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New frontiers in Urology

Department of Urology The Johns Hopkins Hospital
Donald S. Coffey

"Live Locally, Grow Globally" means reaching out to the world in clinical urology, discovery, and training. Remote and computer assisted surgery, international research and special training programs will be required. Toward these goals a presentation will be made of the new biological concepts and molecular and computer technologies that are providing new approaches to how we understand, prevent, and treat many urological diseases and how they can interact globally. For the past one hundred and sixty years, (1840—2000) there has been a linear increase in global life expectancy with a gain of a quarter of a year for every year. In this period there has been an increase of 40 years in life expectancy. As the population ages, the incidence of urological problems such as benign and malignant diseases rise rapidly in an almost exponential manner.

Prevention will become important. In addition to aging, life styles change and populations adapt to Western types of diet, the risk of many cancers increases. It is now apparent that these acquired or environmentally induced factors may be even more important than the inherited genetics in establishing the cancer risk. About 10% of cancers are directly inherited while 90% are acquired by our life style. Obesity, hormones, and specific carcinogens such as those associated with food processing, such as is produced in burnt meat, are shedding new insights into possible causes of increased prostate cancers. In many cases, the host protects itself against these carcinogens by enzyme induction and by preventive agents within their diet.

New approaches to diagnostic markers indicate that there may be an overall field effect that occurs throughout the entire organ that places the tissue at risk for cancer. Some of these early molecular changes occur throughout what appears to be "normal" areas of the gland. New imaging techniques, combined with molecular markers such as DNA methylation and patterns of proteomics, are appearing to be valuable new diagnostic tools in defining this effect in both early prostate and bladder cancer. Certainly, we need to be able to identify which cancers might have a mild outcome and which ones result in a lethal phenotype. Much is being learned about stem cells, chromosomal changes, and new types of nuclear RNA that could be most informative in this regard. Understanding stem cells, senescence, anoikis and other molecular and biological concepts will be important in the future for how we evaluate new treatments and how we make proper drug selection. In the future, we will certainly personalize individual treatment for each patient in a far more accurate manner.

All of the above topic will be discussed in relation to the overall theme of this conference.