Hormonal Therapy for Prostate Cancer Linked to Alzheimer's

By Gil Ross — December 15, 2015

A new study [1] in the respected Journal of Clinical Oncology reports a significantly elevated risk among men treated with androgen deprivation therapy, or ADT, for advanced prostate cancer, and the subsequent development of Alzheimer's disease.

The goal of the ADT-type of hormone therapy is to lower the level of male sex hormones, or androgens, that would stimulate the growth of prostate cancer cells. The researchers were based at the University of Pennsylvania's HUP-Perelman School of Medicine and Stanford University School of Medicine, led by Kevin T. Nead, MD, MPhil.

In the study, entitled "Androgen Deprivation Therapy and Future Alzheimer's Disease Risk," the authors used records of 2,400 men with prostate cancer who were treated with ADT. Over a median follow-up of 2.7 years, there were 125 new diagnoses of Alzheimer's disease. They found that those who got ADT had an 88 percent increased risk of Alzheimer's, compared with other patients. The longer the hormone treatment, the more the risk increased, and patients with at least 12 months of treatment had more than double the risk.

The methods used to reduce androgen stimulation of prostate cells include the following:

- pituitary releasing-hormone modulators, which act by inhibiting the testicular and adrenal production of testosterone
- direct-acting androgen inhibitors and anti-androgens, which block enzymes that are needed to synthesize androgens
- orchiectomy/castration, which reduces testosterone dramatically since 90 percent of the hormone is made in the testes. (This is not used often these days, given the efficacy of the drugs)
It is unclear why ADT might have the effect of increasing Alzheimer’s. Some studies have shown a protective effect of androgens against the accumulation of beta-amyloid, a protein thought to be a likely pathogenetic factor for Alzheimer’s.

It is important to note the following caveats here: the number of Alzheimer’s patients studied is quite small; the evidence would be stronger if this outcome can be replicated via a prospective study; and most important, ADT is very often life-extending to avoid it out of a possible link to AD is not productive for a given patient.


Links
[1] http://jco.ascopubs.org/content/early/2015/12/07/JCO.2015.63.6266#