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14

Water-soluble vitamins

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VITAMIN C AND B VITAMINS, THIAMIN, RIBOFLAVIN AND NIACIN

D. I. Thurnham

VITAMIN C

History

indicated that vitamin C deficiency depresses the immune system (Beisel 1982). However, it is not known to what extent these effects have physiological relevance for the immune response and whether vitamin C intake can affect the susceptibility of human beings to infection (Hemila 1997).

A great deal of work has been done to clarify whether vitamin C supplements or status affect the common cold, with considerable variation in outcome. Hemila (1997) recently carried out a meta-analysis on several vitamin C-supplementation studies done between 1960 and 1970 in the UK. While the overall effect of vitamin C was still not significantly different from zero, re-examination of the data from men only showed a positive effect of the supplement. Chalmers (1975) carried out a similar analysis of 14 clinical trials and reported that severity of symptoms was significantly worse in patients who received the placebo. Unfortunately, many volunteers correctly guessed their treatment and when this was taken into account, differences in both the number and severity of colds were minor and insignificant. Hemila (1997) argued that the lower plasma ascorbate commonly found in men might have been an accurate reflection, that is, vitamin C status was lower in men than that in women. As the men showed lower infection rates following the supplement, he suggested that the supplement was rectifying the poorer status, thus the men became more resistant to infection as health was enhanced by the improvement in vitamin C status.

Therapeutic uses and toxicity

Of all the vitamins, ascorbic acid is probably the most controversial, because it is claimed, on the basis of in vitro or animal, but not clinical studies, to have wide-ranging effects. When the double Nobel Prize winner Pauling published his book *Vitamin C and the common cold* (1970), he transformed the public attitudes to vitamin C by claiming that large daily doses of the latter reduced the likelihood of contracting the common cold. The popularity of this concept prompted at least 14 clinical trials, which failed to show a significant effect of vitamin C (Chalmers 1975), yet the continuing popularity of supplements suggests that large numbers of people still believe that additional vitamin C, in the form of supplements, will benefit their health.

REFERENCES

Chalmers T C 1975 Effect of ascorbic acid on the common cold. An evaluation of the evidence. American Journal of Medicine 58:532–536

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