Trends in melanoma tumour thickness in Norway 1980-2019

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# Background

Norway ranks fifth in incidence and second in mortality of cutaneous melanoma worldwide. Tumour thickness at diagnosis is the cornerstone of melanoma classification and the most important prognostic factor for clinically localized primary melanoma. Increased incidence of thin tumours may be a result of increased awareness and changes in pathological practice. Recently digitized tumour thickness data (1980-2007) and data from the Melanoma Registry (2008-), enable investigating long-term trends in melanoma thickness.

# Aim

To investigate trends in tumour thickness, overall and in important subgroups such as sex, age and anatomic site, in a nationwide case series in 1980-2019.

# Methods

Tumour thickness was categorized in T-categories: T1 (≤1.0 mm), T2 (1.0-2.0 mm), T3 (>2.0-4.0 mm), and T4 (>4.0 mm). Incidence rates were age-standardized using the European standard population. Trends and changes in incidence rate over time were analysed with annual percentage changes (APC) and average annual percentage change.

# Results

We included 47,439 morphologically verified first primary invasive melanoma cases (52% women) diagnosed in 1980-2019. Median age at diagnosis increased from 58 years in 1980-1999 to 65 in 2008-2019. Throughout the period studied, women were diagnosed at a thinner stage than men. In men, median (interquartile range) tumour thickness decreased from 1.4 mm (0.75-3) in 1980-1999 to 1 mm (0.6-2.3) in 2008-2019, and in women from 1 mm (0.6–2) to 0.9 mm (0.5–1.8). T1 melanoma incidence increased most, and an incidence plateau was found between 1993 and 2006: APC (95% CI) was 17.02 (14.58, 19.51) in 1980-1993, 0.75 (-0.4, 1.91) in 1994-2006 and 6.08 (4.88, 7.3) in 2007-2019. No plateau was found for T2, T3 and T4 melanomas. Although less pronounced, incidence of tumours >2mm also increased with an APC (95% CI) of T4 melanomas of 3.04 (2.32, 3.76) for 1980-2019.

# Conclusions

T1 melanomas had the largest increase in incidence over time. An increasing trend was also observer in thicker tumours, suggesting that the rise in melanoma incidence is not only due to overdiagnosis/pathological practice?. Melanoma awareness amongst the general population, in particular focused on males could help to reduce both incidence and mortality of melanoma in Norway.

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