FREQUENCY OF PREVIOUS ANAESTHESIA IN AN ANAESTHETIC PATIENT POPULATION

J. P. H. Fee, J. R. McDonald, J. W. Dundee and R. S. J. Clarke

SUMMARY

Ten thousand patients presenting for anaesthesia were questioned about their anaesthetic history; 6672 had received an anaesthetic previously, 19.2% in the preceding 4 weeks. Of 2780 in whom the agents were known, 80.4% had received thiopentone, 18.1% Althesin and 57.4% halothane. Thirty-seven per cent of the total survey population had received two or more anaesthetics.

The frequency of atopy and allergic manifestations in 10 000 unselected preoperative patients has been reported recently by Fee and colleagues (1978). This survey recorded also the history of previous anaesthesia and the findings are reported here. Hypersensitivity reactions to i.v. anaesthetic agents may be more frequent in patients who have received the drug previously. As yet there has been no study of the anaesthetic history of a large patient population and there are no means of identifying the extent of this risk.

METHOD

The section of the questionnaire concerning the anaesthetic history is shown in figure 1. Details of the patient population and the methods used are described by Dundee and others (1978).

The “agents involved” question was completed where the relevant data were recorded in the patients’ charts. None of the information included the anaesthetic which was administered subsequently. A large group of patients had received a previous i.v. anaesthetic without any record of the agents used being available and this was recorded under “unknown IV agent”.

RESULTS

Of 10 000 patients, 6672 had been anaesthetized previously. In 2780 the agents used were known; 2027 had received an unknown i.v. anaesthetic. In 58% of those with an anaesthetic history there were no details of the drugs used. The frequency of exposure to various agents is in table I. Of those having a previous anaesthetic, 4375 (65.6%) were last exposed more than 1 yr before, whilst 1279 (19.2%) had been exposed in the preceding 4 weeks, and 1114 (16.7%) in the preceding 2 weeks (table II). The frequency of one or more previous anaesthetics is in table III. There was an expected decrease in frequency as the number of previous anaesthetics increased, but as many as 4% of the total population—about 7% of those having been anaesthetized previously—had received nine or more anaesthetics. Figure 2 shows how the percentage of patients with a history of anaesthesia changes with age. This shows a sharp increase up to the age of 20 yr but a decrease in elderly females compared with men.

The frequency of previous anaesthesia in the four age groups (pre-pubertal, youthful, mature and ageing) is in table IV. In the under-13 and over-59-yr age groups there was no significant difference between the sexes in the frequency of previous anaesthesia, but in the range 13–20 yr there was a higher incidence of previous anaesthesia in males \( (\chi^2 = 5.236; \text{d.f.} = 1; P<0.025) \), whilst in the 21–59-yr groups there was a greater frequency in females \( (\chi^2 = 53.843; \text{d.f.} = 1; P<0.0005) \).

A comparison of the agents used is in table V. The nature of the previous anaesthetic was known in a minority of cases, but the actual percentage was very similar in Ireland (41.5%) and Gt Britain (42.0%). The previous use of Althesin and ketamine was greater in England, Scotland and Wales than in Ireland. Conversely, the Irish appeared to use more barbiturates and other unspecified i.v. agents including propanidid. However, it must be appreciated that these comparisons are not based on strictly comparable series.


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PREVIOUS ANAESTHETICS

None = 0  Yes = 1  Not known = 9

If yes number (code 9 if more than 9)

Last anaesthetic estimated in weeks (approximation)
e.g. within one week = 01  over 1 year = 99

(If answer is no, or not known, end questionnaire here)

AGENTS INVOLVED

Known :  No = 0  Yes = 1

UNKNOWN IV agent

(If answer is no, end questionnaire here)

If yes

Intravenous

Barbiturates
Althesin
Ketamine
Other-

Inhalational
Halothane
TCE
Methoxyflurane
Enflurane
Other-

Relaxant
Tubocurarine
Pancuronium
Suxamethonium
Other-

Specify

Specify

Specify

FIG. 1. Part of questionnaire.

TABLE I. Frequency of previous exposure to anaesthetic agents and percentage distribution of the agents used

<table>
<thead>
<tr>
<th>Agent</th>
<th>Total replies (10 000)</th>
<th>% Distribution of agents where nature is known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any anaesthetic</td>
<td>6672</td>
<td>2780 cases</td>
</tr>
<tr>
<td>Barbiturate</td>
<td>2234</td>
<td>80.4</td>
</tr>
<tr>
<td>Althesin</td>
<td>502</td>
<td>18.1</td>
</tr>
<tr>
<td>Ketamine</td>
<td>78</td>
<td>2.8</td>
</tr>
<tr>
<td>Other i.v.</td>
<td>217</td>
<td>7.8</td>
</tr>
<tr>
<td>Halothane</td>
<td>1595</td>
<td>57.4</td>
</tr>
<tr>
<td>Trichloroethylene</td>
<td>231</td>
<td>8.3</td>
</tr>
<tr>
<td>Methoxyflurane</td>
<td>111</td>
<td>4.0</td>
</tr>
<tr>
<td>Enflurane</td>
<td>8</td>
<td>0.3</td>
</tr>
<tr>
<td>Other inhalation</td>
<td>186</td>
<td>6.7</td>
</tr>
<tr>
<td>Tubocurarine</td>
<td>238</td>
<td>8.6</td>
</tr>
<tr>
<td>Pancuronium</td>
<td>471</td>
<td>16.9</td>
</tr>
<tr>
<td>Suxamethonium</td>
<td>1171</td>
<td>42.1</td>
</tr>
<tr>
<td>Other N-M blocker</td>
<td>228</td>
<td>8.2</td>
</tr>
</tbody>
</table>

DISCUSSION

To our knowledge this is the first large study of anaesthetic history. However, a comparison is possible with work on specific i.v. induction agents. Dundee (1956) estimated that in 1954 thiopentone was used for just over 80% of all anaesthetics in hospitals in the U.K. Evans and Keogh (1977), in South Glamorgan, estimated a value of 79.6% from an analysis of Hospital Activity Analysis records. These findings are in close agreement with our figure of 80.4% where the agents used were known. Evans and Keogh also estimate that Althesin was used for 17.1% of administrations, a value similar to that in the present study.

In a survey in South Wales of 558 unselected surgical patients, Mushin, Rosen and Jones (1971) found that 79% of patients remembered having a general anaesthetic at some time in their lives. In 26% of these patients there was an interval of up to 1 yr since the last anaesthetic and this compares well

TABLE II. Interval since the last anaesthetic exposure. (Total number of patients = 6672)

<table>
<thead>
<tr>
<th>Weeks</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9-12</th>
<th>13-26</th>
<th>27-52</th>
<th>&gt;52</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of patients</td>
<td>820</td>
<td>294</td>
<td>73</td>
<td>92</td>
<td>35</td>
<td>69</td>
<td>12</td>
<td>65</td>
<td>187</td>
<td>326</td>
<td>324</td>
<td>4375</td>
</tr>
</tbody>
</table>
with our estimate of 23%. However, the frequency of 5% given by these authors for anaesthesia in the previous 2 weeks is much lower than that of 11% in this study.

There is a suggestion that a previous administration of an i.v. anaesthetic may contribute to the occurrence of hypersensitivity reactions (Doenicke, 1975; Dundee, 1976). The role of a previous exposure to halothane in the subsequent development of liver dysfunction following this drug is still under discussion. Should either of these two relationships be confirmed definitely, the present survey, despite its limitations, has helped to assess the seriousness of the problem for the practising anaesthetist.

**REFERENCES**


FREQUENCE DES ANESTHESIES ANTERIEURES DANS UN GROUPE DE PATIENTS SOUMIS A UNE ANESTHESIE

RESUME
Dix mille patients se présentant pour une anesthésie ont été questionnés sur leurs antécédents anesthésiques; 6672 d’entre eux avaient déjà été anesthésiés antérieurement, dont 19,2% au cours des 4 semaines précédentes. Sur les 2780 pour lesquels on connaissait les agents anesthésiants utilisés, 80,4% avaient reçu du thiopentone, 18,1% de l’althesine et 57,4% de l’halothane. Trente-sept pour cent du groupe ayant fait l’objet de cette étude avaient été anesthésiés deux fois et même davantage.

HÄUFIGKEIT VON FRÜHEREN NARKOSEN IN EINER ANZAHL VON ANÄSTHESIERTEN PATIENTEN

ZUSAMMENFASSUNG
Zehn tausend Patienten wurden über ihre anästhetische Krankengeschichte befragt; 6672 hatten schon eine Anästhesie erhalten, 19,2% in den vorangegangenen 4 Wochen. Von 2780, von denen die Anästhesiemittel bekannt waren, hatten 80,4% Thiopentone erhalten, 18,1% Althesin und 57,4% Halothane; 37% der totalen befragten Bevölkerung hatten zwei oder mehr Anästhetica erhalten.

FRECUENCIA DE ANESTESIA ANTERIOR EN UNA POBLACION DE PACIENTES ANESTESICOS

SUMARIO
Se interrogó a 10 000 pacientes que se presentaron para anestesia acerca de su historia anestésica; 6672 habían recibido un anestésico con anterioridad, un 19,2% durante las 4 semanas precedentes. De los 2780 cuyos agentes se conocían, un 80,4% habían recibido tiopentona, un 18,1% Altesina y un 57,4% halotano. Un 37% de la población total encuestada había recibido dos o más anestésicos.