

EDITORIAL

GREEN TEA FOR EVERYTHING?

When, in the west of the United States at the beginning of the 1980s, the first patients were diagnosed with a supposedly new disease called acquired immunodeficiency syndrome (AIDS), the problem was initially thought to be a local one, limited to a specific risk group (the four Hs). However, lack of knowledge of the infective agent, its mechanism of action and its mode of transmission, and, obviously, the lack of adequate therapeutic agents for an unknown and highly aggressive pathogen, allowed the disease to spread, reaching pandemic proportions and spreading the risk beyond the marginal population that was initially affected in developed countries.

Since then, knowledge of the disease has increased considerably and more rapidly than in any other process, due to the discovery of the causative virus, HIV, the cytological and biological markers on which the diagnosis and follow-up of the process is based in each patient and, most importantly, the therapeutic measures to be adopted. Knowledge of the structure and biology of the virus and of its complex mechanism of replication has focused research on the search for drugs that would interfere with each of the phases of viral development. In this sense, the antiretroviral drugs have hit the target and HIV/AIDS has gone from being a disease that rapidly progressed to a fatal outcome to being a chronic process with long-term survival, at least in developed countries with the economic means to put the medication within everyone's reach.

*Stopping the virus from invading the CD4 lymphocytes, thereby preventing its harmful effects, would be the main aim of AIDS therapy since this would avoid the destruction of these cells and the ensuing immunodeficiency. The outer envelope glycoprotein, gp120, binds to a specific CD4 receptor, constituting the first phase of invasion. Kawai et al¹ recently found that in vitro, epigallocatechin-3-gallate (EGCG), the main component of catechins in green tea (*Camellia sinensis*), can block this CD4 receptor, thus preventing CD4 cell destruction. Other authors had previously reported that this catechin, as well as a further two polyphenolic catechins from green tea, inhibited HIV reverse transcriptase activity, like other anti-viral agents^{2,3} Several other authors have also investigated the possible therapeutic application of EGCG in the fight against AIDS^{4,5}.*

However, much research remains to be done before EGCG might be used in AIDS treatment since investigations have only been performed in laboratory with cells and the effects of EGCG could differ in humans due to the role of many other factors in the course of the disease, including possible viral invasion of other cells (macrophages, dendritic cells, etc.). Authors engaged in this field do not rule out the possibility that green tea or one of its components might constitute a complementary treatment together with other drugs. A major obstacle is dosage, since high serum EGCG concentrations seem to be required to achieve the desired therapeutic effect and these cannot be obtained by simple infusion of tea as a common drink.

It seems to have been proven that green tea catechins have various properties that could be exploited for therapeutic use, especially their mutagenic action in cancer cells, but they also have an antioxidant action, can decrease cholesterol levels – thus preventing coronary lesions – and also have anti-inflammatory, antiproliferative, and antibacterial effects, among others⁶. Research in this area goes back several decades. A MEDLINE search, using the key words “green tea”, provides up to 1,350 references since 1965, mostly by Chinese or Japanese authors. The interest of these authors in demonstrating the beneficial effects of green tea, which is mainly produced in these countries, is understandable and the results would be very well accepted by all. However, a “parallel industry” is already attempting to take advantage of research studies and is creating false hope in patients with some of these diseases, promoting green tea intake without considering the large quantities that would need to be consumed for catechins to have any therapeutic effect, if indeed they actually have one¹. An Internet search through the non-professional search engines used by the general public (Google, Yahoo) provides self-serving information on green tea intake based on its curative properties in potentially serious diseases. The greatest risk is that patients will abandon medical treatments, influenced by the currently fashionable belief that “natural medicine” cures almost everything.

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