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Vitamin C 'gives chemotherapy a boost'

By Helen Briggs
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THINKSTOCK

Vitamin C has long been used as an alternative cancer therapy but evidence is mixed

High-dose vitamin C can boost the cancer-killing effect of chemotherapy in the lab and mice, research suggests.

Given by injection, it could potentially be a safe, effective and low-cost treatment for ovarian and other cancers, say US scientists.

Reporting in **Science Translational Medicine**, they call for large-scale government clinical trials.

Pharmaceutical companies are unlikely to run trials, as vitamins cannot be patented.

Vitamin C has long been used as an alternative therapy for cancer.

In the 1970s, chemist Linus Pauling reported that vitamin C given intravenously was effective in treating cancer.

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However, clinical trials of vitamin C given by mouth failed to replicate the effect, and research was abandoned.

It is now known that the human body quickly excretes vitamin C when it is taken by mouth.


However, scientists at **the University of Kansas** say that when given by injection vitamin C is absorbed into the body, and can kill cancer cells without harming normal ones.

The researchers injected vitamin C into human ovarian cancer cells in the lab, into mice, and into patients with advanced ovarian cancer.

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They found ovarian cancer cells were sensitive to vitamin C treatment, but normal cells were unharmed.

The treatment worked in tandem with standard chemotherapy drugs to slow

tumour growth in mouse studies. Meanwhile, a small group of patients reported fewer side-effects when given vitamin C alongside chemotherapy.

No patent potential

Co-researcher Dr Jeanne Drisko said there was growing interest in the use of vitamin C by oncologists.

"Patients are looking for safe and low-cost choices in their management of cancer," she told BBC News. "Intravenous vitamin C has that potential based on our basic science research and early clinical data."

One potential hurdle is that pharmaceutical companies are unlikely to fund trials of intravenous vitamin C because there is no ability to patent natural products.

"Because vitamin C has no patent potential, its development will not be supported by pharmaceutical companies," said lead researcher Qi Chen.

"We believe that the time has arrived for research agencies to vigorously support thoughtful and meticulous clinical trials with intravenous vitamin C."

Dr Kat Arney, science communications manager for Cancer Research UK, said there was a long history of research into vitamin C for treating cancer.

"It's difficult to tell with such a small trial - just 22 patients - whether high-dose vitamin C injections had any effect on survival, but it's interesting that it seemed to reduce the side-effects of chemotherapy," she said.

"Any potential treatment for cancer needs to be thoroughly evaluated in large clinical trials to make sure it's safe and effective, so further studies are needed before we know for sure what benefits high dose vitamin C may have for patients."

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