Examining Scopolamine Use for the Prevention of Postdischarge Nausea and/or Vomiting: A Secondary Analysis

James Masiongale, CRNA, DNP
Jane Garvin, PhD, APRN, FNP-BC
Marguerite Murphy, DNP, RN
Stephen W. Looney, Ph.D.

Georgia Regents University
College of Nursing
Definitions$^{1-3}$

Lack of a common definition

Postoperative Nausea &/or Vomiting (PONV)
- Recovery to discharge (PACU)
- Recovery through 24 hrs
- Recovery through 48 hrs

Post discharge nausea &/or vomiting (PDNV)
- Time of discharge through 7 days
  - 24 hrs through 7 days
  - 48 hrs through 7 days

References:
$^1$ ASPAN, 2006; $^2$ Cohen et al., 1984; $^3$ Kovac, 1999
Postdischarge Nausea &/or Vomiting (PDNV)
Incidence/Negative Consequences

50% for general anesthesia\(^4\)\(^-\)\(^6\)

- Decreased quality of life\(^7\)
- Complications\(^8\)
- Patient dissatisfaction
- Decreased ADL
- Increased cost

References:
\(^4\)Gan & Reeves, 2002; \(^5\)Odom-Forren, et al., 2006; \(^6\)Odom-Forren, et al., 2013; \(^7\)Macario et al.; \(^8\)Gold et al., 1989
### Guidelines for Prevention/Management of PONV

**Apfel PONV risks score**

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Gender</td>
<td>1</td>
</tr>
<tr>
<td>Non-smoker</td>
<td>1</td>
</tr>
<tr>
<td>History PONV &amp;/or motion sickness</td>
<td>1</td>
</tr>
<tr>
<td>Opioids in PACU</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>0…4</strong></td>
</tr>
</tbody>
</table>

**Expected PONV**

<table>
<thead>
<tr>
<th>Number of Risks</th>
<th>Expected Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10%</td>
</tr>
<tr>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>2</td>
<td>30%</td>
</tr>
<tr>
<td>3</td>
<td>40%</td>
</tr>
<tr>
<td>4</td>
<td>50%</td>
</tr>
</tbody>
</table>

References:
- Apfel et al., 1999
- ASPAN, 2006; Apfel et al., 1999
Guidelines for Prevention/Management of PDNV

Apfel PDNV risks score

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Gender</td>
<td>1</td>
</tr>
<tr>
<td>Age &lt; 50 years</td>
<td>1</td>
</tr>
<tr>
<td>History PONV</td>
<td>1</td>
</tr>
<tr>
<td>Opioids in PACU</td>
<td>1</td>
</tr>
<tr>
<td>PONV in PACU</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>0...5</strong></td>
</tr>
</tbody>
</table>

Expected PDNV

References:
10 Apfel et al., 2012
Recommended Treatment

PONV

- Use PDNV risk score to identify those at risk
- Consider long acting antiemetic such as TDS for those at risk

PDNV

References:
9 Apfel et al., 1999
10 Apfel et al., 2012
Study Aims

1. • Describe the sample

2. • Examine the use of TDS in an ambulatory setting

3. • Examine the use of TDS based on a PONV risk score ≥ 3 and PDNV score ≥ 1

4. • Describe the effectiveness of TDS on PDNV and PONV
Design

- Multicenter, prospective, observational cohort

- Approval from GRU IRB
  - N = 2170

- Limited my study data based on ability to calculate risk scores
  - N = 2098
Results
Demographics

Age (years)
SD ± 15.4

BMI
SD ± 6.9

0%
10%
20%
30%
40%
50%
60%
70%
80%
90%

Female
65%
Non-Smoker
84%
History PONV
30%
Opioids in PACU
25%
PONV in PACU
63%
20%

SD ± 15.4
SD ± 6.9
Demographics

Type Surgical Procedure
N = 2098

- General: 20%
- GYN: 11%
- Knee: 11%
- Breast: 10%
- 7 Other Surgeries: 48%

TDS use by Procedure
N = 78

- General: 14%
- Breast: 31%
- GYN: 30%
- All others: 25%
Overall TDS Use

- No TDS, 96%
  - N = 2020

- TDS Anesthesia, 3%
  - N = 71

- TDS PACU, 1%
  - N = 7

N = 7
### Antiemetic Use

**Bar Chart:**
- **Antiemetic in PACU**
- **Antiemetic in Anesthesia**

<table>
<thead>
<tr>
<th>Description</th>
<th>Antiemetic in Anesthesia</th>
<th>Antiemetic in PACU</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDS in PACU (N = 7)</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>TDS in Anesthesia (N = 71)</td>
<td>96%</td>
<td>34%</td>
</tr>
<tr>
<td>No TDS (N = 2020)</td>
<td>85%</td>
<td>15%</td>
</tr>
</tbody>
</table>
Qualified for TDS use with PONV RS ≥ 3

- PONV RS ≥ 3: 54% (N = 1133)
- PONV RS ≤ 2: 46% (N = 965)

N = 2098

TDS use
- 6% (N = 78)

No TDS use
- 94% (N = 1055)

N = 1133

N = 1133

N = 965
Qualified for TDS use with PDNV RS ≥ 1

- PDNV RS ≥ 1: 92% (N = 1930)
- PDNV RS < 1: 8% (N = 2098)
- PDNV RS 0: 8% (N = 168)

- No TDS use: 4% (N = 78)
- TDS use: 96% (N = 1852)
Participants with PDNV RS ≥3

- PDNV RS ≥ 3
  - 44%  
  - $N = 923$
- PDNV RS ≤ 2
  - 56%  
  - $N = 1175$
TDS Use Limited to High Risk Scores

PDNV
RS < 3
10%
N = 8
RS ≥ 3
90%
N = 70

PONV
RS < 3
6%
N = 5
RS ≥ 3
94%
N = 73
TDS Use
Motion Sickness

- No TDS: 24%
- TDS Anesthesia: 61%
- TDS PACU: 29%

History Motion Sickness
Effectiveness TDS By Time

Incidence &/or

PONV PACU    PDNV Ride Home    PDNV DOS    PDNV Day 1    PDNV Day 2

No TDS  TDS Anesthesia  TDS PACU
Effectiveness TDS by Risk

- PDNV TDS Anesthesia
- PDNV TDS PACU

N = 71
N = 7
Discussion

*First study* to examine TDS use based on risk scores

- >50% qualified for TDS
- 4% received TDS
- Verifies reluctance of use
Discussion

94% had PONV RS of $\geq 3$

90% had PDNV RS of $\geq 3$

TDS reserved for those at highest risk
Discussion

Based on Risk Scores

TDS anesthesia group had less than predicted incidence of PDNV
Discussion

Once PONV occurs, the TDS PACU group had higher PDNV, indicating that TDS appears ineffective as rescue medication.
Limitations

Parent study not a RTC

PDNV Risk Scores were not used during the time of data collection

Other medications could have influenced the PDNV
Recommend Further Study

• Effectiveness of TDS for PDNV
  – Risk scores
  – Randomization
  – Larger sample size

• Practitioner reluctance to use TDS for PDNV
Acknowledgements

Data/Parent Study

– Dr. Vallire Hooper
– Dr. Jan Odom-Forren
– Dr. Christian Apfel
References

References


