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ORIGINAL ARTICLE

Fournier Gangrene: Description of 37 Cases and Analysis of Associated Health Care Costs[☆]

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Abstract

Background and Objectives: Fournier gangrene is a urological emergency associated with a high mortality. It is a necrotizing fasciitis caused by polymicrobial infection originating in the anorectal or genitourinary area. The aim of this study was to analyze the epidemiological and clinical characteristics of Fournier gangrene along with the variables that influence disease course and mortality in patients treated in our department.

Material and Methods: We carried out a retrospective study of 37 patients diagnosed with Fournier gangrene between January 2001 and October 2010.

Results: All the patients were men, 43.2% had diabetes, and the mean age of the patients was 57.68 years. Statistically significant differences were observed between the age of surviving patients and that of patients who died (55.8 and 69.6 years, respectively). The mean hospital stay was 27.54 days and 32.4% of patients required admission to the intensive care unit. Etiology was unknown in 39.8% of cases. Polymicrobial infection was observed in 59.5% of cases. The mean health care cost associated with a patient diagnosed with Fournier gangrene admitted to intensive care and requiring at least 1 procedure in the operating room was €25 108.67. Mortality was 13.5%. Based on analysis of individual comorbid conditions, only ischemic heart disease displayed a statistically significant association with mortality due to Fournier gangrene; ischemic heart disease was also associated with longer hospital stay.

Conclusions: Fournier gangrene is associated with high mortality despite appropriate early treatment. Although the condition is infrequent, the high associated health care costs suggest that primary and secondary prevention measures should be implemented.

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PALABRAS CLAVE

Gangrena de Fournier;
Fascitis necrotizante;
Coste sanitario

Gangrena de Fournier. Análisis descriptivo y coste económico-sanitario de nuestra serie de 37 casos

Resumen

Introducción: La gangrena de Fournier es una urgencia urológica definida como una fascitis necrotizante, con una alta mortalidad, resultado de una infección polimicrobiana que se origina en la región anorrectal y/o genitourinaria. El objetivo de este estudio es analizar las características epidemiológicas y clínicas, así como las variables que han influido en la evolución y mortalidad de los pacientes tratados en nuestro Servicio.

Material y métodos: El estudio analiza retrospectivamente 37 pacientes diagnosticados de gangrena de Fournier en el periodo de tiempo comprendido entre enero del 2001 a octubre de 2010.

Resultados: Todos los pacientes son hombres, con una edad media de 57,68 años, existiendo diferencias estadísticas en la edad de los fallecidos respecto a los que sobreviven, 69,6 años frente a 55,8 años. El 43,2% eran diabéticos. La estancia media hospitalaria fue de 27,54 días. El 32,4% precisó de ingreso en la UCI. En el 39,8% se desconoce su etiología. La infección fue polimicrobiana en el 59,5% de los casos. El coste sanitario medio de un paciente diagnosticado de gangrena de Fournier que ingresa en la Unidad de Cuidados Intensivos (UCI) y requiere de al menos una cura en quirófano es de 25.108,67 euros. La mortalidad fue del 13,5%. Al estratificar las patologías estudiadas de forma independiente se observa que sólo la cardiopatía isquémica se relacionó de forma significativa con la mortalidad y una mayor estancia hospitalaria.

Conclusión: La gangrena de Fournier es una patología con una alta mortalidad, a pesar de un tratamiento adecuado precoz. Es una patología con una baja incidencia, pero supone un coste elevado para el sistema sanitario, por lo que serían necesarias medidas de prevención primaria y secundaria.

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Introduction

Fournier gangrene is a urological emergency that was first reported in 1764 by Baurienne,¹ although it was not until 1883 that the French venereologist Jean Fournier described the clinical characteristics of the disease in a series of 5 cases with no apparent cause.²

Fournier gangrene is defined as necrotizing fasciitis resulting from a rapidly progressive polymicrobial infection involving aerobes and anaerobes acting synergistically. The disease originates in the anorectal and genitourinary areas and can reach the groin, legs, anterior wall of the abdomen, and even the thorax, given its ability to progress across the fasciae of Buck, Dartos, Colles, and Scarpa.³⁻⁵

Progression results from thrombosis of the small subcutaneous vessels secondary to endarteritis obliterans, which produces tissue hypoxia and limited vascular supply, thus facilitating overgrowth of anaerobic microorganisms and making it difficult for antibiotics to reach these areas.^{1,6}

Although there have been reports in women and even in children as young as 2 months,^{7,8} the disease mainly affects men aged 50–70 years.⁹

The overall incidence of the disease is 1.6 cases per 100 000 person-years,⁷ although mortality is high (20%–30%, on average,¹⁰ according to recent series), despite initiation of appropriate treatment, which consists of adequate hemodynamic stabilization, early and radical debridement, broad-spectrum antibiotic therapy, and daily wound care.

Many patients have underlying systemic diseases (e.g., diabetes mellitus, urogenital tuberculosis, syphilis, human immunodeficiency virus infection, cancer, and chronic alcoholism), which are responsible for the vascular and immune disorders that increase susceptibility to polymicrobial infection.⁵ Low socioeconomic level has also been reported to be a predisposing factor.^{11,12}

Using data from the patients treated in our department, we analyzed the clinical and epidemiological characteristics of Fournier gangrene to compare them with the findings of previous reports. We also analyzed those variables that affected outcome and mortality.

Material and Methods

We retrospectively analyzed 37 patients diagnosed with Fournier gangrene at Hospital Universitario San Cecilio in Granada, Spain between January 2001 and October 2010. The disease was coded according to the *International Classification of Diseases, Ninth Revision* as Fournier gangrene (728.86). Clinical diagnosis was based on the patient's medical history and physical examination, which included as diagnostic criteria the presence of foul-smelling necrotic slough in the anogenital area associated with crepitus in the context of sepsis.

The variables studied were as follows:

1. Personal details: age and sex.

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