Number of admissions with alcoholic liver disease to critical care in England and Wales, 2005-2011

Questions

What were the number of admissions with a) a primary or secondary reason for admission of alcoholic liver disease and b) a chronic liver condition present in their past medical history to adult, general critical care units in England and Wales participating in the Case Mix Programme from 2005 to 2011?

Background to the ICNARC Case Mix Programme

The Intensive Care National Audit & Research Centre (ICNARC) was established in 1994 on a two-year (1994-1995), pump-priming grant from the Department of Health (England) and Welsh Health Common Services Authority (Wales), ICNARC became an independent Registered Charity in July, 1994 (Registered Charity Number: 1039417).

ICNARC’s aim is to foster improvements in the organisation and practice of adult critical care (intensive and high dependency care) to improve patient care and outcomes. Towards achieving part of this aim, ICNARC coordinates a national, comparative audit of patient outcomes from adult, critical care units in England, Wales and Northern Ireland known as the Case Mix Programme (CMP). Currently, 92% of adult, general critical care units in England, Wales and Northern Ireland are participating in the CMP.

The CMP is a voluntary, performance assessment programme using high quality clinical data to facilitate local quality improvement through routine feedback of comparative outcomes and key quality indicators to clinicians/managers in adult critical care units.

The CMP recruits predominantly adult, general critical care units. Adult, general critical care units are defined as either standalone intensive care units (ICUs) or combined intensive care/high dependency units (ICU/HDUs). Participation in the CMP is entirely voluntary.

CMP specified data are recorded prospectively and abstracted retrospectively by trained data collectors according to precise rules and definitions - set out in the ICNARC Case Mix Programme Dataset Specification. Data collectors from each unit are trained prior to commencing data collection with retraining of existing staff, or training of new staff, also available. CMP training courses are held at least four times per year.
CMP specified data are collected on consecutive admissions to each participating critical care unit and are submitted to ICNARC quarterly. Data are validated locally, on data entry, and then undergo extensive central validation, for completeness, illogicalities and inconsistencies, with data validation reports returned to units for correction and/or confirmation. The validation process is repeated until all queries have been resolved and then the data are incorporated into the CMP Database (CMPD).

Participating units receive comparative data analysis reports on outcomes and key quality indicators, in which they can identify their own unit data and compare with all units participating in the CMP. In addition, staff at units can interrogate the CMPD by submitting analysis requests which are provided free-of-charge.

Data collected for the CMP include alphanumeric unit/admission identifiers, demographics (e.g. age, sex, ethnicity), case mix (e.g. acute severity, comorbidity, surgical status, reason for admission), outcome (e.g. unit/acute hospital survival) and activity (e.g. unit/acute hospital length of stay) for each admission to each critical care unit.

Available data for report

639,820 admissions to 214 critical care units
1 January 2005 – 31 December 2011

Selection of Cases

All admissions to adult, general critical care units (i.e. excluding admissions to specialist critical care units or standalone high dependency units) in England and Wales that were participating in the CMP from 1 January 2005 to 31 December 2011.

Methods

The extrapolated numbers of admissions in a given year was obtained by calculating the rate of admissions per year (number of observed admissions divided by proportion of the year for which data were collected) for each unit, averaging over the units, and multiplying by the total number of adult, general critical care units in England and Wales. This was assumed to be 222 units.
Definitions for variables included

The ICNARC Coding Method (ICM) is a 5-tiered hierarchical method specifically designed for coding reasons for admission to critical care. Primary reason for admission is mandated; however secondary reason for admission is optional, unless the patient was admitted following surgery. For the purposes of identifying admissions with alcoholic liver disease the following primary and secondary reasons for admission were included:
- Alcoholic cirrhosis
- Acute alcoholic hepatitis

Past medical history conditions are defined as per APACHE II. For the purposes of identifying admissions with a chronic liver condition the following conditions were included:

1) Biopsy proven cirrhosis - specifies whether admission has biopsy proven cirrhosis; hepatic ultrasound scanning diagnosed cirrhosis is not considered biopsy proven; must have been biopsy proven in the six months prior to admission to your unit documented prior to admission or at admission to your unit.

2) Portal hypertension - specifies whether admission has portal hypertension from whatever cause; must have been evident in the six months prior to admission to your unit; documented prior to admission or at admission to your unit; evidence of portal hypertension is the presence of oesophageal or gastric varices demonstrated by surgery, imaging or endoscopy, or the demonstration of retrograde splenic-venous flow by ultrasound; do not include gastrointestinal bleeding without evidence of portal hypertension.

3) Hepatic encephalopathy - specifies whether admission has had episodes of hepatic encephalopathy, Grade 1 or greater; must have occurred in the six months prior to admission to your unit; documented prior to admission or at admission to your unit;

Hepatic encephalopathy is graded as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No abnormality detected</td>
</tr>
<tr>
<td>1</td>
<td>Slowness in cerebration, intermittent mild confusion and euphoria</td>
</tr>
<tr>
<td>2</td>
<td>Confused most of the time, increasing drowsiness</td>
</tr>
<tr>
<td>3</td>
<td>Severe confusion, rousable, responds to simple commands</td>
</tr>
<tr>
<td>4</td>
<td>Unconscious, responds to painful stimuli</td>
</tr>
</tbody>
</table>

Source: Case Mix Programme Database
17 April 2013
Results

Admissions with a primary or secondary reason for admission of alcoholic liver disease have slightly increased over time; this may be due to a combination of the following factors:
  • increased prevalence of alcoholic liver disease in the population;
  • increased critical care capacity;
  • greater willingness to admit patients with these conditions to critical care.

These figures are reliant on recording the specified conditions in the primary or secondary reason for admission and as such may under represent the true numbers. Increasing numbers of admissions with a chronic liver condition in their past medical history indicate that it is unlikely that the increase in the number of admissions with a primary or secondary reason for admission of alcoholic liver disease is due to a change in coding practice over time.

Table 1: Extrapolated and actual number of admissions with alcoholic liver disease to CMP units in England and Wales, 2005-2011

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of admissions with a chronic liver condition, (%)</td>
<td>1,248 (1.8)</td>
<td>1,484 (2.1)</td>
<td>1,837 (2.4)</td>
<td>2,087 (2.4)</td>
<td>2,438 (2.6)</td>
<td>2,885 (2.7)</td>
<td>3,356 (2.7)</td>
</tr>
<tr>
<td>Extrapolated number of admissions with a chronic liver condition</td>
<td>1,950</td>
<td>2,310</td>
<td>2,830</td>
<td>2,990</td>
<td>3,370</td>
<td>3,570</td>
<td>4,000</td>
</tr>
<tr>
<td>Number of admissions with alcoholic liver disease, (%)</td>
<td>668 (0.9)</td>
<td>735 (1.0)</td>
<td>812 (1.0)</td>
<td>786 (0.9)</td>
<td>862 (0.9)</td>
<td>976 (0.9)</td>
<td>1,125 (0.9)</td>
</tr>
<tr>
<td>Extrapolated number of admissions with alcoholic liver disease</td>
<td>1,040</td>
<td>1,140</td>
<td>1,250</td>
<td>1,130</td>
<td>1,190</td>
<td>1,200</td>
<td>1,330</td>
</tr>
</tbody>
</table>

Acknowledgement

Please acknowledge the source of these data in all future presentations (oral and/or written), as follows:

“These data derive from the Case Mix Programme Database. The Case Mix Programme is the national, comparative audit of patient outcomes from adult critical care coordinated by the Intensive Care National Audit & Research Centre (ICNARC). These analyses are based on data for 639,820 admissions to 214 adult, general critical care units based in NHS hospitals geographically spread across England and Wales. For more information on the representativeness and quality of these data, please contact ICNARC.”

Sarah Power
Statistician
Source: Case Mix Programme Database
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