Med Clin (Barc). 2016;xxx(xx):xxx–xxx

MEDICINA CLINICA

www.elsevier.es/medicinaclinica

Review

# Management of benign melanocytic lesions as a melanoma prevention. Systematic review☆

Renata Linertová[a,b,c,*], Cristina Valcárcel-Nazco[a,b,c], Juan Ramón Lacalle-Remigio[d]

[a] Fundación Canaria de Investigación Sanitaria (FUNCANIS), Las Palmas de Gran Canaria, Las Palmas, Spain
[b] Red de Investigación en Servicios de Salud en Enfermedades Crónicas (REDISSEC), Spain
[c] Centro de Investigación Biomédica de Canarias (CIBICAN), Campus Ciencias de La Salud, La Laguna, Santa Cruz de Tenerife, Spain
[d] Medicina Preventiva y Salud Pública, Universidad de Sevilla, Sevilla, Spain

ARTICLE INFO

*Article history:*
Received 4 February 2016
Accepted 17 February 2016
Available online xxx

*Keywords:*
Melanocytic lesions
Prevention
Melanoma
Systematic review

ABSTRACT

There is a growing concern and awareness of skin cancer. As a result, possibly unnecessary surgeries of melanocytic lesions are carried out as a prophylactic measure.

We performed a systematic review of the medical literature to identify primary studies on the effectiveness and cost-effectiveness of surgery treatment of benign melanocytic lesions for melanoma prevention.

We included 19 primary studies on surgical treatment of acquired melanocytic lesions and one economic evaluation. Indicators, such as number needed to treat and the malignancy ratio, depend on several factors such as specialty and experience of the physician, pressure from the patient or patient characteristics.

Early diagnosis of melanoma is critical in preventing skin cancer. However, primary studies show through several indicators that there are factors that increase the proportion of lesions treated unnecessarily. Effectiveness can be improved by careful use of techniques to identify suspicious lesions and educational programs for physicians, especially in primary care.



## Tratamiento quirúrgico de lesiones melanocíticas benignas para la prevención del melanoma. Revisión sistemática

*Palabras clave:*
Lesiones melanocíticas
Prevención
Melanoma
Revisión sistemática

RESUMEN

Debido a una creciente sensibilidad sobre el cáncer de piel, posiblemente se está realizando un número excesivo de intervenciones quirúrgicas de lesiones melanocíticas como medida profiláctica.

Se realizó una revisión sistemática de la literatura médica de estudios primarios sobre la efectividad y coste-efectividad de la cirugía de lesiones melanocíticas benignas como prevención del melanoma.

Se incluyeron 19 estudios primarios sobre tratamiento quirúrgico de lesiones melanocíticas adquiridas y una evaluación económica. Las medidas de efectividad, como el número necesario a tratar y la ratio de malignidad, dependen de factores como la especialidad y experiencia del médico, la presión por parte del paciente o las características de este.

La detección precoz del melanoma es fundamental. Sin embargo, existen factores que aumentan la proporción de lesiones tratadas innecesariamente. Se necesita una cuidadosa aplicación de técnicas de identificación de lesiones sospechosas y programas educativos dirigidos a los médicos, especialmente de atención primaria.



☆ Please cite this article as: Linertová R, Valcárcel-Nazco C, Lacalle-Remigio JR. Tratamiento quirúrgico de lesiones melanocíticas benignas para la prevención del melanoma. Revisión sistemática. Med Clin (Barc). 2016. http://dx.doi.org/10.1016/j.medcli.2016.02.016

* Corresponding author.
*E-mail address:* renata.linertova@sescs.es (R. Linertová).

## Introduction

Melanocytic lesions (ML) are very common benign skin lesions present in virtually all people. They are benign growths (tumours) derived from melanocytes, whose origin can be either congenital or acquired. Generally, they tend to regress and disappear, although in some cases, they can remain and generate significant aesthetic problems. However, the main concern in these cases is their potential malignant transformation.[1,2]

Melanoma skin has become an emerging tumour in white people.[3] Since the second half of the XX century its incidence rate has soared and is expected to double every 10–20 years, with an annual increase of 3–7%.[3] The regions with the highest incidence rates are Australia and New Zealand, where a rate of 37.8 and 29.4 per 100,000 in men and women, respectively, was registered in 2002.[3] In Europe higher rates are seen in the north (about 17 per 100,000 population) than in the south, including Spain (7.7–13 per 100,000 inhabitants).[3] While the impact of this tumour in overall mortality is relatively low, the number of deaths has increased progressively in the Caucasian population in recent decades (1.5–2.1 per 100,000 inhabitants in Spain).[2] Removing a suspicious lesion prevents the lesion developing a melanoma and allows early diagnosis of the same, but does not eliminate the risk of developing a melanoma on healthy skin or over another ML of the patient.[1] A logical choice for these lesions in patients with multiple atypical lesions is the developmental control, considering a biopsy or surgical excision in case of detecting changes.[4]

Currently, among the population, there is a special concern and awareness of skin cancer. While there are strong indications that the presence of multiple ML increases the risk of melanoma, the same as sun exposure, the effectiveness of ML surgical excision as a preventive measure against melanoma is not known in depth, which can involve a large number of unnecessary surgical interventions.

Therefore, the objective of this study was to identify, critically evaluate and synthesize the available scientific knowledge about the effectiveness and cost-effectiveness of surgical treatment of acquired benign ML as melanoma prevention.

## Methods

A systematic review of the medical literature whose methods are included in a protocol, which was developed with the consensus of dermatologists and HTA experts.

### *Information sources and search strategy*

Systematic searches were conducted in October 2015 (no time restriction) in the following electronic databases: MEDLINE and PreMEDLINE (OvidSP), Embase, *Cochrane Database of Systematic Reviews*, NHS CRD, CINAHL (EBSCO) and Trip Database, combining terms such as “melanocytes”, “Pigmented Nevus”, “Surgical Management” or “Melanoma Detection.” References of all retrieved articles were manually reviewed in order to locate other studies that had not appeared in the initial search. Further investigations were found thanks to experts and by searching in the websites of national and international health technology assessment agencies.

### *Study selection*

Two peer-reviewers, independently, selected the studies from reading the titles and abstracts that had been found through the medical literature search. The selected articles full texts were reviewed and classified as included or excluded by the 2 peer reviewers, according to the established selection criteria. When there were doubts or discrepancies, these were resolved by consensus or with the help of a third reviewer. The study selection criteria were as follows:

- Types of studies: studies evaluating the effectiveness and/or cost-effectiveness of surgical treatment of benign ML as melanoma prevention, including the following types of study design:
  - Experimental studies, including randomized and non-randomized clinical trials.
  - Cross-sectional or longitudinal observational studies.
  - Full economic evaluations.

Conference summaries, letters to the editor, discussion papers, editorials, commentaries and single case studies were excluded.

- Types of participants: men and women of all ages.
- Types of operations: benign ML surgery (spindle-shaped surgical excisions, slicing off the protruding part of the nevus or other surgery).
- Types of outcome measures: for a study to be considered included, one of the following outcome measures should be incorporated:
  - Number of excisions necessary to discover a melanoma or number needed to treat (NNT).
  - Ratio of benign/malignant ML: number of benign ML removed necessary to find a melanoma.
  - Malignancy ratio: number of removed ML diagnosed as malignant divided by the total number of excisions.
  - Physician’s diagnostic accuracy: defined as the percentage of correctly diagnosed ML (taking as diagnostic reference the histopathologic result of the lesion).
  - Positive predictive value: defined as the number of true positives divided by the total number of positives (true and false).

Interest measures of economic studies were cost-effectiveness ratios, incremental cost-effectiveness ratio (ICER), costs and use of resources.

### *Data extraction*

Data extraction of included studies was performed by one peer-reviewer and checked by a second pee-reviewer. Any doubts or disagreements were resolved by consensus or with the help of a third peer-reviewer.

Data were extracted relating to the identification of the article with the design and methodology and the results of the study (results directly related to the effectiveness, costs or cost-effectiveness of surgery). These data were collected in *ad hoc designed spreadsheets.*

### *Quality assessment*

The *Scottish Intercollegiate Guidelines Network* (SIGN)[5] tools were used to assess the methodological quality of clinical trials and observational studies other than case series. Following recommendations of SIGN, the methodological quality of the case series was not assessed.[5] The quality of economic evaluations was assessed according to the Drummond et al.[6] criteria.

### *Data synthesis*

A narrative synthesis was performed, tabulating the information collected from the included studies.