Health Related Quality of Life in Persons with Type 2 Diabetes in a Rural Community Served by a Critical Access Hospital

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Health Related Quality of Life in Persons with Type 2 Diabetes in a Rural Community Served by a Critical Access Hospital

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Pat Hauer, EdD

Background

• Compared to urban settings, prevalence of Type 2 diabetes is higher in rural areas

• Life expectancy for an individual with uncontrolled Type 2 Diabetes is a reduced loss of 8-10 years of life.

Hunt et. al 2014, Ablah et. al 2013, Duncan 1992
Background

Incidence of diabetes per county

Behavioral Risk Surveillance Survey of 2010

Northeast Nebraska
Critical Access Hospitals

Designation created in 1997 to help rural health care infrastructure

- in a rural area, no more than 35 miles from another hospital
- provide 24-hour emergency care services
- maximum of 25 acute care and swing beds
- maintain an average length of stay of 96 hours or less for acute patients

The Flex Monitoring Program

Population of Rural Counties serviced by Critical Access Hospital

- Cumming: 12,000
- Wayne: 10,000
- Stanton: 8,000
- Colfax: 6,000
- Burt: 4,000
- Thurston: 2,000

US Census Bureau (2013)
Study Purpose

To determine whether health related quality of life (QOL) varies by gender and diabetes control (A1C) in rural persons with type 2 diabetes.

Subjects

We surveyed 615 persons with type 2 diabetes who receive care at a critical access hospital that serves a seven county rural area.

We surveyed the entire population of persons on this diabetic registry maintained by the critical access hospital. All of which had an A1c within the last 2 years.
Methods

IRB Approved Study

Cross-sectional Mail Survey

Dillman’s Tailored Design Method of Survey Administration
• up to 4 contacts with study subjects at 2-week intervals

Methods

Self-reported demographic characteristics, health related quality of life using the D-39 A1c from medical record

We analyzed associations between A1c levels and survey responses using descriptive statistics and Spearman correlations.
Methods:
D-39 Dimensions
- energy and mobility
- diabetes control
- anxiety and worry
- social burden
- sexual functioning
- 2 additional questions: severity, QOL

Results

<table>
<thead>
<tr>
<th>Responses (n)</th>
<th>Age (yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>257</td>
</tr>
<tr>
<td>Males</td>
<td>125 (50%)</td>
</tr>
<tr>
<td>Females</td>
<td>126 (50%)</td>
</tr>
</tbody>
</table>

42% response rate
Results

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Responses (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>245 (95%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2 (1%)</td>
</tr>
<tr>
<td>Other</td>
<td>4 (2%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Smoking history</th>
<th>Responses (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>never</td>
<td>171 (69%)</td>
</tr>
<tr>
<td>current/former</td>
<td>76 (31%)</td>
</tr>
</tbody>
</table>

Results

- Average years since diagnosis: 13.4
- 80% taking insulin, oral medication or combination of the two
Without consideration of other factors, males, have a 0.321 higher median value of A1C than females in this study population (p=0.043).

Results

Average A1c
6.3 mg/dL
(range 4.9-12.4)

Results

Place an X in the box below to show **HOW SEVERE** you think your diabetes is.

- energy and mobility (r=.46)
- diabetes control (r=.66)
- anxiety and worry (r=.51)
- social burden (r=.52)
- sexual functioning (r=.38)

Spearman Correlations

= Statistically Significant
Results

Place an X in the box below that indicates your rating of your **OVERALL QUALITY OF LIFE**.

<table>
<thead>
<tr>
<th>Lowest quality</th>
<th>Highest quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

- energy and mobility ($r = -0.11$)
- diabetes control ($r = -0.16$)
- anxiety and worry ($r = -0.19$)
- social burden ($r = -0.11$)
- sexual functioning ($r = -0.24$)

Spearman Correlations

= Statistically Significant

Results

**Hemoglobin A1c**

- energy and mobility ($r = 0.31$)
- diabetes control ($r = 0.17$)
- anxiety and worry ($r = 0.24$)
- social burden ($r = 0.16$)
- sexual functioning ($r = 0.11$)

Spearman Correlations

= Statistically Significant
Results

Gender Differences

- energy and mobility (p=.70)
- diabetes control (p=.61)
- anxiety and worry (p=.45)
- social burden (p=.30)
- sexual functioning (p<.001)

= Statistically Significant

Results

Gender Differences

Severities and Gender Interaction at age=55
Results

Gender Differences

Severity and Gender Interaction at age=55

Severity and Gender Interaction at age=60

Gender/pel

Gender/pel

Gender/pel

Gender/pel

Gender/pel
Conclusions

Since diabetes control is largely due to self-management, it is important to consider the associations between the QOL dimensions, diabetes control (A1C) and gender.

Important for implementing successful intervention strategies for glycemic control in rural critical access hospitals.

Clinical Relevance

Although gender is commonly reported in published studies about diabetes, differences have not been routinely analyzed.

A better understanding of the relationship of QOL and the impact on diabetes control and gender differences can assist the physical therapist in their role in providing optimal care for older adults with type 2 diabetes in rural communities.
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References
