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Riga Stradins university, Latvia

March 16-17, 2017

Epidemiological data about Myalgic Encephalomyelitis/ Chronic Fatigue Syndrome



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Sweden – The epidemiology of CFS in the Swedish Twin Registry

■ Method

31 405 individual members of the Swedish Twin Registry (aged 42–64 years) were screened for the symptoms of CFS via a telephone questionnaire.

- » Self-reported symptoms were refined via data from several national registries and from physician review.

■ Results

6-month prevalence of CFS-like illness was 2.36% (95% CI 2.19–2.53).

- Prevalence was higher in **women** than men – OR = 3.92 (95% CI 3.24–4.72).
- No significant association with **age** or **education**.
- There was a significant association with **occupation**.
- » **Disappeared** after accounting for gender.

Psychological Medicine, 2005, 35, 1317–1326. © 2005 Cambridge University Press
doi:10.1017/S0033291705005052 Printed in the United Kingdom

The epidemiology of chronic fatigue in the Swedish Twin Registry

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ABSTRACT

Background. Chronic fatigue syndrome (CFS) remains an idiopathic and controversial entity.

Method. We screened 31405 individual members of the Swedish Twin Registry (aged 42–64 years) for the symptoms of fatiguing illness via a telephone questionnaire. We refined self-reported symptoms via data from several national registries and from physician review of all available medical records in order to approximate closely the dominant case definition of CFS.

Findings. The 6-month prevalence of CFS-like illness was 2.36% (95% CI 2.19–2.53) and was markedly higher in women than men, odds ratio 3.92 (95% CI 3.24–4.72) with no significant association with age or years of education. There was a highly significant association with occupation that disappeared after accounting for gender.

Interpretation. CFS-like illness may be more common than previously acknowledged. There is a marked increase in risk by gender. Previous reports that CFS is more prevalent in individuals in certain occupational categories were not confirmed and may have been due to confounding by gender.

INTRODUCTION

This is one of a series of papers that describe the epidemiology and genetic epidemiology of fatigue-related illness in the large, population-based Swedish Twin Registry. In this paper, the focus is on an epidemiological description of fatiguing illness in individuals aged 42–64 years.

Some degree of fatigue is a common human symptom (David *et al.* 1990; Lewis & Wessely, 1992; Pawlikowska *et al.* 1994) although the controversial and idiopathic entity of chronic fatigue syndrome (CFS) is relatively rare (Jason *et al.* 1999; Reyes *et al.* 2003). Although several definitions of CFS have been proposed (Holmes

et al. 1988; Sharpe *et al.* 1991; Hickie & Wakefield, 1992; Fukuda *et al.* 1994), the criteria set by an international expert panel under the aegis of the CDC in 1994 is used in most studies as well as in clinical settings (Fukuda *et al.* 1994). Recommendations for the resolution of ambiguities in these criteria have recently been published (Reeves *et al.* 2003). These criteria are based on expert consensus and clinical experience and none is empirically derived or has been rigorously scrutinized (Lewis & Wessely, 1992; Buchwald, 1996; Levine, 1997; Komaroff & Buchwald, 1998). All rely on self-reported symptoms, as there are no pathognomonic physical findings or laboratory results to serve as diagnostic 'gold standards' (Komaroff & Buchwald, 1998) (although laboratory testing is used to evaluate exclusionary conditions) (Fukuda *et al.* 1994).

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Norway – population-based registry study from Norway 2008-2012

■ Methods

Cases of CFS/ME were identified in the Norwegian Patient Register from 2008 to 2012.

■ Results

5 809 patients were registered with CFS during 2008 to 2012.

■ The incidence was 25.8 per 100 000 person years (95% CI: 25.2 to 26.5).

■ The **female** incidence rate ratio was 3.2 (95% CI: 3.0 to 3.4).

■ The incidence rate varied with age for both sexes –

- » The first peak in the age group **10 to 19** years and
- » The second peak in the age group **30 to 39** years.

Bakken et al. *BMC Medicine* 2014, **12**:167
<http://www.biomedcentral.com/1745-7015/12/167>



RESEARCH ARTICLE

Open Access

Two age peaks in the incidence of chronic fatigue syndrome/myalgic encephalomyelitis: a population-based registry study from Norway 2008–2012

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Abstract

Background: The aim of the current study was to estimate sex- and age-specific incidence rates of chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) using population-based registry data. CFS/ME is a debilitating condition with large impact on patients and their families. The etiology is unknown, and the distribution of the disease in the general population has not been well described.

Methods: Cases of CFS/ME were identified in the Norwegian Patient Register (NPR) for the years 2008 to 2012. The NPR is nationwide and contains diagnoses assigned by specialist health care services (hospitals and outpatient clinics). We estimated sex- and age-specific incidence rates by dividing the number of new cases of CFS/ME in each category by the number of person years at risk. Incidence rate ratios were estimated by Poisson regression with sex, age categories, and year of diagnosis as covariates.

Results: A total of 5,809 patients were registered with CFS/ME during 2008 to 2012. The overall incidence rate was 25.8 per 100,000 person years (95% confidence interval (CI): 25.2 to 26.5). The female to male incidence rate ratio of CFS/ME was 3.2 (95% CI: 3.0 to 3.4). The incidence rate varied strongly with age for both sexes, with a first peak in the age group 10 to 19 years and a second peak in the age group 30 to 39 years.

Conclusions: Early etiological clues can sometimes be gained from examination of disease patterns. The strong female preponderance and the two age peaks suggest that sex- and age-specific factors may modulate the risk of CFS/ME.

Keywords: Chronic fatigue syndrome, Myalgic encephalomyelitis, Incidence rate, Sex, Age

Background

Chronic fatigue syndrome (CFS), or myalgic encephalomyelitis (ME), is a debilitating, medically unexplained condition [1]. The terms CFS and ME are often used interchangeably, and Norwegian health authorities recommend using the combined term CFS/ME [2].

CFS/ME is an unspecific condition for which it has been difficult to establish objective medical criteria, and the CFS/ME diagnosis has been debated in the medical

community for many years [3]. Symptoms may fluctuate and vary in intensity within and among patients, but persistent or relapsing fatigue is always present [4]. Functional status and wellbeing are often strongly affected [5].

While the etiology of CFS/ME remains largely unknown, several trigger mechanisms have been proposed, including infections, stress and trauma [1]. A sudden increase in CFS/ME was reported following a large waterborne outbreak of giardiasis in Bergen, Norway, in 2004 [6]. Autoimmune etiology has also been suggested, based on the observation that B-lymphocyte depletion with the monoclonal anti-CD20 antibody rituximab was associated

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Spain & Catalonia – Síndrome de fatiga crónica y su relación con la fibromialgia

- Approximately 6 000 cases of CFS in Catalonia and 40 000 in Spain in 2004.
 - » There are 20 000 patients of CFS in Catalonia in 2011.
- The clinical profile of CFS cases is **homogeneous**.
- CFS affects more **women** than men (3 – 5 times more).
- More often affects **20-40 years old** previously healthy people.
- The highest CFS incidence is among **health** personnel or with activities of **public** or **social relationship** or with **high mobility**.

Editorial

1 Licitud del web
Artículo 77.701

Síndrome de fatiga crónica y su relación con la fibromialgia

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Desde que en 1988 el Center for Disease Control (CDC) de Atlanta (Estados Unidos) fijó los criterios clínicos para la definición de caso de síndrome de fatiga crónica (SFC)¹, y su posterior actualización por Fukuda et al² en 1994, hemos asistido a un progresivo afloramiento de la realidad clínica de esta enfermedad. A partir de estos criterios, se ha desarrollado una tarea de detección diagnóstica y control clínico, realizada esencialmente en el ámbito de la medicina interna en centros de segundo o tercer nivel asistencial. Es destacable la dificultad que ha habido para implicar a los médicos de atención primaria en esta sistemática asistencial. El SFC se ha incorporado progresivamente al diagnóstico diferencial de los diferentes estados de fatiga, sea primaria (fatiga persistente o crónica idiopática) o secundaria (fatiga asociada a otras enfermedades reumatológicas o sistémicas)^{3,4}. Sin embargo, este proceso no ha estado exento de dificultades, imprecisiones y conflictos, fruto de la peculiaridad clínica de esta enfermedad, y por la ausencia tanto de marcadores diagnósticos específicos como de un tratamiento etiológico efectivo⁵. La falta de un marcador analítico o bioquímico específico hizo pensar inicialmente que estos criterios, basados únicamente en datos clínicos y, por tanto, relativamente subjetivos, no serían útiles para el diagnóstico⁶. Nada más lejos de la realidad. La utilización estricta de los criterios, de Fukuda et al, en los que debe valorarse específicamente la presencia y características de la fatiga y de los demás síntomas asociados (febrícula, artralgias, mialgias, cefalea, oclomofagia y trastornos del sueño y del estado de ánimo) ha mostrado una elevada especificidad y sensibilidad. Sin embargo, siempre deben considerarse las causas de exclusión que los mismos criterios establecen (enfermedades previas orgánicas o mentales que cursen con fatiga o la obesidad mórbida). Actualmente, la diferenciación entre las enfermedades primariamente mentales o psicósomáticas y el SFC es posible y de fácil realización por facultativos con experiencia⁷. Respecto a su incidencia, se ha comprobado que se han cumplido las previsiones iniciales realizadas en estudios epidemiológicos como el de Wichita (Estados Unidos)⁸, llegando a la afectación pobla-

cional prevista, de un caso por 1.000 habitantes. Ello supone la existencia de al menos unos 6.000 casos de SFC en Catalunya, y de 40.000 en toda España⁹. Creemos que actualmente ya se han diagnosticado aproximadamente la mitad de los casos existentes. El perfil clínico de caso de SFC es muy homogéneo^{3,10,11}. El inicio de la enfermedad se produce de una manera aguda en personas previamente sanas, entre la segunda y la cuarta décadas de la vida, y afecta más a las mujeres que a los varones, entre 3 y 5 veces más. Es curiosa la mayor incidencia de SFC entre el personal sanitario o con actividades de relación pública o social o con elevada movilidad, hecho que hace pensar en la posible implicación epidemiológica de los virus y factores tóxicos o ambientales en su desencadenamiento. También llama la atención su menor incidencia en edades extremas de la vida, como sucede con la mayor parte de enfermedades de origen inflamatorio o autoinmune¹². Asimismo, se han identificado muy claramente los distintos factores precipitantes de este síndrome. En más de la mitad de casos existe un antecedente de enfermedad infecciosa aguda que se puede corroborar, habitualmente viral. Los virus más frecuentemente implicados son el Epstein-Barr, el citomegalovirus, el herpesvirus tipo 6 y el parvovirus B19¹³. También se ha implicado la infección por *Chlamydia* y *Mycoplasma*. En cualquier caso, son gérmenes que pueden permanecer de forma crónica o incluso permanente, llegando a integrarse en el genoma celular de las células musculares o neuronas del paciente. Actúan como gérmenes defectivos, alterando el funcionamiento energético y metabólico del paciente. Otros factores precipitantes corroborados son las intoxicaciones por insecticidas organofosforados, disolventes y por monóxido de carbono, las situaciones de hipersensibilidad ambiental (hipersensibilidad química múltiple, síndrome del edificio enfermo, síndrome de la Guerra del Golfo) y también las situaciones de alteración del ritmo o calidad del sueño y las de estrés psicológico intenso (*mobbing*, estrés posttraumático)¹⁴. Cualquiera que sea el mecanismo precipitante, en el SFC se desencadena un trastorno fisiopatológico común aún poco conocido, pero que conlleva una

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Belgium, the UK and the Netherlands

■ Belgium, 2007 –

- » 20 000 Belgian adults suffer from CFS,
- » ~ 8 000 children suffer from CFS.

■ The United Kingdom, 2007 –

- » The estimated prevalence of CFS is 0.2% of self-reported ME in the general population.
- » The prevalence among primary care patients is 0.6 to 2.6%.

■ The Netherlands, 2007 –

- » 30 000 to 40 000 CFS-patients live in the Netherlands.
- » CSF prevalence is 0.2%.



Prevalence of CFS

- Evidence suggests a **population** prevalence of at least **0.2% to 2.5%**.
 - » There are 20 to 250 patients with CFS in population of 10 000 patients.
- **Adolescent** patients (>10 years) prevalence are between **0.0027% to 0.338%**.
 - » There are 1 to 34 patients with CFS in the population of 10 000 adolescent patients.
- **Younger** patients (5 – 15 years) prevalence estimates are **0.1%** in community.
 - » 10 patients with CFS in a 10 000 children population.

Period of evaluation

■ Prevalence estimates differ according to the **period of evaluation** –

- » 4-year prevalence
 - » Lifetime prevalence
 - » Point prevalence
- Due to long duration of CFS,
the period prevalence could be
more appropriately compared

Prevalence and incidence estimates differences

- Where surveys were **conducted**:

- » Community, primary care, tertiary care.

- **Age** of population:

- » Adults, children (<10 years old), adolescents (8 to 19 years old).

- The definition or **criteria** used for diagnosis

- » CDC definition of 1988, Australian (1990), British (1991), CDC definition of 1994 (internationally accepted), Canadian (2003).

- The **instrument** used to define CFS

- » Exclude other medical and/or psychiatric conditions, specific or sensitive.

Prevalence and incidence estimates differences (II)

- Method of **identification**

- » Self-report, parent-report, physician report.

- **Time** course ascertainment –

- » Retrospective, prospective

- **Sampling** methods –

- » Random, consecutive, referred, volunteers.

- **Response rate** of the population.

Thanks,
any questions?