Hormone replacement therapy and incidence of Alzheimer disease in older women

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Study Type: POEM

Purpose: Does estrogen replacement therapy prevent the diagnosis of AD? Is there any benefit to duration of exposure?

Study Duration: 3-year assessment trial

Patients: 1889 women, 800 had never used HRT, 1066 with any use and 23 with missing data, mean age 74.5 year for women

Trial Design: prospective, longitudinal investigation, multistage screening in 1995-97 to diagnose cases of dementia in 5677 elderly residents in Cache County, Utah, 95% gave buccal DNA for APOE genotyping, three years later similar procedures were used to diagnose cases of AD among the surviving population (4119, 2401 women), those diagnosed went through a battery of test and physician visits for diagnosis and assessment of their disease

Cases identified - 185 incident cases (123 women, 62 men) - of the 123 women, 88 were probable AD

Inclusion: 5677 adult elderly residents of Cache County, Utah

Exclusion: none

1. Are the results valid?
   * observational, but prospective, not randomized trial
   * were groups similar? no
   * all patients accounted for? yes

2. What were the results

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>No HRT use (n = 800)</th>
<th>Any HRT use (n = 1066)</th>
<th>p-value</th>
<th>Missing HRT data (n = 23)</th>
<th>Total (n = 1889)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>76</td>
<td>73</td>
<td>&lt; .01</td>
<td>79</td>
<td>12.5 +/-3.5</td>
</tr>
<tr>
<td>Years of education</td>
<td>12.7 +/-2.3</td>
<td>13.1 +/-2.2</td>
<td>&lt; .01</td>
<td>12.5 +/-3.5</td>
<td>56.5%</td>
</tr>
<tr>
<td>No APOE allele</td>
<td>68.6%</td>
<td>68.9%</td>
<td>= NS</td>
<td>56.5%</td>
<td>4.7%</td>
</tr>
<tr>
<td>AD diagnosis (cases)</td>
<td>7.3% (58)</td>
<td>2.4% (26)</td>
<td>&lt; .01</td>
<td>17.4% (4)</td>
<td>4.7% (88)</td>
</tr>
</tbody>
</table>

HRT use  Relative Hazard
< 3 yrs  0.82 (0.38-1.57)
3-10 yrs 0.60 (0.26-1.22)
> 10 yrs 0.41 (0.17-0.86)

HRT current user 1.08 (0.59-1.91) - mean HRT exposure was 11.6 yrs

Compared with nonusers, former users showed significantly reduced risk, if they took the hormones 3-10yrs or greater

3. Will the results help me?
   * The risk of AD was cut in half among those using HRT. Benefit is realized only after 10 yrs of use.
   * The risk was 2.5 fold lower in those women using HRT for more than 10 yrs as compared to men.
   * 72% of current HRT user were taking unopposed oral estrogen preparation, humm........
   * Limitations:
     - Cache County is well educated, healthy County - are these results generalizable
     - short follow-up between 2 intake sessions
     - drug use recall bias
   * The cases of AD in men was 2.6% (35 cases of 1357 men), similar to those women with any use of HRT.