IGF-1, IGFBP-3, and cancer risk

Andrew Renehan and colleagues (April 24, p 1346)[1] report the results of a meta-regression analysis of insulin-like growth factor 1 (IGF-1), IGF binding protein 3 (IGFBP-3), and the risk of cancer, and show a modest positive correlation between IGF-1 or IGFBP-3 and common cancers. However, Renehan and colleagues do not mention the ongoing discussion about IGF-1 and IGFBP-3 and the risk of acute leukaemia.

Diverse studies have reported on acute lymphoblastic and acute myeloid leukaemia in patients with acromegaly, which is probably due to highly increased concentrations of IGF-1 or IGFBP-3.[2,3] Eshet and colleagues[4] reported decreased IGF-1 binding sites on peripheral blood mononuclear cells of children with acute leukaemia, suggesting possible involvement of IGF-1 in disease development. Petridou and co-workers[5] showed a significant reciprocal correlation between IGFBP-3 and the likelihood of developing childhood leukaemia. Because IGFBP-3 is a binding protein, these findings were interpreted as indicating that bioavailable IGF-1 might have a role in the cause of childhood leukaemia. The much smaller quantities and the inherent instability of IGF-1 in the blood compared with those of IGFBP-3 are likely to hinder documentation of an underlying positive association between IGF-1 and acute leukaemia.

In our outpatient clinic, we regularly see a 30-year-old female patient with acromegaly and initially highly increased (>99th percentile) IGF-1 concentrations, who also developed acute myeloid leukaemia (M1). After initial diagnosis in 1999, followed by intensive chemotherapy, she is still in remission.

In summary, although these data might not yet reach significance, the possibility of a positive correlation between IGF-1 concentrations and acute leukaemia should be mentioned in meta-analyses such as the one by Renehan and colleagues.

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