Effect of nutrition counseling on renal labs among Mexican American patients with CKD Stages 3-4 over 6 months: a randomized trial.

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**Abstract**

Background: Incidence of Chronic Kidney Disease (CKD) is growing annually in the United States. Research is needed to evaluate if nutrition counseling can delay CKD from advancing to End Stage Renal Disease (ESRD).

Objectives: To evaluate the effect of nutrition counseling on renal labs among Mexican American patients with CKD Stages 3-4 at 0, 1, 3, and 6 months.

Participants: Mexican American adult patients diagnosed with CKD in stages 3-4 without history of type II diabetes or nutrition education for CKD in the El Paso/Las Cruces area.

Procedures: This is a quantitative quasi-experiment using purposive sampling to recruit participants. Medical providers in Las Cruces, NM and El Paso, TX will provide information about enrollment. Participants will be randomized into intervention or control group with patients in each stage equally distributed between groups. The intervention group will receive nutrition counseling at 0, 1, 3, and 6 months from a registered dietitian from the American Society of Nutrition and Dietetics. Blood samples analyzing creatinine, blood urea nitrogen and glomerular filtration rate will be collected from both groups at 0, 1, 3, and 6 months.

Statistical Analysis: Paired Student t-test will be used to compare categorical and mean values. Differences are considered statistically significant at p < 0.05.

Findings: Expectations findings can help highlight the impact nutrition counseling has on renal labs for patients with CKD stages 3 and 4.

Implications: CKD patients will receive nutrition counseling early which could improve renal labs and delay the progression to ESRD.

**Methods**

Participants: Mexican American patients 18 years and older in the El Paso, Texas and the Las Cruces, New Mexico area.

Sample Size: N = 30, per group (power=95%, alpha = 0.05)

Recruitment: 1. Volunteers will be invited from pamphlets that are left in the medical provider offices. 2. Pamphlets will be in English and Spanish for individuals that only speak Spanish.

Figure 1: Inclusion and Exclusion Criteria for the Participants

<table>
<thead>
<tr>
<th>Inclusion</th>
<th>Exclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult 18 years and older</td>
<td>Have no diagnosis of type II diabetes</td>
</tr>
<tr>
<td>Diagnosed with CKD Stage 3-4</td>
<td>Have no previous nutrition counseling for CKD.</td>
</tr>
</tbody>
</table>

**Background**

According to the National Kidney Foundation, 30 million Americans have Chronic Kidney Disease (CKD) and many may not know they have this disease. This number is up 3% from last year, according to the National Kidney Foundation. The Center for Disease Control & Prevention (CDC) explains that there are 300 individuals new to dialysis every hour. These numbers are increasing per year and both the National Kidney Foundation (NKF) and the CDC recommend meeting with a Dietitian to preserve or improve kidney function and reduce or delay the incidence for End Stage Renal Disease (ESRD). There are several areas that may be further investigated to reduce these alarming statistics:

- Understanding the role medical providers have in reducing these numbers.
- Understanding the effect nutrition counseling has in CKD stages 3 and 4.
- Observing data on how nutrition counseling affects renal labs.
- Providing medical providers information that is useful in the referral process such as information concerning the differences in nutrient needs for a patient with kidney disease.

Table 1: Nutrient needs for CKD Stages 3-4 vs Average American Intake

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>CKD Stages 3-4</th>
<th>Average American Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein (g/kg)</td>
<td>0.6-0.7</td>
<td>0.8-1.0 g/kg</td>
</tr>
<tr>
<td>Potassium mg/day</td>
<td>2000-2500 mg/day</td>
<td>3500 mg/day</td>
</tr>
<tr>
<td>Sodium mg/day</td>
<td>&lt;2400</td>
<td>1500 mg/day</td>
</tr>
<tr>
<td>Phosphorus mg/day</td>
<td>800-1000 mg/day</td>
<td>700 mg/day</td>
</tr>
</tbody>
</table>

**Observe Data**

**Stages of Chronic Kidney Disease**

Table 2: Criteria for Stages 3 and 4 of CKD

<table>
<thead>
<tr>
<th>Stage</th>
<th>GFR (mL/min/1.73m²)</th>
<th>Inclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 3</td>
<td>0-59.9</td>
<td>Adult 18 years and older</td>
</tr>
<tr>
<td>Stage 4</td>
<td>60-29.9</td>
<td>Diagnosis with CKD Stage 3-4</td>
</tr>
</tbody>
</table>

**Conclusions**

Results from this research will hopefully contribute evidence based data that will impact public health by:

- Improving quality of life for patients with CKD.
- Decreasing medical cost savings by preventing dialysis.
- Identifying at what stage of CKD nutrition intervention is more effective to delay the progression to End Stage Renal Disease.

**References**