High bodily levels of nickel and selenium may lower pancreatic cancer risk

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High bodily levels of the trace elements nickel and selenium may lower the risk of developing the most common type of pancreatic cancer, finds research published online in *Gut*.

Similarly, high levels of lead, arsenic, and cadmium could boost the likelihood of developing the disease, the study shows.

The researchers assessed 12 trace element levels in the toenails of 118 patients with exocrine pancreatic cancer—the most common form of the disease—and just under 400 hospital patients without cancer.

Nails, and particularly toenails, are considered reliable indicators of trace element levels, rather than dietary assessment, because they capture intake/exposure from other sources over the long term.

Analysis of the nail content showed that levels of certain trace elements were significantly higher or lower among the cancer patients than among patients in the comparison group. The higher or lower the level, the greater or lesser was the risk of having the disease.

Patients with the highest levels of arsenic and cadmium in their nails were between two and 3.5 times more likely to have pancreatic cancer than those with the lowest levels.

And those with the highest levels of lead were more than 6 times as likely to have the disease.

On the other hand, those with the highest levels of nickel and selenium were between 33% and 95% less likely to have the disease compared with those with the lowest levels.

These findings held true even after taking account of other known risk factors, such as diabetes, overweight, and smoking.

Smoking is thought to account for around a third of all cases of pancreatic cancer. Tobacco contains trace metals, including cadmium, which is a known cancer causing agent, and has been associated with an increased risk of lung, kidney, and prostate cancers.

High levels of selenium, on the other hand, have been associated with conferring protection against certain cancers, and previous research indicates that selenium may counter the harmful effects of cadmium, arsenic, and lead.

The authors point out that despite decades of research, the causes of pancreatic cancer remain largely unknown: "Our results support an increased risk of pancreatic cancer associated with higher levels of cadmium, arsenic, and lead, as well as an inverse association with higher levels of selenium and nickel," they conclude.

"These novel findings, if replicated in independent studies, would point to an important role of trace elements in pancreatic carcinogenesis."

More information: www.gut.bmj.com/

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