A RETROSPECTIVE AUDIT OF POSTOPERATIVE DELIRIUM IN ELDERLY ELECTIVE MAJOR COLORECTAL SURGERY

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is post-operative delirium an issue in our elective major colorectal patients and is there anything we can do about it?
WHAT IS POSTOPERATIVE DELIRIUM?

“An acute and fluctuating change in attention and conscious level occurring after surgery (most commonly in the first 5 days)” [2]

- Lengthens hospital stay by 2-3 days and ICU stay by 2 days
- Increases postoperative 30-day mortality
- Lead to significant functional decline and 2-3 x increased risk of needing more care on discharge
- Increased healthcare cost (£2000-£8000 per case)
- It can lead to cognitive decline (Postoperative Cognitive Dysfunction) which can be temporary or permanent
## RISK FACTORS FOR POD [3]

<table>
<thead>
<tr>
<th>Patient Factors</th>
<th>Anaesthetic Factors</th>
<th>Surgical factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age over 65</td>
<td>Inadequate pain control</td>
<td>Presence of catheter</td>
</tr>
<tr>
<td>Frailty</td>
<td>Use of psychotropic medications</td>
<td>Duration and type of surgery (major vascular, HPB, cardiac, emergency)</td>
</tr>
<tr>
<td>Multi-morbidity</td>
<td>BIS $&lt;40$ for prolonged periods</td>
<td>Postoperative infection/respiratory issues</td>
</tr>
<tr>
<td>Polypharmacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-existing cognitive impairment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol misuse</td>
<td></td>
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<tr>
<td>Poor functional status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor nutrition</td>
<td></td>
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<tr>
<td>Visual/hearing impairment</td>
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</tbody>
</table>
The process of identifying and reducing the risk of POD/POCD should begin preoperatively. Patients are at higher risk of POD/POCD if they are very old, frail, cognitively impaired, or have cardio/cerebrovascular disease and multimorbidity/polypharmacy. Early recognition should be communicated throughout the multidisciplinary care team, and facilitates multimodal interventions aimed at reducing the prevalence, severity and/or duration of POD.

Recovery room delirium is a strong predictor for postoperative delirium, and so the recovery area is an appropriate area for delirium testing.
CONSENTING FOR POSTOPERATIVE DELIRIUM[^3]

- **Chester v Afshar (2004)** – House of Lords ruling stating that a patient was not informed of a risk inherent to the surgery despite a low probability of the outcome occurring.

- Department of Health now recommend that information is provided for all possible serious outcomes and to ensure that this is documented.

- **Should we be doing this for postoperative delirium/cognitive decline?**
AIMS

- To calculate the incidence of postoperative delirium (POD) in our target population
- To establish the differential length of stay between those who did/did not have POD
- To see if cognitive decline is screened for in pre-operative assessment clinic (PAC)
- To see if POD is consented for by surgeons or anaesthetists
- To establish if there is any link between certain medications and the development of POD.
METHODS

- Retrospective notes review – pre-assessment notes, anaesthetic charts, consent forms, nursing notes and drug charts etc.

- Use of Miss Sarah Mill’s database to assist with demographic data.

- All patients over 80 who had an elective major colorectal procedure in Northumbria Healthcare trust between April 2019 and June 2021

- 44 patients identified and 42 sets of notes looked at (2 sets of notes were unable to be located).
<table>
<thead>
<tr>
<th></th>
<th>Post-operative Delirium</th>
<th>No Post-operative Delirium</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases</td>
<td>11</td>
<td>30</td>
<td>41</td>
</tr>
<tr>
<td>Average age</td>
<td>82.6</td>
<td>82.5</td>
<td>82.5</td>
</tr>
<tr>
<td>ASA (mean)</td>
<td>2.8</td>
<td>2.6</td>
<td>2.7</td>
</tr>
<tr>
<td>No. Of comorbidities</td>
<td>5.1</td>
<td>4.4</td>
<td>4.5</td>
</tr>
<tr>
<td>Pre-existing dementia</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>LOS (median, days)</td>
<td>5 (3 - 33)</td>
<td>5 (3 - 28)</td>
<td>5</td>
</tr>
<tr>
<td>Intra-op anticholinergic</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Intra-op lidocaine</td>
<td>8</td>
<td>21</td>
<td>29</td>
</tr>
<tr>
<td>Intra-op ketamine (mean dose, mg)</td>
<td>7 (38.6)</td>
<td>14 (26.4)</td>
<td>21 (30.5)</td>
</tr>
<tr>
<td>Intra-op dexamethasone</td>
<td>6</td>
<td>18</td>
<td>24</td>
</tr>
<tr>
<td>Post-op critical care</td>
<td>8</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>Scoring system used</td>
<td>1</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Pre-operative consent</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Surgical consent</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Complications coded</td>
<td>3</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>
RESULTS — INCIDENCE OF DELIRIUM

- 11 out of 41 patients identified as having a probable post-operative delirium — 27%
- 1 patient had pre-existing dementia as well as post-operative confusion (unclear from notes as to whether this was a change from baseline).
- Mean age was 82.5 years (82.6 in group with delirium and 82.4 in group without)
- ASA grades 2-3 (delirium group average was 2.8 vs. 2.6 in non-delirium group)
# RESULTS - INCIDENCE OF DELIRIUM

<table>
<thead>
<tr>
<th>Procedure</th>
<th>No evidence of post-op delirium</th>
<th>Evidence of post-op delirium</th>
</tr>
</thead>
<tbody>
<tr>
<td>R hemicolectomy</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Anterior resection</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Hartmanns</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Extended right hemicolectomy</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>APER</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total colectomy</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
RESULTS — LENGTH OF STAY

- Mean Length of Stay — 7.4 days (range 3 – 33 days)
- Mean LOS without delirium — 7.2 days
- Mean LOS with delirium — 8.4 days (but likely skewed by 1 patient who had LOS 33 days due to surgical complications)
PRE-OPERATIVE COGNITIVE FUNCTION was mentioned in 4 out of 42 patients in PAC (with one patient being identified as having dementia).

No evidence of a scoring system being used in any of the notes looked at.
2 patients had documented discussions about POD/cognitive decline in PAC (<5%)

0 patients consented on surgical consent form or anaesthetic chart for POD.
RESULTS – DRUGS

**Anticholinergics**
- 5/11 in group given intra-op anticholinergics had a post-operative delirium (45%)
- 6/30 in group not given intra-op anticholinergics had a post-operative delirium (20%)

**Lidocaine infusion**
- 8/29 in group receiving lidocaine had a post-operative delirium (28%)
- 3/12 in group not receiving lidocaine had a post-operative delirium (25%)

**Ketamine**
- 7/21 in group receiving ketamine had a post-operative delirium (33%)
- 4/20 in group not receiving ketamine had a post-operative delirium (20%)
- Average dose was 26.4mg in non-delirium group compared to 38.5mg in delirium group

**Dexamethasone**
- 6/24 in group receiving dexamethasone had a post-operative delirium (25%)
- 5/17 in group not receiving dexamethasone had a post-operative delirium (29%)
RESULTS — POSTOPERATIVE SCREENING

- Most common scoring system used was CAM ICU - documented by nurses on HDU
- 12/41 had CAM ICU score recorded
- 29/41 had no formal score done at all for POD (the patient with pre-existing dementia had no score pre- or postoperatively)
- Majority of patients with delirium were identified in notes by nursing staff/physios/pain team, rarely identified or commented on in ward rounds
- Only 1 patient had delirium coded as complication
**DISCUSSION**

- POD is an issue for our major elective colorectal patients and may increase their length of stay.

- We are currently not screening for this pre-operatively or documenting consent for it as a complication.

- More data is needed (potentially for all patients over 65) but anticholinergics and ketamine may increase your chance of having POD, however, many factors will likely to be at play.

- We are not currently screening for POD routinely on the wards and it is not being recorded as a complication.
WHAT CAN WE DO TO HELP? [3,5]

- Screen for risk factors for POD in pre-operative assessment clinic (frailty scores included) and consider the addition of a geriatric assessment in these clinics.
- Have discussions with patients in PAC/surgical clinic about POD and consider consenting patients for the risk of developing it.
- Reduce the polypharmacy and psychotropic medication burden for these patients in the perioperative period.
- Reduce fasting times.
- Ensure adequate pain management.
- Don’t forget the other things (hearing aids, good ward environment etc.).
- Use BIS and aim to keep it between 40-60 (inconclusive data for this).
- Screen for POD using the 4-AT score – don’t forget about hypoactive delirium and seek advice for its management.
- Consider further geriatric postoperative involvement for these patients.
ACKNOWLEDGEMENTS

With thanks to Miss Mills for use of data from the colorectal database and to Dr Leonie English for the background work at the start of the project.
REFERENCES

1) NELA data


ANY QUESTIONS?