Introduction

Tapentadol immediate-release (Nucynta®) was launched in June 2009 with the extended-release product (Nucynta® ER) released in August 2011.

In an effort to deter abuse, the extended-release tablets were manufactured using Intac® technology to be difficult to crush for intranasal abuse and difficult to solubilize for intravenous abuse.

Data from the Researched Abuse, Diversion, and Addiction-Related Surveillance (RADARS®) System Poison Center Program were analyzed to test whether the proportion of Intentional Exposures reporting use via injection or inhalation is lower for extended-release (ER) tapentadol than for immediate-release (IR) tapentadol.

Methods

The RADARS System Poison Center Program includes data from 50 US poison centers covering over 90% of the US population. Reports to poison centers are initiated by health care professionals and the general public in response to an acute health event. Intentional Exposures are “exposures resulting from a purposeful action.” Four intentional exposure categories were examined:

- Intentional Abuse: the intentional improper or incorrect use of a substance where the patient was likely attempting to gain a high, euphoric effect or some other psychotropic effect
- Intentional Misuse: the intentional improper or incorrect use of a substance for reasons other than the pursuit of a psychotropic effect
- Suspected Suicide: the inappropriate use of a substance for self-harm or for self-destructive or manipulative reasons
- Intentional Unknown: An exposure that is determined to be intentional but the specific motive is unknown

Results

The RADARS® System Poison Center Program Location of ER and IR tapentadol intentional exposure cases July 2011 to June 2015

<table>
<thead>
<tr>
<th>Exposure reason</th>
<th>Extended release tapentadol N (%) use via unintended route</th>
<th>Immediate release tapentadol N (%) use via unintended route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentional Abuse</td>
<td>47 (10.6%)</td>
<td>31 (25.8%)</td>
</tr>
<tr>
<td>Intention Misuse</td>
<td>52 (0.0%)</td>
<td>43 (2.3%)</td>
</tr>
<tr>
<td>Suspected Suicide</td>
<td>178 (0.0%)</td>
<td>121 (0.8%)</td>
</tr>
<tr>
<td>Intentional Unknown</td>
<td>26 (0.0%)</td>
<td>22 (0.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>303 (1.7%)</td>
<td>217 (4.6%)</td>
</tr>
</tbody>
</table>

Between July 2011 and June 2015, there were 303 Intentional Exposures involving ER tapentadol and 217 Intentional Exposures involving IR tapentadol.

- Of the ER tapentadol intentional exposures, 5 (1.7%) reported use via injection or inhalation, all of which were Intentional Abuse exposures.
- Of the IR tapentadol cases classified as Intentional Exposure, ten (4.6%) of these exposures reported use via injection or inhalation.
- The proportion of tapentadol ER exposures mentioning injection or inhalation use is significantly lower than the proportion of IR tapentadol exposures ($\chi^2=3.95$, $p=0.047$).

Conclusions

- There were a greater number of intentional exposures to ER tapentadol relative to IR tapentadol.
- Fewer ER tapentadol cases involved use via injection or inhalation.

Reference