Safety of Dental Extractions During Uninterrupted Single or Dual Antiplatelet Treatment

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Disclosure Statement of Conflicts of Interest

Nothing to disclose
The population of patients eligible for chronic single or dual antiplatelet treatment is expanding globally.

Dental extractions represent the most frequent minor surgical procedures in the general population.

The optimal treatment strategy for dental extractions in patients receiving antiplatelet treatment is not clearly defined.
Competing risks of interrupted vs. continuous antiplatelet therapy

- **Empirical approach:** Concern persist that dental extractions during antiplatelet therapy increase the risk of bleeding complications.

- Antiplatelet interruption may be detrimental, particularly post DES implantation.

- Uninterrupted antiplatelet therapy is currently recommended for dental management.

- **Prospective studies** assessing the safety of dental extractions during antiplatelet therapy **are missing**
To prospectively assess the risk of immediate and late-onset bleeding complications during uninterrupted single or dual antiplatelet therapy in patients undergoing dental extractions.
Methods (1)

Study Protocol

1262 pts screened

623 pts enrolled

Exclusion criteria
- Multiple (>3) extractions
- Hematologic, Renal, Liver Disease
- Anticoagulants, NSAIDs
- Alcoholism

Controls
n=532

Aspirin
n=42

Clopidogrel
n=36

Aspirin & Clopidogrel
n=33
Methods (2)

Definition of bleeding complications

I. Immediate bleeding

- Need to use haemostatic gauze when blood extended beyond the tooth socket after 30 minutes of biting on a pressure pack

II. Late bleeding

- Extended beyond 12 hours
- Made the patient call or return to the dental practitioner or to an emergency department
- Resulted in hematoma or ecchymosis within oral soft tissues
- Required blood transfusion

Methods (3)

Local Haemostatic Measures

- Wound management: removal of granulation tissue, sharp bony edges, or foreign bodies.

- After extractions: biting on a pressure pack for 30 min.

- If bleeding was still present: defined as prolonged post-extraction bleeding.

A piece of oxidized cellulose gauze (Surgicel; Ethicon Inc, Somerville, NJ) was sutured over the inlet of the postextraction socket (3-0 silk sutures)
Results (1)

Patients’ baseline characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Aspirin (n = 42)</th>
<th>Clopidogrel (n = 36)</th>
<th>Aspirin and Clopidogrel (n = 33)</th>
<th>Controls (n = 532)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Control vs Aspirin</td>
<td>Controls vs Clopidogrel</td>
</tr>
<tr>
<td>Age (years)</td>
<td>66.6 ± 7.5</td>
<td>66.5 ± 6.8</td>
<td>63.2 ± 7.9</td>
<td>62 ± 9.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Men</td>
<td>26 (62%)</td>
<td>20 (56%)</td>
<td>23 (70%)</td>
<td>281 (53%)</td>
<td>0.27</td>
</tr>
<tr>
<td>Number of teeth extracted</td>
<td>56</td>
<td>59</td>
<td>54</td>
<td>734</td>
<td></td>
</tr>
<tr>
<td>Indication for extraction*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Periodontitis</td>
<td>26 (46%)</td>
<td>25 (42%)</td>
<td>24 (45%)</td>
<td>363 (49%)</td>
<td>0.68</td>
</tr>
<tr>
<td>Radicular lesion</td>
<td>4 (7%)</td>
<td>3 (5%)</td>
<td>11 (20%)</td>
<td>88 (12%)</td>
<td>0.38</td>
</tr>
<tr>
<td>Severe decay</td>
<td>25 (45%)</td>
<td>30 (51%)</td>
<td>19 (35%)</td>
<td>269 (37%)</td>
<td>0.25</td>
</tr>
<tr>
<td>Other</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
<td>0</td>
<td>14 (2%)</td>
<td>0.70</td>
</tr>
</tbody>
</table>

Treatment groups were well-balanced concerning baseline demographics, and procedural indications.
Indications for antiplatelet treatment

<table>
<thead>
<tr>
<th>Indication</th>
<th>Aspirin (n = 42)</th>
<th>Clopidogrel (n = 36)</th>
<th>Aspirin and Clopidogrel (n = 33)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute coronary syndrome</td>
<td>1 (2%)</td>
<td>5 (14%)</td>
<td>5 (15%)</td>
<td>0.09</td>
</tr>
<tr>
<td>Percutaneous coronary intervention</td>
<td>5 (12%)</td>
<td>6 (17%)</td>
<td>22 (67%)</td>
<td>1.00</td>
</tr>
<tr>
<td>Coronary bypass</td>
<td>7 (17%)</td>
<td>7 (19%)</td>
<td>4 (12%)</td>
<td>0.75</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>1 (2%)</td>
<td>1 (3%)</td>
<td>2 (6%)</td>
<td>1.00</td>
</tr>
<tr>
<td>Stroke</td>
<td>6 (14%)</td>
<td>0</td>
<td>0</td>
<td>0.77</td>
</tr>
<tr>
<td>Primary prevention</td>
<td>20 (48%)</td>
<td>16 (44%)</td>
<td>0</td>
<td>0.82</td>
</tr>
<tr>
<td>Other</td>
<td>2 (5%)</td>
<td>1 (3%)</td>
<td>0</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Data are expressed as mean ± SD or number (percentage).
## Results (3)

### Relative risk of immediate bleeding

1. **Antiplatelet therapy vs. controls**

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Bleeding Incidence</th>
<th>Relative Risk vs. Controls</th>
<th>95% C.I.</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls</td>
<td>2/532 (0.4%)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Aspirin</td>
<td>1/42 (2.4%)</td>
<td>6.3</td>
<td>0.6 - 68.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Clopidogrel</td>
<td>1/36 (2.8%)</td>
<td>7.4</td>
<td>0.7 - 79.5</td>
<td>0.18</td>
</tr>
<tr>
<td>Aspirin &amp; Clopidogrel</td>
<td>22/33 (66.7%)</td>
<td>177.3</td>
<td>43.5 - 722.1</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
## Results (4)

### Relative risk of immediate bleeding

#### II. Dual Antiplatelets vs. Monotherapy

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Bleeding Incidence</th>
<th>Relative Risk vs. Aspirin</th>
<th>95% C.I.</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin &amp; Clopidogrel</td>
<td>22/33 (66.7%)</td>
<td>28</td>
<td>4 - 197</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Bleeding Incidence</th>
<th>Relative Risk vs. Clopidogrel</th>
<th>95% C.I.</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin &amp; Clopidogrel</td>
<td>22/33 (66.7%)</td>
<td>24</td>
<td>3.4 - 168</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

- All immediate bleedings were successfully treated with local haemostatic measures.
Results (5)

Risk of prolonged bleeding

- None of the patients developed late bleeding
Summary

- While bleeding occurred more frequently in patients taking aspirin and clopidogrel, these complications:
  - only occurred immediately following the procedure (safe environment of a dental clinic)
  - could be successfully treated with appropriate local haemostasis

- Dental extractions may be safely performed in patients on both single and dual antiplatelet therapy
Safety of Dental Extractions During Uninterrupted Single or Dual Antiplatelet Treatment

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Optimal dental management in patients on long-term antiplatelet treatment is not clearly defined. Antiplatelet discontinuation increases the risk of thrombotic complications, whereas uninterrupted antiplatelet therapy, which is the currently recommended approach, is assumed to increase the bleeding hazard after dental procedures. We sought to prospectively compare the risk of immediate and late postextraction bleeding in patients receiving uninterrupted single or dual antiplatelet therapy. We recruited 643 consecutive patients referred for dental extractions. In total 111 (17.3\%) were on clinically indicated antiplatelet therapy: aspirin (n = 42), clopidogrel (n = 36), and aspirin and clopidogrel (n = 33). Controls (n = 532, 82.7\%) were not on antiplatelet treatment. Immediate and late bleeding complications were recorded. Compared to controls the risk of prolonged immediate bleeding was higher in patients on dual antiplatelet therapy (relative risk [RR] 177.3, 95\% confidence interval [CI] 43.5 to 722, p < 0.001) but not in patients on aspirin alone (RR = 6.3, 95\% CI 0.6 to 68.4, p = 0.2) or clopidogrel alone (RR = 7.4, 95\% CI 0.7 to 79.5, p = 0.18); however, all immediate bleeding complications in all treatment groups were successfully managed with local hemostatic measures. No patient developed any late hemorrhage. In conclusion, dental extractions may be safely performed in patients receiving single or dual antiplatelet therapy when appropriate local hemostatic measures are taken, thus averting thrombotic risk of temporary antiplatelet discontinuation. © 2011 Elsevier Inc. All rights reserved. (Am J Cardiol 2011;xx:xxx)
Limitations

- Patients with antiplatelet interruption were not included
- Patients with >3 extractions were excluded
- No platelet function testing to assess antiplatelet resistance
- The safety of antiplatelet drugs other than aspirin and clopidogrel, e.g., prasugrel, was not assessed