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Original Research

Disparities in melanoma incidence and mortality in South-Eastern Europe: Increasing incidence and divergent mortality patterns. Is progress around the corner?

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KEYWORDS
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Abstract ***Introduction:*** Most countries in South-Eastern Europe (SEE) have lower incidence, but higher mortality rates of malignant melanoma (MM) of the skin compared to North-Western Europe (NWE). We explored trends in MM incidence and mortality in SEE countries by sex and age and compared them with the trends in NWE.
Methods: We obtained data on incident cases and deaths from MM (ICD-10 code C43) from 11 population-based cancer registries in Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Malta, Romania, Serbia, Slovakia, Slovenia and Turkey. We calculated age-specific rates for 25–49 ('young'), 50–69 ('middle aged') and 70+ years ('older') and estimated the average annual percent of change in incidence and mortality trends 2000–2010 according to age group and sex, using joinpoint regression analysis.
Findings: The incidence rates of MM across the region were uniformly increasing. Significant increases in mortality rates were observed in middle aged men in Serbia and Bulgaria, middle aged women in Slovenia, older men in the Czech Republic, Serbia and Turkey, and older women in Slovenia and Serbia.
Interpretation: While MM incidence rates were still increasing across SEE, mortality trends diverged and were less favourable than in NWE. Empowering cancer registration and improving the quality of incidence and mortality data will be essential for monitoring progress in MM control. In the context of prevention of melanoma, disparities in early detection appear to be widening the gap between SEE and NWE, while the provision of care to patients with advanced disease is likely to prove a challenge for regional healthcare budgets.

1. Introduction

Malignant melanoma (MM), although relatively rare, is the cause of the majority of skin cancer deaths [1]. Several meta-analyses have identified key risk factors such as intermittent sun exposure (especially at young age), a history of sunburn, family history, skin phenotype, density of freckles, skin, eye and hair colour, pre-malignant and skin cancer lesions and actinic damage indicators [2–4]. Geographical latitude has also been identified as a risk modifier [4], while gender is a major determinant of prognosis [5].

According to GLOBOCAN estimates of incidence for individual countries [6], there were around 100,000 newly diagnosed melanoma cases in Europe in 2012, 19% of which occurred in Central and Eastern Europe [7]. Of the 22,000 estimated melanoma deaths in Europe in 2012, almost 8000 (36%) occurred in the Central and Eastern Europe region [7]. Incidence varied greatly, with the highest rates in the Nordic countries and the Netherlands, with age-standardised rates (ASRs) (World Standard Population) ranging from 17 to 22 per 100,000 [7].

The areas with the highest mortality from melanoma were the two regions of focus in this study, North-Western Europe (NWE: the Nordic countries and the Netherlands), with ASRs ranging from 2.1 to 3.6 per 100,000, and South-Eastern Europe (SEE: Slovenia, Croatia, Serbia, and the Former Yugoslav Republic of Macedonia) with ASRs ranging from 2.1 to 3.1 per 100,000 [7]. A stabilisation of increasing mortality trends has been reported from populations in NWE, especially in women, but not as yet within those resident in SEE countries [8–10]. The European Parliament resolution of April 2008 (2009/C 247 E/04) [11] acknowledged the need to improve cancer outcomes by extending cancer registration as part of cancer control in the new (2004) Member States [12]. Most of the recent European Union enlargements, in 2004, 2007 and 2013, included countries from the Central and SEE region, whilst Turkey and more recently Serbia have candidate status [13].

Given the uniform increases of incidence across SEE, as well as high melanoma mortality rates observed in some countries in the region [10,14,15], the