THE INFLUENCE OF CHLORPROMAZINE AND HYDERGINE ON PETHIDINE AND SCOPOLAMINE PREMEDICATION

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In an endeavour to potentiate the effect of pethidine and scopolamine premedication, the drugs chlorpromazine and hydergine were investigated, particularly in regard to their effects on the autonomic nervous system.

A comparison was made between three comparable series of patients. One series acted as a control and the other series had chlorpromazine and hydergine respectively. Changes in pulse rate and blood pressure, the presence of sweating and a clinical assessment of the effectiveness of the premedication were employed to estimate the value of the addition of the two drugs.

MATERIAL AND METHODS

Each series comprised 50 unselected cases. The sex and age distribution were similar in each series (see table I). Standardized doses of pethidine and scopolamine (pethidine 10 mg and scopolamine 0.04 mg (1/1500 grain) per stone (6.3 kg) body weight) were given, and the dose of chlorpromazine was 5 mg/stone body weight and for hydergine 0.3 mg/stone body weight. The dose for hydergine is higher than that normally employed because a preliminary pilot trial indicated that smaller doses produced no significant effects. For patients of 65 years of age and over these doses were halved following usual practice. The premedication was given intramuscularly 1 to 1½ hours before induction of anaesthesia and its effect assessed just prior to induction.

RESULTS

The results obtained in all the tests are summarized in table I.

Premedication was deemed unsatisfactory when the patient appeared apprehensive or complained of some discomfort. Among the group considered unsatisfactory are those cases where vomiting actually occurred.

The next column in the table records the cases where sweating occurred.

Pulse rate changes are recorded as positive when the increase was 15 beats or more per minute, and negative when the decrease was 15 beats or more per minute. This criterion was adopted in order to eliminate small changes in pulse rate which may well have been irrelevant.

Similarly, blood pressure changes have only

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Sex</th>
<th>Age range in years</th>
<th>Premedication unsatisfactory</th>
<th>Vomiting</th>
<th>Sweating</th>
<th>P.R.</th>
<th>B.P.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pethidine and scopolamine alone</td>
<td>29</td>
<td>21</td>
<td>28–79</td>
<td>8</td>
<td>0</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>Pethidine, scopolamine and chlorpromazine</td>
<td>22</td>
<td>28</td>
<td>24–77</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Pethidine, scopolamine and hydergine</td>
<td>24</td>
<td>26</td>
<td>26–77</td>
<td>15</td>
<td>7</td>
<td>17</td>
<td>11</td>
</tr>
</tbody>
</table>

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been recorded when the change was 20 mm Hg or more, plus indicating an increase and minus a decrease of this magnitude.

**DISCUSSION**

The number of cases where premedication was unsatisfactory is only significantly different for the two series where chlorpromazine and hydergine were used. Here chlorpromazine was significantly better than hydergine at the 1 per cent level ($\chi^2 = 10.21$) and this was borne out by the incidence of vomiting with hydergine.

Sweating occurred less frequently when chlorpromazine was used ($\chi^2 = 7.56$ for a comparison between this series and that for pethidine and scopolamine alone; significant at the 1 per cent level).

The effects of the drugs on pulse rate and blood pressure were examined by scoring one for an increase, minus one for a decrease, and zero for no appreciable change, and applying $t$ tests with 98 degrees of freedom to the differences between mean scores.

The addition of chlorpromazine did not produce a significant alteration in the pulse rate changes but hydergine produced a change significant at the 1 per cent level ($t=3.45$). The effect is a tendency to a reduction in pulse rate.

These results appear to support the conclusion of Ngai and Wang (1955) that hydergine has a somewhat stronger adrenergic blocking action than chlorpromazine.

Both drugs cause a highly significant reduction in blood pressure compared to pethidine and scopolamine alone ($t=5.86$ for chlorpromazine and 4.50 for hydergine) but there is no significant difference between their effects.

**CONCLUSIONS**

Both chlorpromazine and hydergine produced a significant reduction in blood pressure.

Chlorpromazine produced a significant reduction in the incidence of sweating but did not produce a significant effect on the pulse rate.

Hydergine produced a significant reduction in pulse rate but increased substantially the incidence of unsatisfactory premedication, especially nausea and vomiting.

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**REFERENCE**