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Targeted radio-immunotherapy for metastatic prostate cancer

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Prostate cancer claimed an estimated 136,500 lives globally in 2011. Recurrent disease is usually treated with androgen deprivation therapy (ADT), which provides outstanding early but transient control of progression. The tragedy here is that the benefits of ADT are lost within 2 years for most men as the cancer progresses to an incurable "late-stage" castrate resistant form of the disease (CRPC) with median survival of ~18 months. The minimal residual disease states derived from prostatectomy and ADT provide clear windows of opportunity for an effective systemic adjuvant therapy with minimal side effects. Targeted alpha therapy (TAT) is such a therapy, where antibodies specific for cancer biomarkers are labeled with alpha-radionuclides to more efficiently kill cancer cells with reduced adverse events. The success of systemic TAT in clinical trials for advanced metastatic melanoma indicates efficacy with minimal side effects. Improved molecular profiling of tumors now allows for therapies like TAT to be personalized for the patient's cancer, leading to the next generation of adjuvant for the treatment of minimal residual disease states following prostatectomy and ADT. This paper examines the preclinical and clinical efficacy of TAT with c595 and J591 monoclonal antibodies, labeled with beta or alpha emitting radioisotopes, and its potential as an adjunctive therapy for the management of residual prostate cancer.

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The advantages of early post-stress "Gated" SPECT myocardial perfusion imaging in comparison with standard post-stress protocol in patients with mildly impaired left ventricular function

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As reported by the World Health Organisation, cardiovascular diseases are the principal cause of death globally. Non-invasive cardiac imaging techniques, in particular stress photon emission computed tomography (SPECT) myocardial perfusion imaging (MPI) have a central role in the diagnostic workup and risk assessment of patients with known or suspected coronary artery disease (CAD). The combined assessment of perfusion and function of left ventricle (LV) improves prognostic power and enhances the precision in stratifying patients into cardiac events risk levels, and show the incremental value over clinical and exersice characteristics in predicting cardiac events in the future. "Gated" SPECT MPI provides information about: the extent and severity of reversible as well as the size of irreversible perfusion defects; the percentage of myocardium at risk, but also about transient myocardium dysfunction after stress-induced ischemia, known as myocardial stunning. It is shown that the patients with reversible stress perfusion defects frequently have a post-stress decline of LV ejection fraction more than 5% ,along with new regional wall motion abnormality, indicating prolonged post-ischemic stunning. Post-stress "gated" SPECT MPI is acquired typically 45-60 min after injection of the radiopharmaceutical - at the time when ventricular function might have alrady recovered, especially in patients with mildly impaired LV function. This fact represents a potential limitation in sensitivity of standard post-stress protocol. Early acquisition provides perfusion informations, but also, detects changes of short duration (stunning) and increase the prognostic value of the method in patients with known or suspected CAD.

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