INCREASING INCIDENCE OF KORSAKOFF’S PSYCHOSIS IN THE EAST END OF GLASGOW

ANJALI RAMAYYA and PRAMOD JAUHAR*

Parkhead Hospital, 81 Salamanca Street, Glasgow G31 5BA, UK

(Received 16 August 1996; in revised form 10 December 1996, accepted 15 December 1996)

Abstract — A retrospective analysis of all admissions between 1990 and 1995 in a population of 160,000 identified 47 new cases of Korsakoff’s psychosis only seven of which were preceded by Wemicke’s encephalopathy. There was a higher ratio of females to males, relative to admissions for severe alcohol dependence. It is postulated that the increasing incidence may be related to the warning of anaphylaxis and subsequent withdrawal of high-potency parenteral multivitamins with thiamine.

INTRODUCTION

Wernicke’s encephalopathy, known to be caused by thiamine deficiency, is characterized classically by clouding of consciousness, ophthalmoplegia, and ataxia. Failure to treat patients with high-dose parenteral thiamine may lead to death or the development of Korsakoff’s psychosis, characterized by amnesia, disorientation, confabulation and personality change. Although originally described as separate clinical entities, the two conditions are now considered to be part of the same clinical syndrome, the Wernicke–Korsakoff syndrome. Prevalence rates for the Wernicke–Korsakoff syndrome vary considerably and it has been described both as rare (Turner et al., 1977; Leigh et al., 1981) and commonplace (Price, 1985).

In the last two decades, there have been reports of an increase in incidence of the Wernicke–Korsakoff syndrome, most notably in Australia (Harper, 1979). Truswell and Apeagyei (1980) found a five-fold increase over 15 years in the annual incidence of the Wernicke–Korsakoff syndrome in Sydney, New South Wales, although the population had increased only 1.3 times over the corresponding period.

Following identification of 13 new cases of Korsakoff’s psychosis in 1995 in the East End of Glasgow, we undertook in the present work a retrospective analysis of case records to establish if there was a similar trend in our catchment area population.

METHODS

The East End of Glasgow is served by a psychiatric facility (Parkhead Hospital) and a general hospital (Glasgow Royal Infirmary). Data on all admissions from this catchment area population of 160,000 adults (age >15 years), over a 6 year period from 1990 to 1995, with a diagnosis of Korsakoff’s psychosis (291.1—ICD-9) or Alcohol Dementia (291.2—ICD-9) were obtained from the Scottish Morbidity Record (SMR) forms and records maintained by community psychiatric nurses. The SMR4 Mental Health System and the SMR1 Discharges from the Glasgow Royal Infirmary are records of all patients admitted to Scottish hospitals and are

*Author to whom correspondence should be addressed.
completed on discharge, giving particulars of patients, including name, date of birth, date of admission, date of discharge and diagnosis on discharge.

The case records so identified were scrutinized by one of the authors (A.R.) and data on patient demographics, medical, psychiatric, alcohol and social histories, investigations and management were recorded. Korsakoff's psychosis was diagnosed using ICD-10 (World Health Organization, 1992) and DSM-IV (American Psychiatric Association, 1994) criteria.

RESULTS

After analysis of records, 47 patients were assigned a diagnosis of Korsakoff's psychosis, an incidence of 48.93 per year per million in 1990-1995. Of these, 33 were referred to the psychiatric facility (10 by the general hospital and 23 directly by their general practitioners) whereas the remaining 14 patients admitted to the general hospital had no further contact with the psychiatric services after an initial visit by a liaison psychiatrist.

Wernicke's encephalopathy had been diagnosed in only seven of the 47 patients, although a further 14 had presented with an acute confusional state, accompanied by ataxia in six and nystagmus in three. Twenty-six patients (55.3%) appeared to have had an insidious onset of memory impairment, the duration of presenting symptoms ranging from 3 weeks to a year.

The number of new cases of Korsakoff’s

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Table 1. First admission diagnosis of Korsakoff’s psychosis per year per million adults

<table>
<thead>
<tr>
<th>Place and reference</th>
<th>Incidence</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scotland (Wood, 1985)</td>
<td>9.2</td>
<td>1974-1977</td>
</tr>
<tr>
<td>New Zealand (Wood and Breen, 1980)</td>
<td>16.9</td>
<td>1974-1976</td>
</tr>
<tr>
<td>Victoria, Australia (Wood and Breen, 1980)</td>
<td>21.4</td>
<td>1972-1977</td>
</tr>
<tr>
<td>Queensland, Australia (Price and Theodore, 1979)</td>
<td>65</td>
<td>1976</td>
</tr>
</tbody>
</table>

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Table 2. Patients’ characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice of alcoholic beverage (alcohol content)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Super lager (9%)</td>
<td>13</td>
<td>39.4</td>
</tr>
<tr>
<td>Strong lager (4-5.5%)</td>
<td>6</td>
<td>18.2</td>
</tr>
<tr>
<td>Spirits (40%)</td>
<td>9</td>
<td>27.3</td>
</tr>
<tr>
<td>Beer (4.5%)</td>
<td>15</td>
<td>15.1</td>
</tr>
<tr>
<td>Family history of alcohol abuse</td>
<td>16</td>
<td>48.5</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>8</td>
<td>24.2</td>
</tr>
<tr>
<td>Divorced or separated</td>
<td>17</td>
<td>51.5</td>
</tr>
<tr>
<td>Widowed</td>
<td>5</td>
<td>15.2</td>
</tr>
<tr>
<td>Single</td>
<td>3</td>
<td>9.1</td>
</tr>
<tr>
<td>Social status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living with family members</td>
<td>16</td>
<td>48.5</td>
</tr>
<tr>
<td>Living alone</td>
<td>17</td>
<td>51.5</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed and Housewives</td>
<td>5</td>
<td>15.1</td>
</tr>
<tr>
<td>Unemployed</td>
<td>11</td>
<td>33.3</td>
</tr>
<tr>
<td>Males</td>
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<td></td>
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<td>Employed</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unemployed</td>
<td>17</td>
<td>51.5</td>
</tr>
</tbody>
</table>
Incidence of Korsakoff's Psychosis in the East End of Glasgow 1990-1995

Fig. 1. Graph showing the rising incidence of Korsakoff's psychosis in the East End of Glasgow.

Incidence of Korsakoff's Psychosis per year were as follows: two in 1990, seven in 1991, three in 1992, 10 in 1993, 12 in 1994 and 13 in 1995 (Fig. 1). These figures reveal a rise in incidence from 12.5 per million in 1990 to 81.25 per million in 1995.

There were 28 males and 19 females (male:female ratio of 1.5:1), with a mean (SD) age of 55.8 (7.59) years and 49.8 (10.30) years respectively. All 47 cases had confirmed histories of alcohol abuse, the mean duration being 20.8 (7.33) years in men and 16.1 (9.02) years in women. Men consumed an average of 180 units of alcohol per week, whereas women consumed an average of 80 units per week.

Comprehensive alcohol histories were only available on the 33 patients who attended the psychiatric facility and the characteristics of this subset are shown in Table 2.

Forty patients (85.1%) were treated with high doses of thiamine (300 mg/day orally; 250 mg/day i.m/i.v); 28 patients (59.6%) received oral thiamine and 20 patients (42.5%) received the parenteral form (Parentrovite or Pabrinex i.m./i.v.), the remainder being treated with oral multivitamins or B-complex vitamins. The duration of treatment with thiamine varied, parenteral thiamine being prescribed for 3 to 5 days initially in all cases, 2 patients receiving weekly, and 1 patient fortnightly, injections for up to a year thereafter. Oral thiamine was prescribed for periods ranging from 2 months to several years. Improvement occurred in only four patients, two of whom recovered completely following treatment with parenteral thiamine, the other two showing only a slight improvement in their memory.

DISCUSSION

The incidence of Korsakoff's psychosis in the East End of Glasgow has increased over the last six years from 12.5 per million in 1990 to 81.25 per million in 1995, with a particularly high incidence in females. A survey of admissions for alcohol dependence in 1990 in the same catchment area population revealed a male:female ratio of 3:1 (Jauhar and Watson, 1995). Our male:female ratio of 1.5:1 confirms previous observations that women are at a much greater risk of developing Korsakoff's psychosis than men (Victor et al., 1971; Torvik et al., 1982).

Wernicke's encephalopathy, characterized by the classical triad of confusion, ophthalmoplegia and ataxia, preceded Korsakoff's psychosis in only
14.8% of our cases. Even with the inclusion of possible cases of Wernicke's encephalopathy (those presenting without the classical triad), the incidence rate of 44.6% remains significantly lower than the 85% found by Victor et al. (1971). Our results echo those of Blansjaar and Van Dijk (1992), who found a similar low proportion (18%) of patients diagnosed as having Wernicke's encephalopathy prior to the development of Korsakoff's psychosis. These latter authors suggested that the discrepancy between their findings and those of Victor et al. (1971) may reflect the difference in nutritional status between the two sets of patients, their patients being less nutritionally compromised, and therefore less liable to the rapid depletion of vitamin stores that would lead to the development of the neurological syndrome.

Two factors known to play a major role in the development of the Wernicke-Korsakoff syndrome are thiamine deficiency and chronic alcohol abuse. Thiamine deficiency may be caused by poor intake and reduced gastrointestinal absorption of thiamine in conditions such as malnutrition, oesophageal or gastric carcinoma, self-starvation, post-gastrectomy, persistent hyperemesis gravidarum and chronic alcohol abuse.

Chronic alcohol abuse may cause depletion of thiamine by reducing its intake, absorption and utilization. Replacement of thiamine stores with oral thiamine is also adversely affected by alcohol abuse due to poor gastrointestinal absorption (Baker and Frank, 1976). Further, liver damage impairs the formation of thiamine pyrophosphate, the active form of the vitamin. A genetic component to the disease via a variant of the transketolase isoenzyme with low affinity for thiamine pyrophosphate has also been suggested (Blass and Gibson, 1977; Leigh et al., 1981). Alcohol may also exert a direct neurotoxic effect on the central nervous system by the enhanced flow of calcium ions into brain cells, as well as acetaldehyde-mediated and oxygen-derived free radical mechanisms (Butters, 1985; Pratt et al., 1990; Thomson et al., 1994).

One reason for the high incidence of Korsakoff's psychosis in the East End of Glasgow is likely to be dietary neglect (Victor et al., 1971; Wood, 1985), not surprising in a population of socially isolated, heavy drinkers with a background of high deprivation (Jauhar and Watson, 1995). However, this does not explain the rise in incidence of Korsakoff's psychosis over recent years, the surprisingly low incidence of Wernicke's encephalopathy or the poor response to treatment with thiamine. This would suggest that treatment was inadequate or came too late, at a stage when irreversible brain damage had already occurred.

We speculate that this could be an indirect consequence of the warnings, withdrawal and resultant unavailability of Parentrovite. The Committee on Safety of Medicines' (CSM) warnings on the possibility of anaphylactic reactions due to Parentrovite were first issued in January 1989 (Committee on Safety of Medicines, 1989). Existing stocks were recalled in November 1992 and production discontinued in June 1993. Its replacement, Pabrinex, was introduced in the intravenous form in July 1993 and the intramuscular form in May 1994. Pabrinex also carries CSM warnings about anaphylaxis. As a consequence of these warnings, there has been a reluctance to prescribe parenteral thiamine outside a hospital setting and this may conceivably have led to fewer people receiving it prophylactically from their general practitioners. This may in turn have led to a greater proportion of nutritionally compromised alcohol abusers being unsatisfactorily treated for vitamin deficiencies, in particular that of thiamine.

Our findings also raise questions regarding the accuracy of diagnosis and adequacy of treatment. Did Wernicke's encephalopathy go largely unrecognized in our patients, the majority of whom did not receive parenteral thiamine until after the onset of Korsakoff's psychosis? Was the dosage and duration of treatment with parenteral thiamine inadequate given that only four patients showed improvement? It is not entirely surprising to find that so few patients with Korsakoff's psychosis responded to treatment with thiamine (Victor et al., 1971) and we suggest that earlier recognition and treatment of the Wernicke-Korsakoff syndrome by primary care physicians and hospital doctors would go a long way towards lowering the incidence of Korsakoff's psychosis.

The combination of alcohol abuse, poor diet and malabsorption of vitamins allied with a reluctance to prescribe parenteral thiamine poses a heightened risk of development of thiamine deficiency. The insidious development of Korsakoff's psy-
chosis in a large proportion of our cases would accord with such a finding and merits further study.

REFERENCES


