Researchers Link Early Hair Loss and Prostate Cancer

By Mike Fillon

According to a few new studies, men who lose their hair early in life have a greater risk of developing prostate cancer—especially African American men.

Although researchers have long suspected a link between baldness and prostate cancer, earlier studies have been inconclusive—and sometimes conflicting. (JNCI reported on the potential link in the early 1970s.)

In October 2008, researchers from the Division of Cancer Epidemiology and Genetics at the National Cancer Institute published “Androgen and Prostate Cancer: Is the Hypothesis Dead?” in Cancer Epidemiology, Biomarkers, and Prevention. They said that although data from animal, clinical, and prevention studies support the role of androgen in prostate cancer growth, proliferation, and progression, “results from serum-based epidemiologic studies in humans have been inconclusive, and . . . showed no association between serum androgen and prostate cancer risk.”

That same year, a study from Istanbul, Turkey, amplified this conclusion. Published in volume 11 of Informa Healthcare, their study of 152 patients found no correlation between pattern of baldness and androgen levels in the blood.

However, researchers from the European Georges Pompidou Hospital in Paris, France, reached a different conclusion. Reporting on a study of 669 subjects in the Aug. 22, 2011, issue of Annals of Oncology, they found that patients with prostate cancer were twice as likely to have male pattern baldness, or androgenic alopecia (AA), at age 20 years.
The Androgen Hypothesis: Dead, Wrong, or Irrelevant?

Why the inconsistency? Beyond the possibility of faulty memories of study participants filling out questionnaires, Steven Freedland, M.D., associate professor of surgery at Duke University Medical Center in Durham, N.C., believes he knows why. “To me, the androgen hypothesis is not wrong; it just means we’ve been looking in the wrong place. We should be examining the tissue, not serum levels, which doesn’t accurately reflect what’s going on in the prostate.”

Freedland cowrote one of the new studies, which examined 312 healthy control subjects, 167 men with prostate cancer, and 229 men without prostate cancer at a Veterans Affairs Hospital. Participants self-described their hair patterns at ages 30 and 40 years. “We tested the association between hair pattern—overall, vertex, or frontal—and prostate cancer status by using logistic regression analysis adjusting for multiple clinical features,” Freedland said.

In relation to controls, the researchers found that a younger age of AA onset was statistically significantly higher than vertex baldness. “Overall balding was associated with greater than twofold increase in high-grade disease,” Freedland said. “Although our study was not specifically African American men, they comprised nearly 50% of the cohort.” The study appeared in the March 26, 2013, issue of Cancer Causes and Control.

A study dealing specifically with African American men found that advanced prostate cancer increased with younger age and type of baldness. Conducted by researchers at the Center for Clinical Epidemiology and Biostatistics at the University of Pennsylvania in Philadelphia, the study consisted of 318 men with prostate cancer and 219 control subjects enrolled in the Study of Clinical Outcomes, Risk, and Ethnicity (SCORE) between 1998 and 2010. Lead researcher Charnita Zeigler-Johnson, Ph.D., research assistant professor at the University of Pennsylvania, said that this study is the first to examine these associations in an all-African American sample and one of a few studies to examine results by age groups.

In the study, which appeared in the March 2013 Cancer Epidemiology, Biomarkers, and Prevention, the researchers determined age-stratified associations of baldness with prostate cancer occurrence and severity defined by high stage (T3/T4) or high-grade Gleason scores (7+). Bald men, regardless of hair loss type, had a 69% greater risk of prostate cancer, and young men with frontal hair loss were six times more likely than those without such baldness to get advanced prostate cancer by age 60 years. Frontal hair loss was also associated with higher cancer risk than vertex baldness.

The Androgen Links

Zeigler-Johnson said that the link between male pattern baldness and prostate cancer is believed to be tied to dihydrotestosterone, which is linked to benign and cancerous growth of the prostate gland and contributes to hair follicle shrinkage, which can cause hair thinning. “It remains unclear if this is the only biological link or if other hormonal or inflammatory pathways involved in baldness may also contribute to carcinogenesis of the prostate gland. More research of underlying mechanisms particularly related to African Americans is needed.”

Men who are not bald may thus have less risk for prostate cancer, Zeigler-Johnson said. Their results indicate that “nonbald men are less likely to report a history of early-onset baldness.”

These findings also apply to people who aren’t black. After reviewing seven case-control studies totaling 8,994 patients, researchers from the Hair Center at the Department of Dermatology at the Cleveland Clinic in Ohio found that vertex pattern AA was associated with a statistically significantly increased risk of prostate cancer, but “any pattern” AA did not show a statistically significant increase in risk of prostate cancer. The study appeared in the Feb. 7, 2013, Journal of the American Academy of Dermatology.

Also, researchers from the Cancer Epidemiology Centre at the Cancer Council of Victoria, Australia, assessed whether AA at ages 20 and 40 years was associated with risk of prostate cancer. Of the 9,448 men studied, researchers identified 476 prostate cancer cases. They concluded that vertex AA at age 40 years might indicate increased risk of early-onset prostate cancer. “If confirmed, these results suggest that the apparently conflicting findings of previous studies might be explained by failure to adequately model the age-varying nature of the association between AA and prostate cancer.” This study also appeared in the March 2013 Cancer Epidemiology, Biomarkers, and Prevention.

Daniel S. Blumenthal, M.D., former director of the Cancer Group at Morehouse School of Medicine in Atlanta and president-elect of the American College of Preventive Medicine, said that although the studies are interesting, the conclusions are unlikely to affect clinical practice much. “This is especially true since the studies are inconsistent with each other as far as types of baldness. Also, I think that hair loss is too variable a phenomenon to be useful clinically in an individual patient.”

Zeigler-Johnson said that the differences between types of baldness are duly noted and need to be reconciled. “Still, all these recent findings are exciting and novel, and no doubt need to be confirmed by additional research.”