Less education predicts anticholinesterase discontinuation in rural and remote patients with dementia

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Cholinesterase inhibitors

• Modestly effective
• Discontinued due to
  – 1) inefficacy
  – 2) side effects (GI, lightheadedness, bradycardia, muscle cramps, etc.)
Prior studies

• 84% discontinued within 40 mths
  Amua et al, 2010
Predictors of discontinuation in prior studies

- Females
- More severe cognitive impairment
- Absence of social assistance
Predictors of continuation in prior studies

• Frequent physician visits
• Higher Chronic disease scores
• Greater functional impairment
Studies to date

- Generally population-based
- Not much detailed demographic information
THE QUESTION

- What predicts anticholinesterase discontinuation in our rural and remote patients with dementia?
SASKATCHEWAN

- Saskatchewan = 18 Taiwans
- = Texas
- = Afghanistan
- = France
- = South Sudan
- = Burma
- = Chile
- = New South Wales
Development of a cross-cultural, northern and prairie focus
RURAL AND REMOTE MEMORY CLINIC

• “One-stop shopping” approach
• Patient and family travel to Saskatoon once
• See neurologist, neuropsychologist, physiotherapist
• Have CT scan; bloodwork done in advance
Saskatchewan Drug Plan

• Patients eligible for coverage if MMSE 10-26
• Continued beyond 3 months if
  • 2 point improvement in MMSE
  • Or 1 point improvement in FAQ
• Very few patients continue if coverage stops
DATA COLLECTION

• Age
• Sex
• Marital status
• Years of formal education
• Ethnicity
• Number of other chronic diseases
• Smoking status
• Times/week of exercise
• Alcoholic drinks/week
DATA COLLECTION

• Caregiver rated scales:

• Functional Assessment Questionnaire (FAQ)
• Neuropsychiatric Inventory Severity Scale (NIP-S)
• Bristol Activities of Daily Living Scale (BADL)
• Quality of Life of the Patient (QOLCG)
DATA COLLECTION

• Self-rated scales:
  • Quality of Life of the Patient (QOLPT)
  • Center for Epidemiologic Studies Depression Scale (CES-D)
  • Life Concerns Scale (LC)
  • Instrumental Activities of Daily Living (IADL)
  • Self-Rating of Memory (MEM)
NEUROPSYCHOLOGICAL TESTS

- Modified Mini-Mental State (3MS)
- Clock Test
- WRAT-III
- WAIS-III (4 subtests)
- Repeatable Battery for the Assessment of Neuropsychological Status (RBANS)
- Mental Control
- Digit Span
DATA COLLECTION

• Began 2004
• Looked at the first 318 patients seen
• Excluded those not treated with cholinesterase inhibitor or where it had already been started before visit
• Included those where 6 mth follow up was available
  – 63 patients met these criteria
DEMOPGRAPHICS

- Age: 74.6 +/- 7.8
- Sex: 60.3% Female
- Education: 10.4 +/- 2.8 years
- Ethnicity: 73.0% European
- Marital status: 66.7% Married
- MMSE: 22.3 +/- 3.7
- FAQ: 13.8 +/- 7.3
DIAGNOSIS

- Alzheimer’s 83.6%
- Lewy Body Dementia 8.2%
- Mixed AD/Vascular 5.5%
- Vascular Dementia 2.7%

- 61 started on donepezil, 2 on galantamine.
OUTCOME (Dependent variable)

• Drug discontinuation by 6 months

• 30.8% discontinued
  – (53.3 % due to inefficacy)
  – (31.6 % due to side-effects)
  – (15.8 % due to inefficacy and side-effects)
Bivariate analysis

• Only years of formal education significantly differed between the 2 groups
• Less education = More likely to discontinue drug
Multivariate logistic regression

• Again, only years of formal education significant predictor (p < 0.05)

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>ODDS RATIO</th>
<th>P VALUE</th>
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<tbody>
<tr>
<td>Age</td>
<td>0.97 (0.90-1.05)</td>
<td>0.42</td>
</tr>
<tr>
<td>Gender</td>
<td>1.07 (0.32-3.53)</td>
<td>0.91</td>
</tr>
<tr>
<td>Education</td>
<td>0.76 (0.59-0.96)</td>
<td>0.02</td>
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WHY?

• Perhaps those with more education might better understand the possible benefits of treatment and be more willing to put up with adverse effects.
Conclusion

- Rural patients with less education were more likely to discontinue cholinesterase treatment by 6 months.

- Implication:
  - Consider spending more time discussing benefits and side effects with less educated patients.