

Obesity and tumors: What's cancer eating for lunch?

March 4 2020, by Joanne Duffy



Connective Tissue: Adipose. Adipose tissue, or fat, is an anatomical term for loose connective tissue composed of adipocytes. Credit: <u>Berkshire Community</u> <u>College Bioscience Image Library</u>via <u>Flickr</u>. License: (CC0 1.0)

Obesity is one of the leading factors contributing to cancer development worldwide.

In <u>epidemiological studies</u>, which look at patterns of disease across



populations, data suggest that what you eat affects your risk of getting cancer.

But your risk of developing cancer isn't the only thing impacted by your food. The food you eat also has a significant impact on how you will react to treatment if you develop cancer, and we don't know enough about it to make meaningful clinical decisions.

So says a recent review paper, authored by Dr. Barrie Peck from the Structural Biology Group at The Institute of Cancer Research, London, published in the journal *Trends in Cancer*. He has since moved to a new role as a Group Leader at the Cancer Research UK Barts Cancer Institute.

"We know that obesity is a major risk factor for developing cancer, but your weight and diet also affect the trajectory of the disease and response to treatment", Dr. Peck said.

"Generally, <u>obese patients</u> respond worse than non-obese patients to cancer treatments, and as a result, they have worse outcomes overall. But we are not yet in a position to make clinical decisions for these patients based on their obesity status, or their diet at the time of treatment."

Where it all begins

The basic cause of cancer is damage to your DNA. The damage can take lots of different forms, but in all cases, it causes a cell's replication to go haywire.

Cancer cells undergo all kinds of changes that normal healthy cells do not—they change their energy sources, alter their processes and rewire themselves in unusual ways, doing anything they can to survive.



Sometimes, cancer is predetermined. DNA faults can be traced back as far as the womb for some cancer types, and for others it's exposure to cigarettes or the sun that leads to the DNA damage.

But what about the direct impact of the food you eat on <u>cancer cells</u>? The big picture—being obese puts you at increased risk—is clear, but thus far, little work has been done to assess the impact of diet on your cancer.

Dr. Peck said: "We know that, for example, smokers are much more likely to develop lung cancer, we know that their smoking puts them at a much higher risk than non-smokers.

"In the case of smoking, cessation is obviously is a good thing, but stopping someone for eating is, obviously, not possible and we do not have solid advice about what patients could change to increase the likelihood of their particularly therapy to work."

Little is known about how the diets of those who are obese should be modulated to get the best out of cancer treatments.

Someone who is obese will be at an increased risk of cancer, and we have a fair idea about what changes they could make to get their weight to a healthier level, and therefore reduce their risk of developing the disease.

But those same dietary changes don't apply once you've already been diagnosed with the disease, in fact those changes could have the opposite effect.

"If you go back to our <u>lung cancer</u> example, in terms of making changes to your diet, you might think 'I've got cancer, I've heard that antioxidants, which are present in "superfruits" prevent cancer, the best



thing I can do is go and take lots of antioxidants.' But research has shown that is actually a very bad idea when you are on treatment.

"Having a high level of antioxidants while you're receiving treatment seriously impedes the drugs' ability to do their job. This has very recently been shown to be the case in breast <u>cancer</u> as well."

The same could be the case for obesity, but really, we just don't know.

More information: Barrie Peck et al. Lipid Metabolism at the Nexus of Diet and Tumor Microenvironment, *Trends in Cancer* (2019). DOI: 10.1016/j.trecan.2019.09.007

The original article can be found <u>here</u>.

Provided by Institute of Cancer Research

Citation: Obesity and tumors: What's cancer eating for lunch? (2020, March 4) retrieved 4 May 2024 from <u>https://medicalxpress.com/news/2020-03-obesity-tumors-cancer-lunch.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.