Prostate cancer is currently considered one of the main health problems in men. It is the most frequent solid neoplasia, surpassing lung cancer and colorectal cancer. Thus, it is important to identify it, treat it opportunely, monitor it, and determine if it will recur.

Biochemical recurrence is defined as an increase in prostate-specific antigen (PSA) and it occurs in approximately 25% of the patients with prostate cancer treated through radical prostatectomy.

The Surveillance, Epidemiology, and End-Results (SEER) program estimates that of all men diagnosed with prostate cancer (14% of all cases of cancer), 5% will die from the disease.

Active surveillance is a treatment option due to the low case-fatality rate of prostate cancers. Nevertheless, radical prostatectomy reduces the risk for bone metastasis, as well as the mortality rate in these patients. Therefore, it is necessary to use methods than can reliably identify possible recurrence. However, current clinical methods fail to successfully predict recurrence in patients at intermediate risk for prostate cancer recurrence.

Among the predictive methods is the Cancer of the Prostate Risk Assessment Score (CAPRA-S), created by a group from the University of California in San Francisco. It is an easy method of risk prediction that does not employ tables or computer programs and it has been widely validated in the prediction of prostate cancer recurrence, metastasis, and mortality in relation to numerous treatment modalities.

The CAPRA-S includes the variables of TNM clinical stage, age, Gleason score, and the percentage of positive biopsies. It also incorporates the use of PSA for recurrence prediction. This method is used as a postoperative method following radical prostatectomy.

Another important prediction method is the D’Amico Risk Classification, which enables preoperative risk determination of biochemical relapse at 5 years based on clinical stage:

- **Low risk:** cT < 2, PSA < 10 ng/mL and Gleason score < 6 (relapse: 14.8%)
- **Intermediate risk:** cT2b, PSA 10.1 - 20 ng/mL and Gleason score: 7 (relapse: 37%)
- **High risk:** cT ≥ 2c, PSA > 20 ng/ml and Gleason score ≥ 8 (relapse: 47%)

Prostate-specific antigen measurement is another of the methods for evaluating local recurrence, as well as distant metastasis, given that a level > 0.75 ng/ml is associated with distant disease.

At present, quantitative phase imaging (QPI) is being used to measure the diffusion anisotropy in stromal tissue. These methods enable recurrent and non-recurrent groups to be differentiated, regardless of the abovementioned scales, that is, these techniques use light scattering in the stroma as a predictive factor.

Light scattering can determine the morphology of healthy and diseased tissues, providing different characteristics depending on the scattered field. After carrying out a series of studies, it has been concluded that scattering is much greater from cancerous cells than from healthy tissue.

One of the most recently studied methods is spatial light interference microscopy (SLIM), which employs a commercial phase contrast microscope and white light. In essence, SLIM combines contrast microscopy with holography.

Its images contain abundant information on tissue morphology, clearly displaying the structures of the epithelium and glandular stroma, thus obtaining scattering changes specific to prostate stroma and a consequent improvement in specificity (77%) and sensitivity (63%) for the diagnosis of recurrence.

All these methods allow the identification of patients at moderate risk for prostate cancer recurrence and the determination of life expectancy.

After the review and analysis of different articles on prostate cancer recurrence in patients that have undergone...
radical prostatectomy, we can understand that the problem is one that has a great impact on their lives, due to the percentage of individuals (25% of the patients that undergo radical prostatectomy) likely to present with disease recurrence.

We can infer from the information reviewed that it is necessary to have effective methods of detecting cancer recurrence in patients after treatment, which is why the abovementioned methods have been created, each with its respective efficiency: the D’Amico classification that assesses risk from the preoperative period, the CAPRA-S classification that provides a postoperative evaluation, and methods that microscopically analyze the pathologic surgical specimens.

The choice of which method to use will be based on the experience of the specialist and the available resources, always in an effort to offer the patient a better quality of life, to select adequate treatment, and to provide a more accurate disease prognosis.

References


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