Further evidence that low androgen values are a cause of rheumatoid arthritis: the response of rheumatoid arthritis to seriously stressful life events

It is well established that androgen concentrations are low in patients with rheumatoid arthritis (RA). There are three possibilities: (1) Low androgen values are a consequence of RA. (2) Low androgen values are a cause of its treatment. (3) Low androgen values are a cause of RA. Undoubtedly the facts are complex, but in what I take to be an excess of methodological correctness, Masi et al wrote: “The available evidence reviewed does not allow definitive response to the question of a primary versus secondary role of sex hormone perturbations in RA.” I shall treat the three above possibilities in turn (in contrast with Masi et al) a definitive response is possible.

(1) Low androgen concentrations in men are a consequence of many forms of illness including severe inflammatory disease, so it may be accepted that this is one cause of the low androgen values. (2) Acute and chronic administration of exogenous glucocorticosteroids can lower testosterone and DHA. (See Masi et al for reference). So this may be another cause of low androgens in patients so treated. (3) However there are very substantial grounds for suspecting that low androgens are a partial cause of RA too: (a) RA is more common in women than in men. (b) RA is associated with HLA B 15, so which in turn is associated with low androgen values in men. Hence the suggestion that low testosterone is a genetically determined precursor, rather than a consequence of RA or its treatment. A similar argument may be deployed in regard to HLA DR 4 in women. (c) RA abates in about 75% of cases during pregnancy. (See Masi et al for reference). Some weeks to months after delivery, the disease flares in more than 90% of these patients. During pregnancy, increasing quantities of androgens are produced by the corpus luteum, placenta, and fetal ovaries and adrenal glands. According to this hypothesis, amelioration during pregnancy is caused by these hormones, and the subsequent relapse is caused by their withdrawal. (d) Controls have been shown to have higher testosterone concentrations than patients in case-control studies: these data are consistent with any of the three propositions above. But the point has been established in a longitudinal study too: women who were pregnant before RA had significantly lower DHA values than controls who did not later develop the disease. Such a finding, if it were confirmed would not be adequately explained by propositions 1 or 2. (3) Direct administration of testosterone to males and postmenopausal female patients has resulted in improvement. It would be interesting to see the effect of such treatment for premenopausal patients.

In the attempt to further illuminate low testosterone values in the aetiology of RA, I wish to draw attention to further confirmatory evidence in the shape of two dramatic cases reported in the behavioural literature.

The first is that of an elderly female RA patient who survived a lightning strike during a thunderstorm. Her walking stick was allegedly charred and her symptoms almost totally abated, though they subsequently returned before her death. I can vouch for the authenticity of the substance of this story: the lady was my aunt and she certainly suffered a stroke (though not necessarily an electrical one). She regarded her experience as the occasion of a miracle.

The second case was that of a 53 year old female RA patient who suffered the unexpected deaths of her son and husband. Her disease went into temporary remission within a week of the deaths. Stress in both sexes leads to increased pituitary secretion of adrenocorticotropic hormone. In men this causes reduced gonadal steroid production. In women, adrenocorticotropic hormone activation of the adrenal cortex is suspected of leading to increased overall androgens. (In women, the main source of androgens is the adrenal gland whereas in men it is the gonads). So I suggest that these two cases illustrate the beneficial effects of androgens on RA.

There are two ways in which this could be tested: (1) If I am right, such seriously stressful life events would have an exacerbating effect on male patients. (2) If I am right, the beneficial effects of pregnancy should be more evident in women carrying male fetuses (because male fetuses secrete more androgens than female fetuses).