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ORIGINAL ARTICLES

Cost-Effectiveness Analysis Comparing Methotrexate With PUVA Therapy for Moderate–Severe Psoriasis in the Sanitary Area of Badajoz

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Abstract. *Objective*. To perform a cost-effectiveness analysis, by using a decision tree model, comparing methotrexate with PUVA therapy for moderate to severe chronic plaque psoriasis in the sanitary area of Badajoz (south-western Spain) over a one-year period.
Material and methods. The following variables and data sources were included: efficacy (a 50% reduction in the PASI) and safety. Data were retrieved from the dermatologic medical literature, mainly general reviews, systematic reviews and randomized clinical trials. Therapy schedules followed current guidelines from work task teams and consensus documents.
Direct costs included unitary costs of medical consults, costs of laboratory tests, pharmacy, phototherapy sessions and costs derived from adverse reactions.
Indirect costs included travel expenses and costs of lost productive work time.
Results. Unitary cost of methotrexate therapy would be 952,79 euros per treatment (direct cost: 796,48; indirect cost: 156,31). Unitary cost of PUVA therapy would be 899,70 euros per treatment (direct cost: 383,36; indirect cost: 516,34). Total cost of a one-year treatment with methotrexate would be 255,202.73 euros. Total cost of a one-year treatment with PUVA would be 266,406.88 euros. The average cost-effectiveness ratios per case successfully treated would be 1,519.06 euros for methotrexate therapy, and 1,085.18euros for PUVA therapy. The incremental cost-effectiveness ratio of PUVA/methotrexate would be 150,65euros for each additional case successfully treated.
Conclusions. One-year treatment for moderate to severe psoriasis in the sanitary area of Badajoz would be more expensive but also more cost-effective with PUVA than with methotrexate. However, indirect costs (borne by patients in the Spanish Health System), are higher for PUVA therapy, a fact that raises an issue of equity. The results should be interpreted taking into account the methodological limitations of a modelling study.

Key words:psoriasis, cost-effectiveness, cost-efficacy, methotrexate, PUVA.

ANÁLISIS DE COSTE-EFECTIVIDAD MODELIZADO COMPARANDO METOTREXATO CON FOTOTERAPIA TIPO PUVA PARA LA PSORIASIS MODERADA-SEVERA EN EL ÁREA DE SALUD DE BADAJOZ

Resumen. *Objetivo*. Realizar un análisis de coste-efectividad modelizado, usando un árbol decisión, comparando metotrexato y fototerapia tipo PUVA para la psoriasis crónica en placas moderadas-severas en el Área de Salud (AS) de Badajoz, durante el período de un año, desde la perspectiva societaria.
Material y métodos. Se consideraron las siguientes variables y fuentes de datos: eficacia y seguridad. Se valoró como eficaz la mejoría del PASI50. Se tomaron datos de la literatura médica dermatológica, fundamen-

In memoriam of my friend Francisco Revenga, who inspired my interest in this and many other subjects.

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talmente revisiones generales, revisiones sistemáticas y ensayos clínicos aleatorizados. Los regímenes de tratamiento se obtuvieron de las recomendaciones de grupos de trabajo y documentos de consenso, recogidos en publicaciones médicas.
Como costes directos se consideraron los costes unitarios por consulta, los de las pruebas de monitorización, los de la medicación y las sesiones de fototerapia y los de las reacciones adversas.
En los costes indirectos se valoraron los costes por desplazamiento, y los de productividad debidos a la pérdida horas de trabajo de la jornada laboral.
Resultados. El coste unitario por tratamiento con metotrexato sería de 952,79 euros (directos: 796,48; indirectos: 156,31). El coste unitario por tratamiento con PUVA sería 899,70 euros (directos: 383,36; indirectos: 516,34). El coste total del tratamiento durante un año con metotrexato sería 255.202,73 euros, y con PUVA 266.406,88 euros. Las ratios medias de coste-efectividad serían, para cada uno de los tratamientos: metotrexato 1.519,06 euros, y PUVA 1.085,18 euros por caso tratado eficazmente. La ratio incremental PUVA/ metotrexato sería: 150,65 euros por cada caso añadido eficazmente tratado.
Conclusiones. El tratamiento de la psoriasis durante un año en el AS de Badajoz con PUVA sería más caro, pero también más coste-efectivo que el tratamiento con metotrexato. Sin embargo, los costes indirectos (soportados por el paciente) del tratamiento con PUVA son más altos, lo que plantea un problema de equidad. Estos resultados deben considerarse a la luz de las limitaciones metodológicas de un estudio modelizado.

Palabras clave: psoriasis, coste-efectividad, coste-eficacia, metotrexato, PUVA.

Introduction

Psoriasis affects 1.5% of the population in Spain,[1] and there is no evidence to suggest that prevalence varies from one region to another.

Although the condition can be controlled successfully, it cannot be cured. Effective therapies, rather than prolonging life expectancy, improve patients' symptoms and quality of life, and cure outbreaks of the disease. Efforts are being made to improve both the subjective and objective parameters used to measure clinical improvement. Examples of the former are health-related quality of life scores and patient preferences and an example of the latter is the psoriasis area and severity index (PASI) (recommended by the US Food and Drug Administration as the endpoint for evaluating clinical efficacy).

Numerous studies have analyzed the efficacy, effectiveness, and safety of psoriasis treatments. While some studies have analyzed total cost of treatments in a range of countries, few have analyzed cost-effectiveness. In our review of the medical literature, we found comparative cost-effectiveness studies for methotrexate versus cyclosporine, methotrexate versus Goeckermann therapy, methotrexate versus a modified rotation regimen of cyclosporine and methotrexate, calcipotriol versus UVB phototherapy, and tacalcitol versus a combined regimen of calcipotriol and betamethasone dipropionate followed by calcipotriol alone.[2-6] All these studies were conducted in the United States of America, Holland, Denmark, and France.

Study Objective

The objective of this study was to perform a cost-effectiveness analysis based on a decision tree model comparing methotrexate and psoralen plus UV-A (PUVA) treatment for chronic moderate-to-severe plaque psoriasis from a societal perspective. The study was conducted in the health care area of Badajoz, Spain, over the period of a year.

Treatments Compared

1. Methotrexate. Methotrexate is a DNA synthesis inhibitor with antiproliferative, anti-inflammatory, and immunosuppressive properties. In use since 1958, it is a first-line drug for treating psoriasis, and is used in alternating therapy regimens. It is generally administered orally, although it can also be used subcutaneously or parenterally. The only absolute contraindications to its use are pregnancy and breastfeeding. Dose-limiting acute adverse reactions include gastrointestinal intolerance and leukopenia, followed by renal insufficiency, and drug interactions. The most feared long-term toxic effect is hepatotoxicity (periportal fibrosis and cirrhosis). This risk is greater in patients with predisposing factors such as an excessive intake of alcohol or hepatotoxic drugs, chronic viral hepatitis, and type 1 diabetes mellitus. The American Academy of Dermatology has published