Is Curcumin for Monoclonal Gammopathy of Undetermined Significance without Risk? – Letter

Golombick et al. (1) reported that curcumin, a pigment from turmeric, decreases the paraprotein load in some patients with monoclonal gammopathy of undetermined significance (MGUS). This is hopeful because it could reduce the risk for malignant progression of MGUS. Curcumin is not supposed to form a risk for malignant progression. Indeed, a study in rats concluded that curcumin is safe for immune cells (2). Effects on dendritic cells (DC) were, however, not investigated. Others showed (3) that curcumin prevents human DCs from responding to immunostimulants. Curcumin seems to dampen the Th1 response. An anti-inflammatory and immunosuppressant role for curcumin was suggested (3). A Th1 pattern of cytokine secretion, in which DC-derived interleukin-12 (IL-12) plays an essential role, is associated with antitumor responses. Dampening of the Th1 response could therefore be counterproductive in attempts to prevent malignant progression in patients in which DC maturation is compromised like in patients with common variable immunodeficiency. Despite heterogeneous clinical presentation, common variable immunodeficiency is generally associated with defective DC functions. DCs appear morphologically normal but lack of IL-12 production and defective antigen presentation shows significant functional defects (4). Whether curcumin inhibits IL-12 production from DCs in MGUS is a crucial question because immunosuppression forms a risk for MGUS progression (5).

It is conceivable that immunosuppression by curcumin can occur in patients with aberrantly functioning DCs and not in healthy controls. It is known that in some MGUS patients, the nonaffected immunoglobulins are reduced. These patients show, on average, a higher risk for malignant progression. Whether in these patients maturation of DCs would be perturbed by curcumin and whether this would lead to risk of progression of MGUS is a relevant question for future clinical trials.

We know that turmeric has been used in food for centuries. It is therefore improbable that around quantities found in the diet, problems could arise in healthy people. At significantly higher doses and/or in susceptible people, toxicity will be found earlier or later. In traditional medicine in India, turmeric is known for its anti-inflammatory properties. Molecular biology has confirmed this anti-inflammatory and immunosuppressant effect of curcumin and relates it to disruption of the antigen handling and presenting machinery of DCs. Because immunosuppression is a risk factor for progression of MGUS, we would strongly advise against the use of the freely available food component turmeric for MGUS without adequate medical supervision.

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