DO DROWSY DRIVER DRUGS DIFFER?

INTRODUCTION

Almost ¼ of the population of the US using at least one prescription drug per month, and over 1/3 using at least 3. This analysis reinforces the importance of carefully considering a drug’s specific mechanism of action when considering a patient’s ability to safely operate a motor vehicle.

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Methods

Data was collected through urban, interstate, and rural driving segments of three approximate 10-minute duration and included measures of steering bandwidth, lane position deviation, speed, percent speed low, number of lane departures, and standard deviation of lane position. The effects of the two study drugs were compared to baseline and each other to determine if there were any significant differences.

Research Question

Is the same advice warranted for all drugs that cause drowsiness? Does the mechanism matter?

RESULTS

<table>
<thead>
<tr>
<th>Average Lane Position</th>
<th>Standard Deviation of Lane Position</th>
<th>Steering Bandwidth</th>
<th>Number of Lane Departures</th>
<th>Average Speed relative to the Speed Limit</th>
<th>Standard Deviation of Speed</th>
<th>Percent Speed High</th>
<th>Percent Speed Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenhydramine</td>
<td>0.4544</td>
<td>0.08</td>
<td>0.3163</td>
<td>0.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alprazolam</td>
<td>0.0390</td>
<td>0.47</td>
<td>0.0003</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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</tr>
</thead>
<tbody>
<tr>
<td>Diphenhydramine</td>
<td>0.0289</td>
<td>0.42</td>
<td>0.3216</td>
<td>0.16</td>
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<tr>
<td>Alprazolam</td>
<td>0.0081</td>
<td>0.38</td>
<td>0.0041</td>
<td>0.60</td>
<td></td>
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</tr>
</tbody>
</table>

CONCLUSIONS

Effects are not the same for both drugs. Diphenhydramine Alprazolam

- The drowsiness induced by diphenhydramine is most often described as a general sense of drowsiness, whereas the drowsiness induced by alprazolam is often described as a general relaxation. Individuals on both drugs are often very aware of this effect and may be compensating by an increased frequency of steering input.

- Some of these drugs affect driving performance more than others. Diphenhydramine affects speed and steering bandwidth, whereas alprazolam affects speed, lane position deviation, and steering bandwidth. The impairing effects while on the drug by nature of its therapeutic action (anxiolytic). In this state, these individuals would exhibit less compensatory action that results in less precise control consistent with the changes observed.

NEXT STEPS

- Study additional drowsiness inducing drugs
- Explore EEG data to better understand effects while driving
- Extend standardized protocol to other classes of drugs.

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