Smoking Cessation and Radiation Outcomes: Does it make a difference?

Last year, while I was in line to check out at my local warehouse grocery store, I noticed that the gentleman standing in line behind me did not have a shopping cart. I glanced over my shoulder a second time and since he appeared fairly approachable, I half-jokingly said, “It appears you are missing your cart, sir.” He looked down, sighed, and then looked at me, “No,” he said, “I am just here for cigarettes.”

“Have you ever tried to quit?” I asked.

“Oh yes, many times,” he said, with a bit of a chuckle.

“I bet you have smoked for many years,” I said.

“Oh, fifty years… You don’t understand – my quitting smoking is like you trying to stop drinking water.”

“I understand.” I said.

I see many patients that have been lifetime smokers, and for whom quitting seems an impossibility. Sometimes when faced with a smoking related cancer, such patients are able to find a way to quit. Often, patients that have been smokers all their life want to know: “will it really make a difference at this point… after a lifetime of smoking… to quit?”

The answer is a resounding YES… it makes a difference. In fact, it is one of the most proactive, cancer fighting actions that a patient can take. Quitting smoking also rapidly reduces the risk of heart attack and stroke, as well as reduces the risk of second cancers. There is a similar benefit in lung cancer, head and neck cancer, bladder cancer, and gynecologic cancers.

Smoking particularly inhibits the effectiveness of radiation therapy. Most types of therapeutic radiation depend on oxygen free radical mechanisms, that is, the effectiveness of the radiation to break the DNA of the cancer cells relies on the presence of oxygen in the target tumor. Smoking cigarettes and other forms of tobacco reduces the oxygen carrying capacity of blood, and leads to less oxygen availability for interaction with radiation.

The effect of smoking while undergoing radiation treatment was recently examined by physicians at The Mayo Clinic in Scottsdale and a group from Luebeck Germany. Dr. Dirk Rades and colleagues published a 2008 analysis in the International Journal of Radiation Oncology, Biology, Physics, of 181 patients treated with radiation therapy for non-small cell lung cancer, and found that local control of lung cancer at one year was 46% among currently smoking patients versus 71% among patients that were not currently smoking. For the statisticians among you, this was statistically significant when all other factors where taken into account (i.e. multivariate analysis).
Also of key importance and relevance in that study is the fact that the amount patients smoked prior to undergoing radiation therapy did not impact the effectiveness of the treatment. Thus, for those patients that have smoked their entire life, and now face lung cancer, there is data to support that quitting during treatment can impact the outcome of treatment significantly, if one is able to stop smoking during treatment.

As the man at the grocery store highlighted with his analogy to water deprivation, I do understand that it can be extraordinarily difficult to quit. But it can make a big difference in the treatment outcome.