Efficacy of Digital Healthcare on Postoperative Quality of Recovery After Thoracic Surgical Procedures

Derek Nguyen1,3, Mahesh Nagappa1,3, Yamini Subramani1,3, Nida Fatima1,3, Natasha Wood2, Richard Malthaner2,3
1Department of Anesthesia and Perioperative Medicine 2Division of Thoracic Surgery, Department of Surgery 3Schulich School of Medicine & Dentistry and London Health Sciences Centre, London, ON, Canada

Background

- Patients undergoing thoracic surgical procedures are typically not seen for follow-up until their clinic appointment several weeks later.
- The limited continuity of care may lead to poorer quality of recovery, but due to resource constraints, it may not be feasible to increase the frequency of post-discharge clinic visits.
- Digital health platforms may be used to provide post-discharge care to surgical patients to improve continuity of care by using tools such as phone calls, messaging, and video chatting.
- The continuity of care with digital health platforms and their effect on quality of recovery after thoracic surgical procedures has yet to be established.
- Our objective was to compare the quality of recovery in patients undergoing thoracic surgical procedures with either digital home monitoring or normal standard of care.

Methods

- We conducted a pilot randomized controlled trial of adult patients discharged after elective thoracic surgical procedures at London Health Sciences Centre in London, Ontario, Canada.
- Subjects were randomized to either the Digital Care group or the Control group.
- The Digital Care group received continued care post-discharge through a digital platform that allowed for patient monitoring, secured messaging and video chatting.
- The Control group received usual post discharge standard of care.
- Our primary outcome was the 40-item quality of recovery (QOR-40) score which was completed by subjects 30 days post-discharge.

Results

- 37 patients were randomized to the digital care group and 39 to the control group.
- The global QOR-40 scores on the 30th day post-discharge were significantly higher in the digital care group (185.4 ± 2.6) than the control group (178.3 ± 3.3), p<0.0001.
- The five individual components of QOR-40 were all significantly higher in the digital healthcare group than the control group (p<0.0001).

Discussion

- The use of digital health platforms to provide post-discharge care to thoracic surgical patients improved global quality of recovery and all individual physical and emotional domains.
- Digital health platforms are a helpful tool to provide improved continuity of care and better quality of recovery, especially given resource limitations.

<table>
<thead>
<tr>
<th>Quality of Recovery Domain</th>
<th>Digital Care Group (mean ± SD)</th>
<th>Control Group (mean ± SD)</th>
<th>Mean Difference (95% Confidence Interval)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global QOR-40</td>
<td>185.4 ± 2.6</td>
<td>178.3 ± 3.3</td>
<td>7.0 (5.6 – 8.4)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Emotional Status</td>
<td>40.4 ± 0.6</td>
<td>38.3 ± 0.8</td>
<td>2.0 (1.7 – 2.4)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Physical Comfort</td>
<td>53.9 ± 0.7</td>
<td>53.0 ± 0.7</td>
<td>0.9 (0.5 – 1.2)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Psychological Support</td>
<td>34.3 ± 0.2</td>
<td>31.9 ± 0.5</td>
<td>2.4 (2.2 – 2.6)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Physical Independence</td>
<td>23.2 ± 0.4</td>
<td>22.2 ± 0.5</td>
<td>0.9 (0.7 – 1.2)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Pain</td>
<td>33.4 ± 0.5</td>
<td>32.7 ± 0.6</td>
<td>0.6 (0.4 – 0.9)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>