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Assessing Patient-Provider Collaboration in Subjects with Type 2 Diabetes in Jamaica and Effects on Glycemic Control

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Assessing Patient-Provider Collaboration in Subjects with Type 2 Diabetes in Jamaica and Effects on Glycemic Control

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Comments
Medical student Paul Daniel participated in this study as part of the Senior Scholars research program at the University of Massachusetts Medical School.

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BACKGROUND AND PURPOSE

BACKGROUND

- Type 2 diabetes mellitus is a growing health problem worldwide.
- Primary pathophysiology of this disease stems from impaired glucose uptake via insulin resistance that results in symptoms ranging from polydipsia and polyphagia to potentially life threatening hyperglycemic episodes.
- Major effects on health and healthcare costs are from microvascular complications of diabetic nephropathy, neuropathy and retinopathy, which can lead to end-stage renal disease, extremity amputation, and blindness, respectively.
- Timely screening and outpatient referrals, as well as good glycemic control, have been shown to slow the progression of complications.
- Recent trend in the United States for management of chronic conditions such as type 2 diabetes focuses on patient-centeredness which advocates for increased collaboration between caregivers such as nurses and physicians with patients to produce a management plan that is feasible for the patient.
- In Jamaica, the incidence of type 2 diabetes has been steadily increasing since 1960, with current estimates of a diabetic population exceeding 300,000. Some research suggests poor glycemic control in diabetic populations and high rates of complications such as retinopathy.
- As a counter measure, organizations such as the Diabetes Association of Jamaica have implemented educational workshops to make the general population more aware of this disease and its complications.
- Beyond the education of the public and management by physicians, it would be interesting to assess the perception of patient-centeredness in Jamaicans suffering from type 2 diabetes and determine if there any implications for management of their condition.

PURPOSE

To compare Patient Assessment of Care of Chronic Conditions (PACIC) scores to hemoglobin A1C values in subjects with type 2 diabetes and to determine the correlation between patient-physician collaboration and glycemic control.

METHODS

STUDY DESIGN AND RECRUITMENT

- A cross-sectional observation study measuring patient-to-provider collaboration in type 2 diabetics in a sample population in Jamaica.
- Patients recruited from the diabetes clinic at the University of the West Indies hospital in Mona, Jamaica on August 15, 2011 and August 22, 2011.
- 40 subjects were screened and 19 were ultimately enrolled after meeting the following inclusion criteria:
  1. Males or females 18 years old and above diagnosed with type 2 diabetes as confirmed by laboratory testing by either one of the following: a fasting plasma glucose > 126 mg/dL (7 mmol/L) (no caloric intake for > 8 hours) with symptoms (polyuria, polyphagia, weight loss) or with random plasma glucose > 200 mg/dL (11.1 mmol/L), or a HbA1c ≥ 6.5%.
  2. Ability to provide written informed consent
  3. Ability to complete PACIC questionnaire (subjects had to be able to read and comprehend English)
- Subjects were consented, assigned a study number, and self-administered the PACIC in a private exam room.
- The investigator (PD) collected additional study data as described above.

RESULTS

STUDY POPULATION AND DATA

- Study population was predominantly female (78.9%, 15 women/4 men), had an age range of 33-78 years (mean 55), years diagnosed with diabetes 0.03 – 32 years (mean 14), Hemoglobin A1c values from 5.40% – 15.5% (mean 10.8%), and with a majority (42.1%; 8 participants) receiving a combination of insulin and an oral hypoglycemic agent as their treatment modality. (See Figure 1)

Figure 1: STUDY POPULATION & VARIABLES

<table>
<thead>
<tr>
<th>Total n (%)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>15</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
</tr>
</tbody>
</table>

Current Therapy:
- No therapy 0 0
- Lifestyle modification 0 0
- Insulin 7 36.8
- Oral hypoglycemic agent 4 21.1
- Insulin + Oral hypoglycemic agent 8 42.1

Data Analysis

- Overall, PACIC scores ranged from 1.85 – 4.80 (mean 3.15).
- Main variables of PACIC scores and HbA1c were subject to analysis via the Pearson correlation, but no statistically significant correlation was found (r = -0.24).
- Additionally, HbA1c did not correlate significantly with the other variables of patient age (r = -0.48), and years diagnosed with diabetes (r = -0.24).
- These data were also re-computed using non-parametric correlation coefficients to take small sample sizes into account. However, no statistically significant correlations were found.
- Likely the study is underpowered to find statistically significant differences between PACIC scores and other key study variables. (See Figure 2 below)

Figure 2: CORRELATIONS

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pearson Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>HbA1c Value</td>
<td>PACIC Score</td>
</tr>
<tr>
<td>Pearson Correlation Coefficient</td>
<td>0.048</td>
</tr>
<tr>
<td>Sig (2-tailed)</td>
<td>0.033</td>
</tr>
<tr>
<td>N</td>
<td>18</td>
</tr>
</tbody>
</table>

CONCLUSIONS

- Implementation, data collection and administration of the questionnaire was straightforward and did not interfere or prolong patient appointments. Thus, testing patient-to-provider collaboration could potentially be a component of visits for patients with chronic illness. However, further studies are needed to evaluate efficiency and cost-effectiveness.
- Recruitment was suboptimal with the limiting factor being that most subjects could not afford Hemoglobin A1c testing as part of their diabetic management.
- No statistically significant associations between our main variables of patient and provider collaboration (PACIC score) and glycemic control (HbA1c) were found. Analysis of potential confounders also failed to illicit any correlations.
- The major limitation in our study stems from our small sample size. An important next step would be to repeat this study with a larger sample and currently, the process of gathering additional subjects is underway.
- In summary, it is unclear what impact patient-physician collaboration will have on glycemic control in type 2 diabetes. However, if results are favorable, as suggested by past research, and demonstrate a clinical benefit, the PACIC could potentially be an additional tool for physicians treating type 2 diabetes to control this disease and limiting complications.

ACKNOWLEDGEMENTS

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REFERENCES