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EDITORIAL

Difficult journeys in sarcoma care; socioeconomic disparity added to the multiple challenges of a rare tumor diagnosis

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Patients diagnosed with rare tumors are, as a group, vulnerable with lower survival rates. Challenges include late or incorrect diagnosis, limited expertise and access to appropriate treatment and weaker evidence for the best treatment option. In this issue of Acta Oncologica, Raedkjaer et al. [1] present data to support that also socioeconomic position adds to the vulnerability of this patient group through observations of disparities in diagnosis and outcome in sarcomas of the extremities and the trunk wall.

Raedkjaer et al. linked several Danish population-based registers to investigate the impact from educational level, disposable income and cohabitation status on disease characteristics and overall mortality in 1919 sarcoma patients. Whereas educational level and disposable income did not have a major influence on disease characteristics at diagnosis, patients who lived alone had an odds ratio of 1.5 for tumors larger than 5 cm. Since soft tissue sarcomas usually give no or few symptoms and are sometimes detected *en passant*, this observation may not be unexpected. More challenging is the observation of a worse outcome in patients with short education and low income, in a publicly funded health care system with easy and equal access to care, integration of services, short waiting times and transparency as guiding principles. Hazard ratios for overall mortality were 1.3 in patients with $\leq$10 years of education, 1.3 in patients with the 20% lowest income and a trend for adverse outcome was found also among those who lived alone [1].

A multitude of factors such as lifestyle, exposures, comorbidity, symptom awareness, access to healthcare, treatment choices and compliance and referral to rehabilitation may explain socioeconomic inequalities. Socioeconomic inequalities in cancer have been documented in multiple tumor types, albeit with different strengths and risk patterns related to incidence, treatment patterns and outcome. In skeletal sarcoma, studies from the United States and Great Britain have reported adverse effects from race, socioeconomic status and marital status. Deb et al. [2] showed that white patients were more likely to receive surgery (odds ratio 3.1) and after correction for surgery still had a better chance of survival (hazard ratio 2.1). Duchman et al. [3] reported an increased risk of large tumors and disseminated disease among osteosarcoma patients with low socioeconomic status. Blakey et al. [4] calculated risk of death in relation to residential area and showed higher mortality for osteosarcoma and Ewing sarcoma in remote rural areas compared to urban areas and in areas with higher unemployment mortality rates were significantly increased for osteosarcoma. Low socioeconomic status has been linked to adverse outcomes in osteosarcoma (hazard ratio 1.2) and chondrosarcoma [5,6].

Knowledge on the effect from race and socioeconomic factors in soft tissue sarcoma is limited. A study based on the National Cancer Data Base (NCDB) database in the United States showed that black patients were significantly more likely to present with large tumors and to be amputated and had poorer overall survival than white or Asian patients [7]. A hospital-based case control series with 371 patients from the United States revealed an inverse correlation between education and risk of sarcoma [8]. Based on data from the SEER database higher deprivation scores have been linked to worse 5-year survival rates in synovial sarcomas [9].

The study by Raedkjaer et al. adds to the increasing evidence on the influence of socioeconomic factors on risk, clinical presentation, treatment and outcome in bone and soft tissue sarcoma. Though the socioeconomic factors may not have the same prognostic strength as the established tumor- and treatment-related risk factors, these observations demonstrate the need to ensure adequate access to effective treatment for all sarcoma patients. Comorbidity has been documented in up to one out of four Danish sarcoma patients and may be one of the explanatory factors behind the increased mortality observed [10]. Initiatives are needed to provide equity in sarcoma care and likely go beyond clinical guidelines and treatment protocols since these have been in place for a long time in sarcoma care. Awareness of these data, further investigation into the underlying risk factors, attention to socioeconomic factors in clinical decision-making and access to follow-up is needed and should be a responsibility of sarcoma teams in different health care systems.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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