Nutrient-drug synergies to optimise therapeutic benefit

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Food sources of bioactive nutrients may offer therapeutic benefits which are equally if not more important than their health promoting properties; however food regulations constrain therapeutic applications. The emergence of functional foods with considerable therapeutic potential, such as cholesterol-lowering spreads containing plant sterols, challenges this regulatory position.

With the growing incidence of diet-related chronic diseases, bioactive nutrients and functional foods can and should play a central role in therapy. Even if medication is available and effective, price subsidies can be a significant economic burden. Nutritional and lifestyle interventions offer consumers greater personal control of their health. Moreover, they have the potential to augment drug therapy, thus reducing dose requirements and possible side effects.

A clear example of nutrient-drug synergy is the ability of dietary sodium restriction to potentiate blood pressure reduction by most antihypertensive drugs (1). Unfortunately sodium restriction is poorly utilised as a primary intervention, let alone promoted as adjunct therapy. Trials such as DASH and DASH-sodium reaffirm the antihypertensive efficacy of decreasing the dietary intake of sodium relative to potassium. Adoption of this food-based strategy by the 13% of Australians over 25 who are treated for hypertension could significantly reduce their $700 million drug bill!

Apart from potentiating drug efficacy, nutrient supplementation can offer broader risk benefit. An example is the ability of omega-3 supplementation (ω3) to further reduce blood pressure in hypertensives treated with diuretics or β-blockers and, in addition, counteract adverse effects of these drugs on plasma lipids (2). Interactions with other nutrients may also influence the overall therapeutic effect, e.g. sodium restriction can enhance the antihypertensive effect of ω3 (2). The impressive benefit of ω3 in secondary prevention of coronary disease (GISSI-P trial) may be at least partly attributed to interaction with aspirin, producing novel antiinflammatory agents (3).

Other possibly beneficial combinations include plant sterols or soy protein with statins for the treatment of hypercholesterolaemia. Adding a cholesterol uptake inhibitor (sterol) to a synthesis inhibitor (statin) may seem obvious, yet few trials have been undertaken to substantiate this benefit (4) and, thus far, there has been no evaluation of soy in combination with statins, even though a U.S. health claim promotes soy protein for *prevention* of coronary heart disease.

Adjunct nutritional therapies could facilitate management of a wide range of chronic disorders. Unfortunately, however, there is little inducement to either evaluate or promote them in this role.

References

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