Prostate cancer patients undergoing hormone therapy may experience cognitive effects

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A recent review of the literature has found that hormone deprivation therapy, a commonly used treatment for prostate cancer, may have subtle adverse effects on cognition in patients-- such as in the ability to recall and concentrate. Published in the September 1, 2008 issue of *Cancer,* a peer-reviewed journal of the American Cancer Society, the study indicates that clinicians and patients should be aware of these potential effects and watch closely for their appearance.

For years, hormone deprivation therapy, also known as androgen depletion therapy, has been used as an effective treatment for prostate cancer because hormones such as testosterone drive the growth of prostate cancer cells. The most common way to achieve androgen depletion is through chemical castration with drugs such as leuprolide and goserelin. Androgen depletion therapy has traditionally been reserved for advanced cases of prostate cancer, but increasing numbers of men with earlier stages of the disease are also undergoing the treatment.

Prostate cancer patients who are prescribed these drugs often stay on them for the duration of their life, and researchers have been documenting the potential adverse effects associated with their use. Men may experience hot flashes, osteoporosis, anemia, fatigue, loss of libido, erectile dysfunction, risk of diabetes, risk of cardiovascular disease, emotional distress, and other effects. Research also indicates that androgen depletion may impact cognitive functioning, which can affect a patient's decision-making skills and quality of life.

Unfortunately, only a handful of relatively small studies have investigated the impact of androgen depletion on cognitive functioning, and some of these studies have reported contradictory results. Dr. Christian Nelson, a psychologist at Memorial Sloan-Kettering Cancer Center in New York City and his colleagues recently conducted the first review of these studies and summarized their overall results.

After performing a systematic literature search of studies in animals and humans, Dr. Nelson's team found that testosterone and its derivatives may impact cognition via several mechanisms in the brain. For example, testosterone can modulate brain chemicals called neurotransmitters and stimulate the connections between neurons. Also, studies that have examined the impact of androgen depletion therapy in prostate cancer patients indicate that between 47% and 69% of men being treated decline in at least one cognitive area, most commonly in processes dependent on spatial ability and in high-order capacities such as the ability to multi-task.

The findings indicate that larger, more thorough studies that include brain imaging techniques are needed to better understand the nature and extent of the cognitive effects of androgen depletion.

In addition, researchers are exploring the effectiveness of using androgen depletion therapy in men with rising levels of prostate specific antigen, a potential precursor to prostate cancer. The authors concluded that "as the use of androgen depletion therapy increases, clinicians should become aware of this relationship [with cognitive decline], and inform and monitor patients for this possible side effect of treatment."

Source: American Cancer Society