Novel Tool Predicts Prostate Cancer Progression

BY FRAN LOWRY
Orlando Bureau

ORLANDO — An innovative tool can predict the risk of tumor progression or death within 5 years for men with prostate cancer, the physician who developed the technique said at a symposium on prostate cancer sponsored by the American Society of Clinical Oncology.

In the model, high levels of androgen receptor, as measured by quantitative immunofluorescence staining in prostate tissue from men who had radical prostatectomy, correlated with less time to clinical failure, said Dr. Michael J. Donovan of Aureon Laboratories Inc., Yonkers, N.Y.

"This tool is the first to measure the amount of androgen receptor protein present in a single cancer cell. Androgen receptors are proteins present in normal as well as cancerous prostate cells, and play a role in prostate cancer progression by acting as binding sites for the androgens that fuel cancer growth," he said at the symposium, cosponsored by the Society of Urologic Oncology and the American Society for Therapeutic Radiology and Oncology.

Applied to tissue samples from 881 men who had surgery at Memorial Sloan-Kettering Cancer Center, New York, in 1985-2003, the tool was 84% accurate in predicting time to clinical progression and spread of prostate cancer within 5 years. The risk of progression rose as the level of androgen receptors in a single prostate cancer cell increased. The tool incorporates the patient's clinical features, including biopsy and prostatectomy Gleason grade, lymph node status, and seminal vesicle invasion.

A sample of the patient's prostate tissue is stained with a multiplex immunofluorescent assay to highlight androgen receptor antibodies and other antibodies, which are then analyzed with special software to predict the likelihood of clinical failure within 5 years. A relative risk number is also generated, Dr. Donovan said.

"A patient could have a 30% or 40% risk of having a clinical failure within 5 years, and depending upon the features that generated the model, he could have a relative

Early Detection Of Prostate Ca Has Plateaued

ORLANDO — For the first time since the advent of widespread prostate-specific antigen screening, the number of early-stage prostate cancers being identified has begun to level off, Dr. Eric A. Klein said at a symposium on prostate cancer sponsored by the American Society of Clinical Oncology.

An analysis of prostate cancer detection trends among 3,364 men treated with prostatectomy at the Cleveland Clinic between 1987 and 2005 showed that the percentage of tumors that had spread beyond the prostate at the time of surgery decreased from 79% to 25%.

However, this encouraging trend has now plateaued, said Dr. Klein, professor of surgery and head of urologic oncology at the Cleveland Clinic's Glickman Urological Institute. Since 1998, the percentage of tumors found to have spread beyond the prostate ranged from 25% to 36%.

Before prostate-specific antigen (PSA) testing was introduced, half of men initially diagnosed with prostate cancer had stage C or D disease—incurable cancer that was outside the prostate. Just 5 years after PSA screening was introduced, 95% of newly diagnosed prostate cancer was being picked up at a curable stage, Dr. Klein said at the symposium, cosponsored by the Society of Urologic Oncology and the American Society for Therapeutic Radiology and Oncology.

"The increase in prostate cancer survival rates that we have seen over the past 20 years is no doubt due to widespread PSA testing that has allowed us to detect cancers in their early, more curable stage, and fewer being diagnosed at advanced stages. This trend, which we call stage migration, appears to have gone as far as it can go," he said.

"Additional increments in cure to 100% will require [truly] new therapeutic advances both in surgery and radiation therapy, and, I believe, in molecular agents," Dr. Klein said.

Nevertheless, he added, it is still important for men to undergo PSA screening.

—Fran Lowry

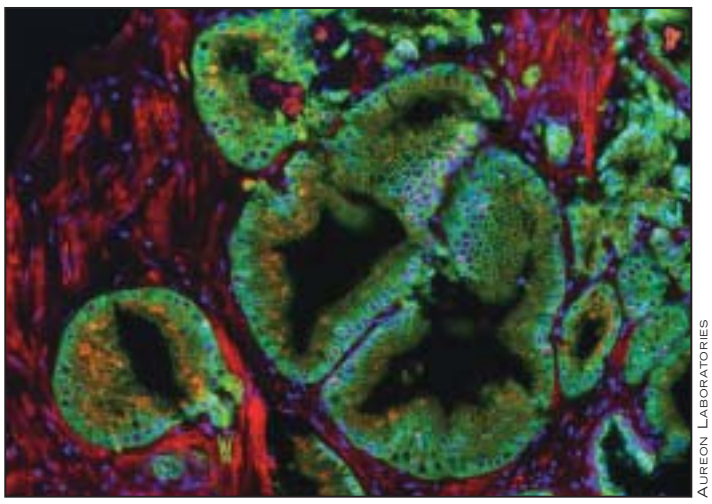
risk of 1.2-2 times the likelihood of having clinical failure within a 5-year period.

"Androgen receptor measurement is an important feature in this predictive tool, and our preliminary analyses suggest that such measurement may play a role in predicting the response to hormonal therapy," Dr. Donovan said.

The model has also been used to analyze tissue obtained from needle biopsies, and Dr. Donovan hopes to apply it in an active surveillance cohort of patients. He and his associates are building a predictive model that will use biopsy tissue from patients after prostatectomy to predict outcome in a U.S. group and a European group.

"We lack biologic tools to help patients and their physicians decide whether or not aggressive disease is present. Will the pathology tell us what the likelihood of cure is, or is there something that the pathologist can't see that suggests that the cure rate might be lower than we thought?" asked Dr. Eric A. Klein, professor of surgery and head of urologic oncology at the Glickman Urological Institute of the Cleveland Clinic Foundation, who chaired a press briefing where Dr. Donovan presented his new model. "These are the kind of tools that need to be developed."

Dr. Donovan disclosed that he owns stock in Aureon Laboratories. ■



AUREON LABORATORIES

Image analysis of prostate tissue is used to quantify the locations of androgen receptor protein and other proteins within a cell. Here, the androgen receptor is red; CK18, green; nuclei, blue; and α-methylacyl-coenzyme A racemase, orange.