STEROID GUIDELINES AUDIT RESULTS

274 patients were under active follow up between the audit dates. Notes for all these were audited.
59% (163) were not on steroids during this time
21% (57) were already on steroids so were not included in the audit
20% (54) were included in the audit.

Of the 54 patients audited:
- 4 were commenced on 2 separate courses of steroids, and were therefore audited twice (58 incidents)
- 4 were excluded in view of the indication for their steroid (1 COPD, 3 chemo)
This left 54 incidents of steroid prescribing in 51 patients to audit.

Indications and doses used:

<table>
<thead>
<tr>
<th>Indication</th>
<th>No.:</th>
<th>Median dose (dex, mg):</th>
<th>% in guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appetite/energy</td>
<td>19</td>
<td>4</td>
<td>84%</td>
</tr>
<tr>
<td>Bowel obstruction</td>
<td>3</td>
<td>8</td>
<td>66%</td>
</tr>
<tr>
<td>Brain tumour/raised ICP</td>
<td>7</td>
<td>12</td>
<td>29%</td>
</tr>
<tr>
<td>Cord compression</td>
<td>1</td>
<td>16</td>
<td>100%</td>
</tr>
<tr>
<td>Liver capsule pain</td>
<td>7</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Neuropathic pain</td>
<td>4</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Nausea/vomiting</td>
<td>6</td>
<td>5</td>
<td>33%</td>
</tr>
<tr>
<td>SVCO</td>
<td>2</td>
<td>12</td>
<td>50%</td>
</tr>
<tr>
<td>Unclear</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>6</strong></td>
<td><strong>40%</strong></td>
</tr>
</tbody>
</table>

In 6 cases, there were 2 or more indications for the steroid, making 60 indications to audit, of the 54 incidents.

The ‘other’ indications were squashed stomach (3), breathing (2), lymphoedema (1) and laryngeal tumour swelling (1).

On the whole the lower doses (eg appetite and energy) seemed to follow the guidelines more often. There was a tendency to give lower doses than recommended in those with bowel obstruction and particularly brain tumours, perhaps because of concerns about side effects. Liver capsule pain was consistently treated with 8mg rather than the 6mg suggested by the guidelines. This suggested to me that people may disagree with the guideline doses, or be judging each case on merit.
Whether guidelines were followed:

<table>
<thead>
<tr>
<th>Steroid started by</th>
<th>Followed</th>
<th>Not followed</th>
<th>Not applicable</th>
<th>Unclear</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPCT</td>
<td>60% (6)</td>
<td>30% (3)</td>
<td>-</td>
<td>10% (1)</td>
<td>10</td>
</tr>
<tr>
<td>Hospice Dr</td>
<td>46% (13)</td>
<td>36% (10)</td>
<td>18% (5)</td>
<td>-</td>
<td>28</td>
</tr>
<tr>
<td>GP</td>
<td>0%</td>
<td>60% (3)</td>
<td>-</td>
<td>40% (2)</td>
<td>5</td>
</tr>
<tr>
<td>Hospital Dr</td>
<td>29% (5)</td>
<td>47% (8)</td>
<td>-</td>
<td>24% (4)</td>
<td>17</td>
</tr>
<tr>
<td>By hospice</td>
<td>50%</td>
<td>34%</td>
<td>13%</td>
<td>3%</td>
<td>38</td>
</tr>
<tr>
<td>By others</td>
<td>23%</td>
<td>50%</td>
<td>-</td>
<td>27%</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>40%</td>
<td>40%</td>
<td>8%</td>
<td>12%</td>
<td>60</td>
</tr>
</tbody>
</table>

This shows that in about half of the cases in which the hospice team advise steroids be commenced, the guidelines are followed, although a significant proportion were started for an indication for which there was no guideline (‘not applicable’). CPCT are more likely to follow guidelines than hospice doctors.

It is not surprising that the proportion following the guidelines is lower in the group advised by professionals outside the hospice, as they may not be aware we have guidelines or may have different ones of their own. The indication for commencing steroids was unclear in a significantly higher proportion of this group, as they have their own notes. If we are involved in the monitoring of steroids in this group of patients we need to make an early effort to find out the indication and plan so that it can be recorded in our notes.

GI cover:

<table>
<thead>
<tr>
<th>Steroid started by</th>
<th>GI cover given</th>
<th>Already on</th>
<th>Not given</th>
<th>Given later</th>
<th>Following guidelines</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPCT</td>
<td>10% (1)</td>
<td>70% (7)</td>
<td>20% (2)</td>
<td>1</td>
<td>0%</td>
<td>10</td>
</tr>
<tr>
<td>Hospice Dr</td>
<td>26% (6)</td>
<td>57% (13)</td>
<td>17% (4)</td>
<td>1</td>
<td>4% (1)</td>
<td>23</td>
</tr>
<tr>
<td>GP</td>
<td>0%</td>
<td>60% (3)</td>
<td>0% (2)</td>
<td>0</td>
<td>0%</td>
<td>5</td>
</tr>
<tr>
<td>Hospital Dr</td>
<td>38% (6)</td>
<td>56% (9)</td>
<td>6% (1)</td>
<td>1</td>
<td>25% (4)</td>
<td>16</td>
</tr>
<tr>
<td>By hospice</td>
<td>21%</td>
<td>61%</td>
<td>18%</td>
<td>2</td>
<td>3%</td>
<td>33</td>
</tr>
<tr>
<td>By others</td>
<td>29%</td>
<td>57%</td>
<td>14%</td>
<td>1</td>
<td>19%</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>24%</td>
<td>59%</td>
<td>17%</td>
<td>3</td>
<td>9%</td>
<td>54</td>
</tr>
</tbody>
</table>

In those commenced on steroids by the hospice team, 82% had GI cover, but only 3% followed the guideline of lansoprazole 15mg.

In those commenced by others, 86% had GI cover, with 19% following hospice guidelines, presumably unconsciously – they may have their own guidelines in hospital or GP surgeries.
On the whole, where guidelines were not followed it was because a higher dose eg lansoprazole 30mg was given.

Plan for reduction of steroid dose:

<table>
<thead>
<tr>
<th>Steroid started by</th>
<th>Plan made</th>
<th>Plan followed</th>
<th>Plan made later</th>
<th>Dose adjusted according to condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPCT</td>
<td>70% (7)</td>
<td>45% (3)</td>
<td>20% (2)</td>
<td>10% (1)</td>
</tr>
<tr>
<td>Hospice Dr</td>
<td>57% (13)</td>
<td>62% (8)</td>
<td>22% (5)</td>
<td>22% (5)</td>
</tr>
<tr>
<td>GP</td>
<td>20% (1)</td>
<td>0%</td>
<td>20% (1)</td>
<td>40% (2)</td>
</tr>
<tr>
<td>Hospital Dr</td>
<td>38% (6)</td>
<td>50% (3)</td>
<td>25% (4)</td>
<td>38% (6)</td>
</tr>
<tr>
<td>By hospice</td>
<td>61%</td>
<td>55%</td>
<td>21%</td>
<td>18%</td>
</tr>
<tr>
<td>By others</td>
<td>33%</td>
<td>43%</td>
<td>24%</td>
<td>38%</td>
</tr>
<tr>
<td>Total</td>
<td>50%</td>
<td>48%</td>
<td>22%</td>
<td>28%</td>
</tr>
</tbody>
</table>

This shows that according to the documentation we have, in the hospice we are better at making and keeping to plans for reduction of steroid dose, but we are still not making plans for this in all patients. CPCT were more likely to make a plan than the doctors, but plans made by doctors were more likely to be followed.

If plans were not made at the outset, the majority had a plan made at a later date (usually by hospice doctor or CPCT), or adjustments made according to the condition of the patient.

In total 70% of the patients (23) started on steroids by the hospice team had some form of review and dose adjustment, compared to 76% (16) of those started by others (often done by hospice team in any case)

Length of time on steroids by indication:

<table>
<thead>
<tr>
<th>Indication</th>
<th>&lt;5 days</th>
<th>5-10 days</th>
<th>10-20 days</th>
<th>20-40 days</th>
<th>40-80 days</th>
<th>&gt;80 days</th>
<th>Median duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appetite/energy</td>
<td></td>
<td>3</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>10-20 days</td>
</tr>
<tr>
<td>Bowel obstruction</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;5 days</td>
</tr>
<tr>
<td>Brain tumour/raised ICP</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>5</td>
<td></td>
<td>40-80 days</td>
</tr>
<tr>
<td>Cord compression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>40-80 days</td>
</tr>
<tr>
<td>Liver capsule pain</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
<td>10-20 days</td>
</tr>
<tr>
<td>Neuropathic pain</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>20-40 days</td>
</tr>
<tr>
<td>Nausea/vomiting</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>10-20 days</td>
</tr>
<tr>
<td>SVCO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>10-40 days</td>
</tr>
<tr>
<td>Unclear</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>10-20 days</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td>5-20 days</td>
</tr>
</tbody>
</table>
Length of time on steroids by dose:

<table>
<thead>
<tr>
<th>Dose (mg)</th>
<th>&lt;5 days</th>
<th>5-10 days</th>
<th>10-20 days</th>
<th>20-40 days</th>
<th>40-80 days</th>
<th>&gt;80 days</th>
<th>Median duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 and below</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td>20-40 days</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td></td>
<td>10-40 days</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>10-20 days</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>10-20 days</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>10-20 days</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>10-40 days</td>
</tr>
</tbody>
</table>

Length of time on steroids by prescriber:

<table>
<thead>
<tr>
<th>Steroid started by</th>
<th>&lt;5 days</th>
<th>5-10 days</th>
<th>10-20 days</th>
<th>20-40 days</th>
<th>40-80 days</th>
<th>&gt;80 days</th>
<th>Median duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPCT</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
<td>10-40 days</td>
</tr>
<tr>
<td>Hospice Dr</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>10-20 days</td>
</tr>
<tr>
<td>GP</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td>10-20 days</td>
</tr>
<tr>
<td>Hospital Dr</td>
<td>1</td>
<td>6</td>
<td></td>
<td>6</td>
<td>3</td>
<td></td>
<td>40-80 days</td>
</tr>
<tr>
<td>Total</td>
<td>7%</td>
<td>15%</td>
<td>35%</td>
<td>13%</td>
<td>17%</td>
<td>13%</td>
<td>10-20 days</td>
</tr>
</tbody>
</table>

(4) (19) (7) (9) (7)

Length of time on steroid by whether guidelines were followed and whether plan was made:

<table>
<thead>
<tr>
<th></th>
<th>&lt;5 days</th>
<th>5-10 days</th>
<th>10-20 days</th>
<th>20-40 days</th>
<th>40-80 days</th>
<th>&gt;80 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number that followed guidelines</td>
<td>2 (50%)</td>
<td>2 (25%)</td>
<td>10 (54%)</td>
<td>5 (71%)</td>
<td>4 (44%)</td>
<td>3 (43%)</td>
</tr>
<tr>
<td>Number in which plan was made</td>
<td>1 (25%)</td>
<td>4 (50%)</td>
<td>10 (54%)</td>
<td>4 (57%)</td>
<td>2 (22%)</td>
<td>4 (57%)</td>
</tr>
</tbody>
</table>

In 8 of the patients I felt that their steroids should be reviewed because of the duration of the treatment.

It seemed that the long duration of the steroid treatments for brain tumours was probably acceptable, since most were being adjusted according to the patients condition.

Documentation in hospice notes

<table>
<thead>
<tr>
<th>Started by</th>
<th>Poor documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPCT</td>
<td>20% (2)</td>
</tr>
<tr>
<td>Hospice doctor</td>
<td>18% (5)</td>
</tr>
</tbody>
</table>
The notes audited were only the ones kept by the hospice and there may be much more information held in GP and hospital notes. Even so the importance of gathering information from other sources to complete our notes is again highlighted, especially when it appears that the hospice team often review and adjust steroid doses started by other professionals. There is also a risk that some patients, like the 7 who remained on steroids until the present day (up to 3 1/2 months) will remain on an inappropriate dose because they are not being reviewed.

**Steroid guidelines survey**

<table>
<thead>
<tr>
<th></th>
<th>CPCT (6)</th>
<th>Hospice Drs (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to them</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Already know them</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Don’t use them</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Follow them</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-25% time</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>50% time</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>75-100% time</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Fill in sheet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Occasionally</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Confident in guidelines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

This shows that on the whole, CPCT use the guidelines more, perhaps because they have more faith in them being evidence-based than the medical team. It is not usual practice to use the red sheet for documentation.
References for steroid guidelines

Cord compression
12-20mg/day


Cerebral metastases
16-24mg/day


Bowel obstruction
6-16mg/day


SVCO
16mg/day

Nausea and vomiting

8-20mg/day


14) Aapro MS (1991) Present role of corticosteroids as antiemetics. In Recent Results in cancer research vol 121, pp 91-100


Pain (including liver capsule) 7+)

4-8mg/day


Lymphangitis

8-12mg/day


Appetite, well-being, energy

3-5mg/day for 2-4 weeks


Revised steroid guidelines using available evidence

Spinal cord compression
16mg/day

Cerebral metastases
16mg/day starting dose, up to 24mg/day if indicated

Intestinal obstruction
8mg/day, if conservative management not effective at one week

SVCO
16mg/day

Nausea/vomiting
8mg/day

Neuropathic/bone/liver pain
8mg/day

Lymphangitis
8mg/day

Appetite/energy/wellbeing
4mg/day

Summary
16mg/day for cord compression, cerebral mets, SVCO
8mg/day for bowel obstruction, nausea, neuropathic/bone/liver capsule pain, lymphangitis
4mg/day for appetite/energy/wellbeing

Dose of steroids should be adjusted according to the individual patient, depending on risk of side-effects, previous steroid doses and response to treatment.

Review
For bowel obstruction and cord compression, review at 3 days.
For all other indications, review at 7 days.

If no benefit, and patient not previously on steroids, stop completely.
If no benefit and patient previously on steroids, reduce to previous dose.

If treatment is effective, continue steroids on a reducing regime. Drop by 2mg every 5-7 days depending on response. Some patients may need a maintenance dose

All patients should also be prescribed a PPI eg lansoprazole 30mg od.