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ABSTRACTS

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INTRODUCTION AND AIMS: Chronic kidney disease patients regularly undergoing haemodialysis (HD) treatment present high levels of oxidative stress (OS) biomarkers and chronic inflammation caused by HD treatment itself, besides the disease conditions. The long-term contact of blood with artificial material causes overstimulation of inflammatory cells with release of different inflammatory products, namely, reactive oxygen species, leading to OS-related complications in these patients. Polysulfone (PS) is nowadays the most used polymer for HD membranes, due to its improved biocompatibility. To minimize the negative OS-related complications of HD procedure, the bioactive hollow-fibre PS membranes modified with vitamin E (Vit E) are currently commercially produced and used at HD clinics. Most of the clinical studies showed that this type of HD membrane reduces the inflammatory response and OS, and its impact on patient’s morbidity and mortality still needs longer follow-up studies. Lipidic acid (LA) was also proposed and evaluated in HD membranes in terms of inhibition of ROS (reactive oxygen species) in blood plasma, although no studies compared the antioxidant activity of Vit E and LA membranes. Our aim was to prepare bioactive PS membranes (with Vit E or LA) and compare their membrane structure, separation characteristics, maximum amount of bioactive compound incorporated as well as pro-oxidant capacity.

METHODS: Membranes were prepared by dissolving the bioactive compounds in PS solvent N-methyl-2-pyrrolidone and cast on silicon wafer by spin coating, followed by phase inversion process. The release of Vit E or LA from PS membranes, in the phase inversion, was quantified by fluorometry and UV spectrophotometry, respectively. The antioxidant activity of membranes was evaluated by ferric reduction antioxidant power (FRAP) assay.

RESULTS: Our data showed that membranes enriched with LA, compared to Vit E, presented better separation characteristics of biomolecules. Nevertheless, FRAP assay showed (2 fold) lower antioxidant activity for membranes enriched with LA than with Vit E. Despite that, due to favourable effect of LA on separation characteristics of the membranes, as well as on its antioxidant activity, the introduction of LA into PS membranes looks promising and studies concerning the inhibition of OS and inflammatory biomarkers in blood plasma are under study by our group.

CONCLUSIONS: This research is of a pioneer field of research focusing on using bioactive compounds to diminish inflammation and oxidative stress may actually contribute to inflammatory biomarkers in blood plasma are under study by our group.

INTRODUCTION AND AIMS: Nutritional evaluation is one of the most important parts of multidisciplinary treatment of chronic kidney disease (CKD). Patients with CKD frequently present nutritional disturbances, which go from malnutrition to overweight and obesity. The aim of this study was to evaluate the nutritional aspect of patients with CKD at different stages, in conservative treatment, and assess their nutrients intake through a longitudinal analysis.

RESULTS: This is a longitudinal study conducted at a reference Nephrology outpatient clinic in Fortaleza city, northeast of Brazil, the Núcleo de Atenciones Medicas Integrada, at the University of Fortaleza, in the period from August 2016 to August 2017. A total of 99 consecutive patients were included, older than 18 years old, with confirmed diagnosis of CKD, according to KDIGO guidelines. Nutritional status was assessed through determination of body mass index (BMI), waist circumference and waist-to-hip ratio. Dietary intake was assessed through a 24-hour dietary recall. Each patient was evaluated at four different moments every 3 months for one year.

RESULTS: Patients mean age at the beginning of the study was 62.2±14.2 years. The majority of them were elderly (73.7%) and female (53.5%). The most frequent causes of CKD was hypertension (89%) and diabetes (52%). CKD stage III was the most prevalent (48.9%) in the first evaluation, followed by stage II (39%), while in the last evaluation, CKD III was found in 51.8% of cases, followed by stage II (31.2%). Patients’ mean BMI was 27.8±4.8 kg/m² and waist circumference 102.3±9.5 cm. In adults, patients’ BMI ≥30 kg/m² was found in 37.5% in the first evaluation and in 18.2% in the last evaluation, while in elderly patients, BMI ≥27 kg/m² was found in 56.8% in the first evaluation and 55.9% in the last evaluation. The majority of the patients presented a low energy intake, as well as inadequate consumption of lipids and fibers in the four evaluations. The consumption of carbohydrates was adequate for patients with CKD. Comparing the first and the last evaluation there was a significant decrease in lipid consumption (p<0.05), as summarized in Table 1.

CONCLUSIONS: Patients with CKD in conservative treatment present excess weight despite having low nutrient intake. Only protein and carbohydrate were found to be within the values recommended for CKD. It is possible that dietary recall may have been underestimated or hormonal disturbances may play a role in these disturbances. Further studies are required to better understand the dynamics of nutritional system in CKD patients.

Table 1. Dietary intake in the first and last evaluation among patients with CKD in a longitudinal ±

<table>
<thead>
<tr>
<th>24h dietary recall</th>
<th>First evaluation (n=99)</th>
<th>Last evaluation (n=56)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total energy intake (kcal)</td>
<td>1294±489</td>
<td>1173±441</td>
<td>0.12</td>
</tr>
<tr>
<td>Kcal/weight (kg)</td>
<td>19.2±6.8</td>
<td>17.4±6.8</td>
<td>0.10</td>
</tr>
<tr>
<td>Carbohydrates' Percentage</td>
<td>55.2±9.2</td>
<td>57.3±8.6</td>
<td>0.16</td>
</tr>
<tr>
<td>Protein g/weight (kg)</td>
<td>0.7±0.4</td>
<td>0.7±0.3</td>
<td>0.65</td>
</tr>
<tr>
<td>Percentage total lipid</td>
<td>28.1±9.1</td>
<td>24.3±7.3</td>
<td>0.004</td>
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</tbody>
</table>

INTRODUCTION AND AIMS: Patient with chronic kidney disease (CKD) are vulnerable to malnutrition. Malnutrition, inflammation and antherosclerosis (MIA syndrome) have been proposed as the main causes of morbidity and mortality in CKD patients. It