Age definitions, childhood and adolescent cancers in relation to reproductive issues

Dear Sir,

Childhood and early adolescent (0–14 years) cancers are rare, accounting for <1% of all cancers in industrialized countries. Several types of cancer are virtually unique in childhood, whereas the carcinomas most frequently seen in adults (lung, female breast, stomach, large bowel and prostate), are extremely rare in childhood and early adolescence (Stiller and Draper, 1998). There is a cumulative risk of 1 in 564 of developing cancer in the first 15 years of life, at which time about a third of all cancer registrations are leukaemias, then 20–25% brain and spinal tumours; 10% lymphomas (with non-Hodgkin’s incidence higher than Hodgkin’s); 6–7% are neuroblastoma and Wilm’s tumour; and ~3% retinoblastoma. The rest are mainly bone sarcomas, germ cell tumours and epithelial tumours. Osteosarcoma and Ewing’s sarcoma are two common bone tumours in childhood and early adolescence. The annual incidence of these two cancers is 1.6–2.8 and 0.6 per million under 15 year olds affecting more boys than girls (1.6:1 and 1.5:1) respectively. The peak age incidence for these two cancers are 10–20 and 10–15 years respectively (Jurgens et al., 1998; Craft, 1998).

In addressing the epidemiology of cancers in children, the definition of 0–14 years inclusive (up to 14 years 11.9 months) has arbitrarily been adopted and labelled ‘childhood cancer’ to facilitate the 5 year survival rate analyses (Stiller and Draper, 1998). Within the field of oncology, the interpretation of ‘childhood cancer’ has varied to include patients up to 15 years 11 months and 16 years 11 months (Shafford et al., 1993; Siimes and Rautonen, 1990). Variable interpretations of childhood are accepted, e.g. the appearance of secondary sexual characteristics which is normally taken as age 12 years by paediatricians, to the legal definition of 16 years after which childhood ceases. Another closely affiliated age band is ‘teenage’ which is 13–19 years. It would appear that the definition for age groups have arbitrarily been assigned to fit their purpose or to facilitate their analyses on available data.

In the field of fertility and reproductive medicine, the transition to reproductive maturity, puberty, represents a significant development of the human body as well as being important from the UK legal perspective, regarding the use and storage of gametes. Furthermore, the pace of technological advances in reproductive medicine has meant that the preservation of potential fertility amongst cases of paediatric cancers has been considered (Bahadur and Ralph, 1999). Potential fertility prospects form a significant aspect of a young cancer patient’s quality of life issues and analyses of the effects of the disease and treatment are likely to increase in the coming years. It would be appropriate that a uniform understanding of the age definitions in the field of reproductive medicine were adhered to, to enable future analyses of treatment effects.

We propose that references to ‘childhood cancers’ are restricted to all pre-pubertal cases. All post-pubertal cases up to and including the age of 19 years (up to 19 years 11.9 months) should be referred to as ‘adolescent cancer’. The latter age is partly based on the fact that this age group is often seen by the same faculty or specialists, and one of the commonest cancers in young persons, osteosarcoma has a peak incidence between 10–19 years. Secondy, adopting the epidemiologist ‘definition’ of childhood cancers of up to and including the age of 14 years, leaves out the next significant 5 year age band in nowhere land. Our proposed definition would still allow ‘early adolescence’ analyses up to and including the age of 14 years (14 years 11.9 months) and should benefit analyses of future reproductive effects after cancer treatment. Flexibility is also possible in age group analyses with the use of ‘early’ to ‘mid’ to ‘late adolescents’.

References


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