Alzheimer's Disease Screening

Emily Domingue  
Worcester Polytechnic Institute

Josephy Everett  
Worcester Polytechnic Institute

Heather Parker  
Worcester Polytechnic Institute

Rebecca Sharpe  
Worcester Polytechnic Institute

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Develop a plan for the screening of the general public for Alzheimer’s Disease.

If the patient’s score declines significantly over the course of one or more years, the physician must refer them to a hospital for plaque screening and a FDG PET scan.

Patients already diagnosed with “Alzheimer’s type” pathology.

Those with a family history of Alzheimer’s over the age of 40

As the body ages, β-amyloid plaques and neurofibrillary tangles may build up in the brain.

These block communication between cells

PET Scans

• Positron emission tomography shows how well cells are working based on the amount of sugar or oxygen the cell consumes

• A radioactive tracer can be given to the patient so that the PET scan will show the targeted cell

PET Scans

• Used to measure the levels of β-amyloid plaques as well as neurofibrillary tangles

• A radioactive tracer, 18F-FDDNP, binds to the plaques and tangles

• An administered PET scan shows where the tracer is greater in concentration

• FDG PET scans use the tracer 18 FDG to show brain metabolic activity

• Administration of these two tests is enough to diagnose Alzheimer’s Disease

“At-risk” patients will be given a standard cognitive assessment called a Mental Status Examination (MSE) as a part of their yearly physical examination.

If the patient’s score declines significantly over the course of one or more years, the physician must refer them to a hospital for plaque screening and a FDG PET scan.

If the results show that the patient has signs of AD, treatment will be carried out.

Diagnostic Screening System

• Evaluates:
  • Affect and mood
  • Attitude
  • Appearance
  • Behavior
  • Cognition
  • Insight judgment
  • Speech and language
  • Thought content
  • Thought processes

Mental Status Examination (MSE)

• The frontal lobe deals with thinking and planning
  • Temporal lobe is responsible for memory and learning
  • These are the two areas affected most by Alzheimer’s

Percentage Changes in Selected Causes of Death, 2000 and 2006

<table>
<thead>
<tr>
<th>Cause</th>
<th>2000</th>
<th>2006</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart disease</td>
<td>710,760</td>
<td>629,191</td>
<td>-11.5</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>41,200</td>
<td>40,970</td>
<td>-0.6</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>31,900</td>
<td>27,350</td>
<td>-14.3</td>
</tr>
<tr>
<td>Stroke</td>
<td>167,661</td>
<td>137,265</td>
<td>-18.1</td>
</tr>
<tr>
<td>Alzheimer’s disease</td>
<td>49,558</td>
<td>72,914</td>
<td>+47.1</td>
</tr>
</tbody>
</table>

Conclusion

An organized, widespread screening system for Alzheimer’s Disease will result in the earlier treatment of patients and possibly a decrease in the mortality rate due to this degenerative condition.

Acknowledgements


Adams, David. Personal interview. 18 Nov. 2009.

Joseph Everett, Emily Domingue, Heather Parker, Rebecca Sharpe