Potential role of phytoestrogens in the pathophysiology of fibromatosis

Fibromatosis also known as desmoid tumour is a rare monoclonal fibroblastic proliferative disease, classified as superficial or deep [1]. Active systemic treatments, in case local treatment fails to control the disease, include anti-inflammatory drugs and antiestrogens (e.g. tamoxifen) [1]. The physiologic mechanism that underlies the pharmacological response of fibromatosis to antiestrogens is the nearly uniform expression of estrogen receptor β (ERβ) [2], though alternative pathways leading to progression exist [3]. Clinically it has been shown that fibromatosis is hormonally sensitive, as the incidence is associated with pregnancy and use of contraceptives and hormonal replacement treatment [2, 4]. We report the effect of vegetarian diet on the development of fibromatosis.

A 23-year-old lady with fibromatosis of the right inguinal region presented to our department in 2010. As she had been on combined oral contraceptive for almost 3 years, it was discontinued and she was started on diclofenac. Two months later, tamoxifen 40 mg daily was added, but 10 months later, the disease progressed. At that time, it was found that she had adopted a vegetarian diet 2 years before the diagnosis. It was suggested with dietician guidance to modify her daily intake of products containing phytoestrogens. Three weeks later, her fibromatosis had apparently improved with no signs of active inflammation along with improvement in function and pain control. Eventually, 6 weeks later, she progressed and liposomal doxorubicin was commenced.

Phytoestrogens are plant-derived compounds, structurally similar to estrogens that can induce estrogenic responses in humans [5]. Isoflavones, one of the main classes, are found predominately in soya products, which constitute an integral part of a vegetarian diet. Phytoestrogens have been shown to
exhibit higher affinity to ERβ compared with ERα and ERβ activation can occur with phytoestrogen concentrations physiologically achievable with diet [5]. This explains their beneficial effects in prevention of hormone-sensitive cancers, like breast and prostate cancer [5], in which ERα is involved in their pathogenesis, while in fibromatosis, which is driven by ERβ [2], such a diet may have deleterious effects.

To our knowledge, this is the first case reporting the effect of diet and specifically of phytoestrogens in the pathophysiology of fibromatosis, constituting another clinical example of its hormonal sensitivity. It would be interesting to study the effect of a vegetarian diet on fibromatosis prospectively. In the meantime, it is strongly recommended that patients with fibromatosis avoid a diet rich in phytoestrogens.

E. Thanopoulou*, P. Trehan & I. R. Judson
Sarcoma Unit, Royal Marsden Hospital, London, UK
(*E-mail: eiriniathanopoulou@gmail.com)

disclosure

The authors have declared no conflicts of interest.

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doi:10.1093/annonc/mdr462
Published online 4 October 2011