SPINE INTERVENTION SOCIETY

23RD ANNUAL SCIENTIFIC MEETING

Best Practices In Interventional Spine Care

JULY 28– AUGUST 1, 2015

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The Use of Moderate Sedation for the Secondary Prevention of Adverse Vasovagal Reactions

International Spine Intervention Society
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DISCLOSURES

Board of Directors – (Travel, no honoraria)
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   International Spine Intervention Society

Journal Editorial Boards
   PM&R- Senior Editor
   Pain Medicine – Editorial Board (no monetary)

• Research support (paid directly to institution)
   International Spine Intervention Society

Consultant & Expert Witness – State Farm (hourly fee)
Original Research Article
The Use of Moderate Sedation for the Secondary Prevention of Adverse Vasovagal Reactions

David J. Kennedy, MD,* Byron Schneider, MD,* Matthew Smuck, MD,* and Christopher T. Plastaras, MD†
Background

• Vasovagal common
• Prevalence - 0-8.7%\textsuperscript{1,2}

• Higher rates in:
  • males
  • under the age of 65
  • with higher pre-procedural pain scores

• Can result in early procedural termination up to 30%
Methods

• 6,364 consecutive fluoro guided spine injections
  • 3,529 consecutive patients
  • Cervical, Lumbar and Thoracic Segments
  • TFESI, MBB, IA Facet, Discal, SIJ, RF, Caudal, ILESI

• Multiple physicians in Single academic Medical center
Methods

• All patients monitored with pulse ox, nurse, intermittent BP
• Positive VV Defined: decrement in HR and BP, with one or more symptoms of VV: lightheadedness, dizziness, palpitations, nausea, feeling warm, excessive diaphoresis
• Rigorous Immediate data entry into EMR with drop down menus
• **Retrospective** Analysis
Sedation

- At discretion of treating physician or request of patient
  - Patient Anxiety
  - History of VV

- Typical Sedation
  - 1-4 mg midazolam
  - 25-100 mg IV fentanyl
The Use of Moderate Sedation for the Secondary Prevention of Adverse Vasovagal Reactions

6,364 Injections

6,150 without moderate sedation

5,945 without vv reaction 205 (3.3%) with vv reaction*

214 with moderate sedation

214 without vv reaction 0 with vv reaction (0%)**
The Use of Moderate Sedation for the Secondary Prevention of Adverse Vasovagal Reactions

6,364 Injections

6,150 without moderate sedation

6,150 - 5,945 = 205
205 (3.3%) with vs reaction*

214 with moderate sedation

214 - 214 = 0
0 with vs reaction (0%)**
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Diagram:

- **6,364 Injections**
  - 6,150 without moderate sedation
    - 5,945 without vv reaction
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*Statistically significant

**Not statistically significant
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95% CI = 2.9-3.8%

95% CI 0-1.8%
### All Truth in a 2x2 Table — **Overall Cohort**

<table>
<thead>
<tr>
<th></th>
<th>VV</th>
<th>No VV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Sedation</td>
<td>184</td>
<td>5876</td>
<td>6060</td>
</tr>
<tr>
<td>Sedation</td>
<td>0</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>184</td>
<td>6046</td>
<td>6230</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 5.32 \ (P < 0.02) \]
EFFECTS IN HIGHER RISK POPULATION

134 Repeat Injections

- 90 without moderate sedation
- 44 with moderate sedation

69 without vV reaction
21 with vV reaction (23.3%)*
44 without vV reaction
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95% CI = 15.8-33.1%

95% CI = 0-8%

*Statistically significant
**No statistically significant differences

### All Truth in a 2x2 Table – Cohort with History of VV

<table>
<thead>
<tr>
<th></th>
<th>VV</th>
<th>No VV</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Sedation</strong></td>
<td>21</td>
<td>69</td>
<td>90</td>
</tr>
<tr>
<td><strong>Sedation</strong></td>
<td>0</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>21</td>
<td>113</td>
<td>134</td>
</tr>
</tbody>
</table>

$$\chi^2 = 12.17 \ (P < 0.00048)$$
Conclusions

• 1. Sedation is **not routinely** necessary, as evidenced by large volume of patients not requiring it
• 2. In our hands VV occurred at a rate of 3.5% for all
• 3. Increased to 21% for those with a history of VV
• 4. Mild sedation for anxiety may abate this risk in select at risk populations
• 5. Future research on oral anxiolytics is warranted
References


Thank You!

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