EDITORIAL

Mortality From Malignant Melanoma in an Era of Nationwide Skin Cancer Screening

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Editorial to accompany the article: "Skin Cancer Screening in Germany—Documenting Melanoma Incidence and Mortality From 2008 to 2013" by Alexander Katalinic et al. in this issue of *Deutsches Ärzteblatt International*

Nationwide skin cancer screening has been offered in Germany since 2008. On the basis of experience from a 2003/2004 pilot project in Schleswig-Holstein, there had been expectations that national screening might lead to a substantial decrease in melanoma mortality within a few years (1). However, the analysis of current melanoma mortality trends in Germany presented in the current edition of *Deutsches Ärzteblatt International* shows that as yet there has been no such decrease. Quite the reverse was observed: in addition to the expected substantial increase in observed melanoma incidence, melanoma mortality has actually risen slightly (2). The authors attribute this mainly to the current nationwide screening program being less intensive than the earlier pilot scheme in Schleswig-Holstein and offer a number of plausible arguments for this interpretation.

Pilot scheme: more than just screening

On closer examination, however, there are also indications that the effect of screening in 2003/2004 may have been less marked than the previously reported data had at first suggested. For example, it had been reported that age-standardized melanoma mortality in Schleswig-Holstein had fallen by 47% in men and 49% in women in the 10-year period from 1998/1999 to 2008/2009. As only 10% of men and 27% of women had made use of the screening offer in 2003/2004, however, the extent to which this major decrease was due to screening itself seems questionable.

That screening might have had such a major impact even seems questionable if one considers the potential selection effects, such as overrepresentation of high-risk individuals. Concomitant effects of the program, which was implemented with a great deal of publicity and wide-ranging training, may have made an additional contribution. Examples of potential concomitant effects are increased awareness of examination for skin cancer among patients and physicians, and increased detection of skin cancer even outside screening examinations. Effects of training that were present before the beginning and after the end of screening may also have played a role. During the pilot project, however, the incidence of melanoma, an indicator of the intensity of screening, rose only slightly more than the subsequent

nationwide figure after skin cancer screening had been introduced.

The possible role of chance

The very sizeable decrease in melanoma mortality during the pilot project may also have been partly due to chance. Between 1998 and 2009 the annual number of malignant melanoma deaths in Schleswig-Holstein ranged between 21 and 52 in women and between 23 and 57 in men. The figure varied widely from year to year, particularly among men, and this is not fully reflected in the three-year moving averages used to represent melanoma mortality in this article. The earlier analysis in men had assessed the trend between the years of maximum (2000) and minimum (2009) melanoma mortality, and in the longer term these appear to be high end and low end statistical outliers. Nevertheless, the estimated annual decrease, 7.5%, had only borderline statistical significance. With a 95% confidence interval of 0.5% to 14%, the results would also, notably, be compatible with a decrease of only 0.5% per year or around 5% over 10 years. In women, however, the decrease was statistically unambiguous despite the small case numbers.

Incidence up by 30%

As the total population of Germany (approximately 82 million), to which this analysis refers, is almost 30 times larger than that of Schleswig-Holstein (approximately 2.8 million), chance variations obviously play a much smaller role here. The data now available raise the question of whether the current skin cancer screening program achieves any significant benefit at all. This is a pressing question, not least because the annual direct cost of screening is more than €130 million (3) and melanoma incidence rates were roughly 30% higher after screening had been introduced. These higher incidence rates reflect, of course, a correspondingly larger number of patients who are faced with a diagnosis of melanoma and an accordingly higher number of treatments.

Scientific evaluation needed

Unfortunately, the question of whether the current skin cancer screening program achieves any significant

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benefit cannot be reliably answered using either currently available mortality figures or figures for the years to come. In addition to the fact that the program has only been running for a relatively short time, and that the latency period of the effects that are expected is uncertain, this is mainly due to a lack of implementation of key prerequisites for systematic, independent, concomitant scientific evaluation. This unsatisfactory situation is rightly pointed out by the authors (2).

The establishment of organizational, legal, and financial framework conditions for an independent, concomitant scientific evaluation has long been unanimously requested in Germany's National Cancer Plan (4) and by scientific societies such as the German Society for Medical Information Technology, Biometrics, and Epidemiology (GMDS, Deutsche Gesellschaft für Medizinische Informatik, Biometrie und Epidemiologie) and the German Society for Epidemiology (DGEpi, Deutsche Gesellschaft für Epidemiologie) (5). It is more than overdue. Following other countries' example, appropriate framework conditions for independent scientific evaluation must finally become the general standard when new screening programs are launched in Germany too.

Program requires critical scrutiny

Independently of this, the continuation of skin cancer screening in Germany in its current form should at least be critically scrutinized in the light of the data now presented. Care must be taken in such discussion not to generalize judgement of the efficacy across different cancer screening programs. In particular, such discussion should not unduly cast doubt on highly effective cancer screening programs such as those for cervical cancer (6) and bowel cancer (7–9).

Conflict of interest statement

The author declares that no conflict of interest exists.

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