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ORIGINAL ARTICLE

Cost Analysis of Mohs Micrographic Surgery in High-Risk Facial Basal Cell Carcinoma

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KEYWORDS

Micrographic surgery;
Mohs;
Cost analysis;
Cost-effectiveness

Abstract

Introduction: Mohs micrographic surgery (MMS) is the treatment of choice for high-risk facial basal cell carcinoma (BCC) as it offers the greatest chance of cure with maximum preservation of healthy tissue. Its use in Spanish public health care hospitals is still limited, however, due to the controversy surrounding its cost.

Objectives: To determine the cost of MMS with fresh tissue to treat high-risk facial BCC and compare this to the estimated cost of conventional surgery in a Spanish public hospital. A secondary objective was to identify cost-optimization strategies for MMS.

Material and methods: Cross-sectional study of a consecutive series of patients with high-risk facial BCC who underwent MMS at the Department of Dermatology at Hospital Costa del Sol in Malaga, Spain between July 2006 and December 2007. We performed a descriptive analysis of the clinical characteristics of the patients and surgical factors. We calculated the total and mean cost of MMS and compared the results to the estimated costs of conventional surgery using patients as their own controls. Differences were analyzed according to tumor site and size, histologic subtype, and recurrence.

Results: Seventy-nine patients (mean age, 62 years) with 81 high-risk facial BCCs, 97.5% of which were primary tumors, underwent MMS. The most common tumor site was the nose (57%) followed by the orbital region (25%). Histology showed that 64% of the tumors were infiltrative or micronodular carcinomas. Tumor-free margins were achieved in all patients, with no more than 2 stages required in 88% of the cases. The most common surgical reconstruction techniques were direct closure (21%) and closure with a local skin flap or graft (71%); the corresponding estimates for conventional surgery were 2% and 89%,

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PALABRAS CLAVE
Cirugía micrográfica;
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Coste/beneficio

respectively. The total and mean cost of MMS was €106 129.07 and €1325.80, respectively (compared to €97700 and €1208.70 for conventional surgery). The difference in mean costs between MMS and conventional surgery was not significant ($P=0.534$).

Conclusions: MMS is a viable, effective technique that does not generate significantly higher costs than conventional surgery in selected patients with high-risk facial BCC. Certain technical and organizational strategies could contribute to optimizing the cost of MMS.

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Análisis de costes de la cirugía micrográfica de Mohs en el carcinoma basocelular facial de alto riesgo

Resumen

Introducción: La cirugía micrográfica de Mohs constituye el tratamiento de elección del carcinoma basocelular de alto riesgo, pues ofrece la mayor garantía de curación con la máxima preservación de tejido sano. Sin embargo, su implementación en hospitales del ámbito sanitario público españoles es minoritaria hasta la fecha, debido a que el coste económico de esta técnica continúa siendo motivo de controversia.

Objetivo: Determinar los costes de la cirugía micrográfica de Mohs en fresco (CMF) en el tratamiento del carcinoma basocelular facial de alto riesgo (CBFR) frente al coste teórico mediante cirugía convencional (CC), en un centro hospitalario del ámbito sanitario público español. Identificar estrategias de optimización de costes en este tipo de cirugía.

Material y métodos: Estudio transversal de una serie consecutiva de pacientes con CBFR intervenidos mediante CMF en el Servicio de Dermatología del Hospital Costa del Sol desde julio 2006 a diciembre 2007. Se realizó un análisis descriptivo de las características clínicas de la serie y aspectos quirúrgicos. Se realizó un estudio de costes (coste total y coste medio) de la CMF y se compararon con los costes teóricos de la CC, utilizando cada paciente como su propio control. Se analizaron las diferencias por localización, tamaño del tumor, histología y recurrencia.

Resultados: Se intervinieron con CMF 79 pacientes con 81 CBFR (edad media = 62 años). El 97,5% fueron tumores primarios. La localización más frecuente fue la pirámide nasal (57%) seguida de la región orbitaria (25%). El 64% correspondieron a tipos histológicos infiltrativo y micronodular. La exéresis tumoral mediante CMF se concluyó en todos los casos con márgenes libres, requiriéndose en el 88% únicamente uno o dos estadios. Las técnicas de reconstrucción quirúrgica más empleadas fueron el cierre directo y colgajo local (21 y 71% de los casos respectivamente en la CMF, frente al 2 y 89% en la CC). El coste total y coste medio de la CMF fue de 106.129,07 y 1.325,8 euros respectivamente (frente a 97.770 y 1.208,7 euros de la CC). La diferencia de costes entre ambos procedimientos no fue significativa ($p = 0,534$).

Conclusiones: LA CMF es una técnica factible, eficaz y que genera costes que no son significativamente superiores a los de la CC en pacientes seleccionados con CBFR. Algunas estrategias técnicas y organizativas pueden contribuir a la optimización de costes de esta cirugía.

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Introduction

Mohs micrographic surgery (MMS) is currently considered the treatment of choice for certain types of high-risk basal cell carcinoma (BCC),¹ despite the fact that its superiority over other treatments has not been demonstrated in long-term studies.² In addition to maximizing structural and functional preservation of the treated area, MMS provides the opportunity to analyze all the surgical margins and consequently results in much lower recurrence rates than those achieved with conventional surgery. For example, 5-year recurrence rates for primary BCCs and recurrent tumors are 1.4% and 4%, respectively, with MMS³ but 3.2% to 10% and 17%, respectively, with conventional surgery.⁴

MMS, however, is a laborious procedure that requires considerable investment in terms of time and personnel, and its cost-benefit ratio remains a controversial issue. Consequently, and also in view of the lack of cost-analysis studies of MMS in Spain, the procedure is still uncommon in our setting. The aim of this study was to determine the cost of MMS with fresh tissue to treat high-risk facial BCC at Hospital Costa del Sol, a public health care hospital in Andalusia, Spain.

Patients and Methods

We performed a cross-sectional study of a consecutive series of patients with high-risk facial BCC who underwent

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