Endoscopy complication surveillance Program

Lawrence Lai\textsuperscript{1,5}, S K Leung\textsuperscript{2,5}, H L Yiu\textsuperscript{2,5}, Calvin Chan\textsuperscript{3,5}, K Y To\textsuperscript{3,5}, C S Lam\textsuperscript{1,5}, M L Szeto\textsuperscript{6}, T W Lee\textsuperscript{4,5}

\textsuperscript{1}Dept of Medicine & Geriatrics, Pok Oi Hospital
\textsuperscript{2}Dept of Surgery, Pok Oi Hospital
\textsuperscript{3}Ambulatory Service Center, Pok Oi Hospital
\textsuperscript{4}Hospital Chief Executive, Pok Oi Hospital
\textsuperscript{5}Endoscopy Committee, Pok Oi Hospital
\textsuperscript{6}Dept of Medicine & Geriatrics, Tuen Mun Hospital
Introduction

- Endoscopy carries risk. Complications are not uncommon.
- It is essential:
  - Trace those complications,
  - Analyze the profile,
  - Perform actions to minimize the risk continuously.

- Caters all OP OGDs and selected colonoscopy and bronchoscopy
Objectives

- (1) To collect the data of the complications after endoscopy.
- (2) To monitor the complication of the endoscopist and the unit.
- (3) To take necessary actions when there is unusual rise in complications.
Design and Methods

- This is a continuous surveillance program.
- All patients undergoing endoscopy POH.
- Endoscopy complication reporting forms to all in-patients.
- Complete the forms once complications noted.
- Discuss in the quarterly endoscopy committee meeting.
- We would look for clusters and causes of events.
Clinical Standards

- **Clinical Audit on Colonoscopy in the Medical Departments.** Szeto ML.
Assessment of complications

- Breathing related,
- Bleeding,
- Perforation,
- Pancreatitis (for ERCP)
- And respiratory.

- Mild, moderate and severe, according to pre-defined standards.

- The performance of the endoscopists and the endoscopy unit would be compared with international standards.
Type of Endoscopy Procedure: Bronchoscopy / Colonoscopy / OGD / Sigmoid / ERCP/
Date of Endoscopy Procedure:

Nature of Complication (Please describe and grade according to following guidelines)
Please circle the appropriate: MILD / MODERATE / SEVERE

<table>
<thead>
<tr>
<th>Nature of Complication</th>
<th>Mild: hospitalization less than 3 days</th>
<th>Moderate: hospitalization 4-10 days</th>
<th>Severe: hospitalization more than 10 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breathing</td>
<td>Transient hypoxemia requiring admission</td>
<td>Respiratory depression, Pneumonia, Pulmonary edema</td>
<td>Respiratory depression, Pneumonia, Pulmonary edema, Arrest</td>
</tr>
<tr>
<td>Bronchoscopy</td>
<td>Nausea and vomiting, Vasovagal reaction, Fever, Hypoxemia</td>
<td>Airway obstruction, Bleeding, Arrhythmia, Pneumothorax</td>
<td>Respiratory depression, Pneumonia, Pulmonary edema, Arrest</td>
</tr>
<tr>
<td>Bleeding</td>
<td>Clinical (i.e. not just endoscopic) evidence of bleeding Haemoglobin drop &gt; 3g and no need for transfusion</td>
<td>Transfusion (4 units or less), no angiographic intervention or surgery</td>
<td>Transfusion 5 units or more, or intervention (angiographic or surgical)</td>
</tr>
<tr>
<td>Perforation</td>
<td>Possible, or only very slight leak of fluid or contrast, treatable by fluids and suction for 3 days or less</td>
<td>Any definite perforation treated medically for 4-10 days</td>
<td>Medical treatment for more than 10 days, or intervention (percutaneous or surgical)</td>
</tr>
<tr>
<td>Pancreatitis</td>
<td>Clinical pancreatitis, amylase at least three times normal at more than 24 hr after the procedure, requiring admission or prolongation of planned admission to 2-3 days.</td>
<td>Pancreatitis requiring hospitalization of 4-10 days</td>
<td>Hospitalization for more than 10 days or haemorrhagic pancreatitis, phlegmon or pseudocyst, or intervention (percutaneous drainage or surgery)</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remark: Please COMPLETE & RETURN this complication form to 2/F Endoscopy Unit after complication happened or after patient discharge (without complication).
Action phase

- Preventive measures once causes or relevant factors were identified.
- Include:
  Readjusting the care process,
  Rechecking the equipment,
  Reviewing the endoscopy procedure guidelines
  And even retraining of endoscopist or staff.
- We would analyze the results in the next quarter and continuously refine the whole care process.
Results in the first quarter

- 755 OGDs were done at endoscopy suite in the Q4 2007.
- 2 reported medical major complications (CVA and Acute coronary syndrome). No procedural complications.
<table>
<thead>
<tr>
<th>Complication</th>
<th>Causes</th>
<th>Predictable before procedure?</th>
<th>Preventable before procedure?</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>F/65 CVA</td>
<td>Did not take BP drugs</td>
<td>Yes</td>
<td>Yes</td>
<td>Enforce patients to take BP drugs</td>
</tr>
<tr>
<td>F/70 ACS</td>
<td>Did not take BP drugs</td>
<td>Yes</td>
<td>Yes</td>
<td>Enforce patients to take BP drugs</td>
</tr>
</tbody>
</table>
New measure to prevent further medical complications

New endoscopy protocol at POH.
Taking necessary medications before endoscopy
Doctor’s assessment before endoscopy if medication not taken.
Give necessary medications if not taken.
Results in the 2nd quarter

- 922 OGDs, 14 colonoscopies and 7 bronchoscopy in the 1Q2008.
- No reported medical complications.
- No reported surgical complications.
- Reduced complications rate.
- Further complications would be continuously monitored.
Discussion

- Endoscopy complications are not uncommon.
- Continuous monitoring of complication is feasible.
- Reporting does not carry labeling.
- Continuous refinement of the guidelines, protocol, and other remedial measures are the cornerstone for the high standard.
Limitations

- Depends on all staffs to report.
- Thorough explanations to all staffs.
- All staffs could report the complications.
- Suspected but not confirmed complications can also be reported (allow over reporting) as we would investigate.
- Forms could be returned even if no complications.
- Long term validity is pending.
- Non complication issues may not be reflected.
- Adding further dimensions for measurement. E.g. long term disability, further invasive procedures.