S30. Review of best markers for prostate cancer

F.H. Schroeder*
Erasmus Medical Centre, Rotterdam, The Netherlands

The field of markers for prostate cancer is large and unfortunately still complicated. This testifies to the fact that simple solutions for the important problems concerning the best way of diagnosing prostate cancer have still not been found. Prostate Specific Antigen (PSA) is widely used around the world and this leads to rates of diagnosis of prostate cancer, which by far exceed lifetime risks of clinical prostate cancer and of deaths from prostate cancer. While it is likely that extensive PSA use contributes to the decrease of prostate cancer mortality in such areas, the reason for this phenomenon is most likely multifactorial. The presentation will concentrate on the diagnosis of prostate cancer and differentiate between first and subsequent testing. What is needed to improve on PSA driven testing? " Improvement on the rate of false-positive test. " Better sensitivity in detection aggressive prostate cancer. At present level 1 evidence for the effectiveness of screening for prostate cancer has not been produced. Randomized trials are still ongoing; results are expected within the nearby future. If screening for prostate cancer is ever to become a healthcare policy, it will be necessary to avoid unnecessary invasive tests (biopsy) by reducing the proportion of false-positive tests and excessive rates of diagnosis of indolent or clinically insignificant prostate cancer. 1. What are the reasons for high rates of false-positive test and how can improvement be achieved? PSA is shed to the blood stream by normal prostate cells and by prostate cancer cells. As a result, serum PSA may be elevated due to benign conditions of the prostate as well as due to prostate cancer. Consequently, at least in theory, the rate of false-positive testing can be decreased by correcting for benign enlargement of the prostate (BPH) or other benign conditions. Another option might be to start testing at earlier age when BPA is not yet prevalent. A previous negative test, specifically a previous negative biopsy, is an important negative predicator. Molecular subforms of PSA (free-PSA, nickedfree-PSA and -2pro PSA) maybe useful in replacing inaccurate volume measurements by ultrasonography. Modelling of some of these parameters has led to the design of algorithms and nomograms, which can be used instead of the individual parameters mentioned. 2. How can PSA driven detection of prostate cancer be made more selective for aggressive tumors? Recent data coming from randomized controlled trials in the US and in Europe have clearly shown that overdiagnosis and the diagnosis of indolent prostate cancer are common with the application of PSA based detection regiments. The situation can be tackled by measures to avoid biopsy in the first place and if potentially indolent prostate cancer has been detected to then avoid treatment. The problem just described is acknowledged worldwide. The absolute level of PSA, while it is related to the extent of the disease, is insufficient to be used as a predictor. PSA kinetics (doubling time or velocity) may be useful to identify aggressive disease but a proper way of utilizing kinetics prospectively has not been worked out. The best present option is the use of nomograms, which have become available and have been validated on screened populations recently. In search for molecular markers. The presence of fusions of genes of hormone regulated genes with oncogenes in prostate cancer cells seem promising and clinical research at a large scale in ongoing.

Conclusion: Level 1 evidence of screening for prostate cancer has not been produced so far. Important needs to rationalize early detection in case of positive randomized studies or in case of ongoing opportunistic screening can be identified. Improvements in testing are needed specifically to decrease the rate of false positive tests and the rate of overdiagnosis. Both improvements are necessary to make screening acceptable at a public health level.