National Narcolepsy Survey

L Dobson 1, C Cross 1, S Sweeney 3, P Nolan 2, E Sheehy 1, Bon Secours Hospital, College Road, Cork 2 Mater Private Hospital, Eccles St, Dublin 7 3 Cork University Hospital, Wilton, Cork

Abstract

Narcolepsy is characterised by excessive daytime sleepiness and cataplexy and has a prevalence of 25 per 100,000. We suspect this is higher than presently seen in the Republic of Ireland. We aimed to calculate the Irish prevalence of Narcolepsy and to examine current management practices. We conducted an online survey of respiratory physicians, neurologists, paediatric neurologists, and psychiatrists with an interest in sleep disorders (73% response rate). Of this group, a total of 16 physicians managed 180 patients prior to January 2009. A clinical diagnosis alone was reached in 67 (41%) patients, the remainder by polysomnography or multiple sleep latency testing. No patients were diagnosed by cerebro-spinal fluid analysis of hypocretin levels. While 70 (42%) patients received modafinil, only 7 (4%) were treated with sodium oxybate. Even allowing for missing data it is apparent that Narcolepsy is hugely under-diagnosed in Ireland, however, current practices adhere with new international guidelines.

Introduction

Narcolepsy is a disorder of unknown aetiology that is characterised by excessive sleepiness and typically associated with cataplexy or other rapid-eye movement (REM) sleep phenomena such as sleep paralysis or hypnagogic hallucinations. Cataplexy is the sudden loss of muscle tone in response to an emotional stimulus such as laughing or fear. However, the manifestation of cataplexy can be quite subtle and involve just facial muscles, arms or legs alone. The exact origin of the disorder is in the process of elucidation but factors including HLA genetic variation, immune dysdysfunction and abnormal metabolism of the CNS neuropeptide Hypocretin are involved. A diagnosis can be reached on clinical grounds alone but a definitive diagnosis is achieved by identifying sleep-onset REM periods on polygraphy (PSG) and multiple sleep latency testing (MSLT). The identification of the Human Leucocyte Antigen (HLA) DQB1*0602 phenotype testing adds support but does not confirm the diagnosis. Alternatively, a diagnosis could possibly be achieved by identifying low hypocretin-1 levels in the cerebral spinal fluid (CSF), although this remains impractical for most. The therapeutic options for treating Narcolepsy have shown major development in recent years, with other drugs such as the stimulant Methylphenidate and tricyclic antidepressants such as Clomipramine, being supplanted by newer agents such as Modafinil, Sodium Oxybate and Venlafaxine.

Although the epidemiology of narcolepsy in Ireland is unknown, international data would suggest prevalence rates of 25 to 50 per 100,000, equivalent to the prevalence of Crohn’s disease, Idiopathic Pulmonary Fibrosis, and Systemic Lupus Erythematosus 1. The current authors estimate this to be far in excess of actual confirmed cases in Ireland. The purpose of this study was to estimate how many confirmed cases of narcolepsy exist in Ireland and to examine current working practices.

Methods

We conducted an online survey of all respiratory physicians, neurologists, paediatricians with an interest in neurology, and psychiatrists known to have an interest in Sleep Disorders. An initial questionnaire established whether patients with narcolepsy were actively managed in that centre prior to January 2009. Those who replied in the affirmative were invited to complete a more detailed survey in the management of narcolepsy. A number of other physicians, unable to be contacted via email, were telephoned or interviewed directly and answers were documented when this was the case.

Results

A total of 39 respiratory physicians, 10 neurologists, 7 paediatricians, and 1 psychiatrist/sleep specialist replied to the questionnaire (73% response rate; see Table 1). Five Physicians responded verbally and provided an estimate on total patient numbers without completing the full questionnaire. The total number of patients treated for Narcolepsy in Ireland prior to January 2009 was 180 (Table 2). According to the completed questionnaires, patients mostly presented in the 13-19 year old age group. A diagnosis was reached in 67 patients (41%) on clinical grounds alone, 75 (45%) by PSG, and 77 (47%) went on to have a MSLT. No centre reported performing CSF analysis for hypocretin-1, and HLA testing was not requested routinely. The commonest drug treatment was Modafinil (42% patients) followed by anti-depressants (26%). Only 7 patients were reported as receiving sodium oxybate (Xyrem). The typical presenting symptoms are excessive daytime sleepiness and cataplexy. Daytime sleepiness can be easily misinterpreted as laziness, poor sleep hygiene, depression, a side effect of medications, or misdiagnosed as obstructive sleep apnoea syndrome. Cataplexy on the other hand is sometimes quite subtle and can be mislabelled as clumsiness, hysteria, syncope, or secondary to a seizure disorder. Even if a diagnosis is suspected, referral patterns are unclear because of our unique ethnicity rather than a huge problem with under-diagnosis. For example, a study published over 20 years ago from Israel (based on the only hospital in the country at the time) reported a prevalence rate of just 0.14 per 100,000. However, based on prevalence studies involving screening questionnaires followed by in-depth sleep studies, there is general international agreement that the prevalence rate of Narcolepsy is 23-35 per 100,000.

Discussion

The results of our survey suggest that the prevalence rate for Narcolepsy in the republic of Ireland is roughly 6 per 100,000. Applying international prevalence rates, at least eighty percent of patients with Narcolepsy remain to be identified. It is disappointing that only 16 of 21 neurologists completed the survey and this has wrongly lowered our total reported patient numbers. Against this, some patients, possibly shared between neurologists and other specialists, were subsequently double-counted, leading to a falsely elevated prevalence. It does appear from Table 2 that the average number of patients per consultant (one notable exception) varied from 3 to 6 patients. If this equation holds for the missing questionnaires, Narcolepsy still remains hugely under-diagnosed. It is feasible that our low prevalence rate is a true reflection of disease activity because of our unique ethnicity rather than a huge problem with under-diagnosis. For example, a study published over 20 years ago from Israel (based on the only sleep laboratory in the country at the time) reported a prevalence rate of just 0.14 per 100,000. However, based on prevalence studies involving screening questionnaires followed by in-depth sleep studies, there is general international agreement that the prevalence rate of Narcolepsy is 23-35 per 100,000.

We favour the hypothesis that the condition is massively under-recognised. The recently published European guidelines suggest a diagnostic can be made on clinical grounds alone, or when in doubt by Polysomnography or Multiple Sleep Latency Testing. 1 The typical presenting symptoms are excessive daytime sleepiness and cataplexy. Daytime sleepiness can be easily misinterpreted as laziness, poor sleep hygiene, depression, a side effect of medications, or misdiagnosed as obstructive sleep apnoea syndrome. Cataplexy on the other hand is sometimes quite subtle and can be labelled as clumsiness, hysteria, syncope, or secondary to a seizure disorder. Even if a diagnosis is suspected, referral patterns are unclear because of our unique ethnicity rather than a huge problem with under-diagnosis. Although the epidemiology of narcolepsy in Ireland is unknown, international data would suggest prevalence rates of 25 to 50 per 100,000, equivalent to the prevalence of Crohn’s disease, Idiopathic Pulmonary Fibrosis, and Systemic Lupus Erythematosus 1, 2. The current authors estimate this to be far in excess of actual confirmed cases in Ireland. The purpose of this study was to estimate how many confirmed cases of narcolepsy exist in Ireland and to examine current working practices.

Access to...
patients in the community. For these sufferers this could lead to unfulfilled school potential, unemployment, poor work performance, or possibly have implications for road safety.

In conclusion, this survey suggests relatively low prevalence rates of Narcolepsy in Republic of Ireland, 5 per 100,000, most likely due to a combination of poor recognition of the disorder compounded by inadequate resources. On a positive note, those who have a specialist interest in the disorder appear to manage patients in keeping with best practise. We hope this paper raises the awareness of Narcolepsy in the community and highlights the pitfalls that can occur in confirming a diagnosis. We suggest that a formal epidemiological study is required to establish the exact incidence and prevalence of this disorder in the Republic of Ireland.

Disclosure
Cephalon funded an initial pilot postal survey. Cephalon had no role in the design, execution or analysis of the project.

Acknowledgements
The authors would like to thank all the Physicians who kindly participated in this survey.

Correspondence: L. Doherty
p/a Bon Secours Hospital, College Road, Cork
Email: lsdoherty1@hotmail.com

References

Comments: <br>