensitize compliance.

Therefore, it can be concluded that dietary advising performed from the beginning of treatment helped to improve the nutritional status of patients in this study by strengthening the immune status during 12 months. Thus, the application of positive therapeutic experience in other health services is recommended because it is inexpensive, able to contribute to the prevention and control of nutritional status of these specific patient therapy.

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