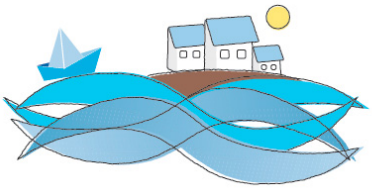

Mediterranean Thematic Workshops in Advanced Molecular Imaging

Contribution ID: **11** Type: **Oral**

Prostate cancer (PCa) : A Theragnostic evaluation of radioisotope methods

Monday, 2 May 2016 09:00 (20 minutes)

Prostate cancer is the most common malignancy among males of developed countries. Several methods of diagnosis, staging and therapy have been recently studied : among them radio isotope methods are growing and probably are helping personalization and tailoring of treatment.
Tailoring is important in PCa because High and low risk, neuroebdocrine or glandular, hormone therapy responsive or castration resistant (CR) PCa need different cure and also different attention and management. New specific pharmaceuticals as well as therapeutic radio-pharmaceuticals, e.g. the bone seeking alpha emitters such as the relatively new 223RaCl2 , or also some beta emitter agents, can prolong the survival of patients by curing a selected type or site of lesion, e.g. only bone metastases from castration resistant PCa. We need accurate methods of Node (N) / Distant metastases (M) staging and of biological characterization to select the patients and plan the exact therapy.
Non invasive imaging methods include contrast enhanced CT and NMR, diffusion NMR and echography. These imaging methods are of great help in the management of patients with PCa, but echography has a very limited field of view and despite substantial technological progress , CT and NMR are not enough sensitive nor specific to become reliable standard methods to detect nodes and to guide surgical or radiotherapic cure . 18F/11C Choline (FCH) PET is specific but not highly sensitive for Tumor(T) and N staging, the accuracy of FCH for early bone metastases is controversial.
Experiences conducted by our group showed high accuracy of 99mTc Bombesin SPECT for N staging. Our data have recently been confirmed by Mistakis et al, who detected higher uptake of 68Ga MJ9 - a bombesin analogue- than FCH in PCa invaded nodes. Bombesin is a growth factor for androgen dependent and also androgen independent PCa, because it can be secreted also by PCa cells that underwent neuroendocrine shift. Our group was able to demonstrate this circumstance in some- though few- patients by using neuroendocrine seeking and glandular PCa seeking radiopharmaceuticals, such as 111In somatostatin and99mTc bombesin or 18F FCH and 68Ga DOTANOC. In these patients the PCa specific therapy can be integrated.
HPED-CC, a PSMA inhibitor, will also play an important role in a near future as a PCa seeking agent and can be used for diagnostic use when labeled with 68Ga and for therapy when labeled with 177Lu. Early diagnostic trials with 68Ga HPED-CC have recently shown accuracy as high as 95% in detecting relapsed nodes.
Theragnostics means coordinated procedures closely linking diagnostic and therapeutic methods in order to selectively cure the patients, in other words to personalize the patients' management.
As a conclusion we can observe that new radiopharmaceuticals, though at the moment still used for clinical research or very recently become costumer available can give a substantial contribution to personalize/tailor the therapy of PCa patients as theragnostic novel procedures .

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