20mg transdermal selegiline daily may be effective and well tolerated in adults with major depression


QUESTION: Is transdermal selegiline safe and effective for adult outpatients with major depressive disorder?

Source of funding: Somerset Pharmaceuticals.

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Participants
Participants were 177 outpatients who met the DSM-IV criteria for major depressive disorder (single episode or recurrent) and had no other primary psychiatric diagnosis. Mean age 42 years (range 20–65); 53% women; 59% white. All participants were free of any psychoactive medications for a minimum of 2 weeks prior to treatment (2 months for monoamine oxidase inhibitor antidepressants). Exclusion criteria were previous mania or hypomanic episode; substance abuse within 6 months; exposure to ECT within 90 days; pregnant or breastfeeding women; women of childbearing age not using adequate birth control, or failure to respond to more than one approved antidepressant for the current episode of depression.

Design
Randomised controlled trial. Participants and assessors were blind to treatment allocation.

Setting
6 sites in the United States; timeframe not specified.

Adverse events reported by adults with major depressive disorder receiving transdermal selegiline or placebo

<table>
<thead>
<tr>
<th>Major adverse events</th>
<th>Selegiline % (n=89)</th>
<th>Placebo % (n=88)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any adverse event</td>
<td>87.6</td>
<td>78.4</td>
</tr>
<tr>
<td>Cardiovascular event</td>
<td>3.4</td>
<td>6.8</td>
</tr>
<tr>
<td>Nervous event</td>
<td>28.1</td>
<td>31.8</td>
</tr>
<tr>
<td>Digestive events</td>
<td>25.8</td>
<td>29.5</td>
</tr>
<tr>
<td>Respiratory events</td>
<td>15.7</td>
<td>18.2</td>
</tr>
<tr>
<td>Urogenital events</td>
<td>13.5</td>
<td>11.4</td>
</tr>
<tr>
<td>Musculoskeletal events</td>
<td>4.5</td>
<td>8.0</td>
</tr>
<tr>
<td>Other events</td>
<td>44.9</td>
<td>40.9</td>
</tr>
<tr>
<td>Application site reaction</td>
<td>36.0</td>
<td>17.0</td>
</tr>
</tbody>
</table>

Note: All p<0.05, except application site reactions (p=0.006).

Main outcome measures
Treatment response was measured using the 17 and 28-item versions of the Hamilton Depression Rating Scale, the Montgomery-Asberg Depression Rating Scale and the Clinical Global Impression severity and improvement measures.

Main results
The transdermal selegiline group showed greater improvement on all measures of depression compared with placebo. The selegiline group had 46% greater improvement on the 17-item Hamilton Depression Scale, 52% greater improvement on the 28-item Hamilton Depression Scale and 79% greater improvement on the Montgomery Asberg Depression Rating Scale. Differences were observed as early as the first week of treatment. There were no differences in adverse events between groups, apart from site reactions which were more common with selegiline (number needed to harm one person 5, 95% CI 3 to 16, absolute risk increase 19%, 95% CI 6% to 32%). No orthostatic hypotensive or hypertensive reactions were reported (table).

Conclusions
6-week treatment with transdermal selegiline appears to be safe and well tolerated for adults with major depression. No adverse effects associated with traditional monoamine oxidase inhibitor antidepressants were reported.

COMMENTARY
Over the past five decades we have learnt that monoamine oxidase inhibitors (MAOIs) are broadly effective and useful for depressive disorders, including atypical, chronic and double depressions. MAO-A is the predominant isoenzyme in the digestive tract. Inhibiting MAO-A may cause hypertension following the ingestion of tyramine (the “cheese reaction”). Although at low doses selegiline is a selective inhibitor of MAO-B, the high doses usually necessary to achieve antidepressant efficacy present the familiar dietary tyramine interaction. Transdermal selegiline has much less effect on gut flora and is a better delivery with a lower risk of first-pass metabolism. The transdermal route offers more constant blood levels and improved compliance. If future studies confirm the characteristics of this new antidepressant, transdermal selegiline may be an effective alternative for people with depression.

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