



IMPATTO EMERGENZA COVID-19 SULLA MEDICINA NUCLEARE

MERCOLEDÌ 8 LUGLIO

Chiara Maria Grana, IRCCS IEO Milano Divisione Medicina Nucleare

PUB MED

COVID PET 9 marzo 2020 -> 5 pubblicazioni
6 luglio 2020 -> 70 pubblicazioni


COVID/PRRT/RADIONUCLIDE THERAPY -> 2 (5) pubblicazioni

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EDITORIAL

A metastatic tumor is no different to a viral pandemic: lessons learnt from COVID-19 may teach us to change the PRRT paradigm

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LETTER TO THE EDITOR

Radionuclide therapy in the time of COVID-19

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Peptide Receptor Radionuclide Therapy (PRRT) During the COVID-19 Pandemic: Are There Any Concerns?

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Abstract

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Since lymphopenia is associated with a poor prognosis in the setting of COVID-19, use of procedures with the potential for further immunological compromise and additional lymphopenia, such as extracorporeal membrane oxygenation, sometimes used during respiratory failure, has been regarded with caution (11).

At this time, it is not known if the moderately compromised immune response (predominantly involving B-lymphocytes) associated with PRRT results in an impaired capacity to defend against subsequent SARS-CoV-2. Despite the demonstrated neutralizing potential of plasma antibodies (12), initial evidence in the development of severe COVID-19 seems to point to a more crucial role for T cells (CD8 and CD4), which are the predominant cells eliminating virus from infected tissue during COVID-19, although they might be involved in organ damage in the later phases of severe infection (13).

Consequently, there is no clear theoretical indication that PRRT places patients at significantly greater risk of acquiring COVID-19 or developing more severe infection-related complications. Anecdotal experiences among the authors suggest that PRRT-treated patients are not overly represented among our COVID-19 (+) patients.

The potential risks of PRRT in patients with progressive NET during the COVID-19 pandemic need to be considered in the context of the relative risks and benefits of other available therapies. For example, everolimus is immunosuppressive and may increase the risk of infections, including with opportunistic pathogens. The incidence of infections of NET patients treated with everolimus is approximately 20-29% (all grades) and 5-10% for grades 3 and 4 (14). Similarly, patients treated with temozolomide are at risk for lymphopenia, although risk of opportunistic infections appears to be significant only with dose-dense regimens and/or with corticosteroids (15,16).

Given the slow and low-dose radiation delivery over time, as opposed to high-dose external-beam radiotherapy or chemotherapy, it is hypothesized that PRRT would have no significant impact on the other hallmark of COVID-19, the coagulopathy related to generalized vasculitis, immune thrombocytopenia and disseminated intravascular coagulation (17,18).

The kidney is another COVID-19 target, possibly through the ACE2 receptor. Subclinical kidney injury is thought to occur in many COVID-19 patients, severely in about 3% of older subjects, with hypertension (19). It is unclear whether the generally subclinical nephrotoxicity produced by prior ¹⁷⁷Lu-DOTATATE could constitute an additional risk factor in COVID-19 induced renal injury.

Given the evolving nature of this pandemic and the scarcity of data on the subject, the nuclear medicine community is encouraged to prospectively collect and report information regarding toxicity in patients undergone PRRT, either before or after COVID-19. At this time, however, routinely monitoring lymphocyte subpopulations would only have research value. Considering the expected rarity of the association of PRRT and COVID-19, the authors propose a registry under the aegis of the dedicated scientific societies to collect such data and specifically evaluate the potential association between radiation-induced toxicity (hematological, renal) and COVID-19.

Although available data are scarce, the authors agree that, for now, PRRT-related lymphopenia does not appear to constitute a strong risk factor for acquiring COVID-19 infection and for developing severe complications. The authors, however, recommend careful vigilance regarding the incidence and clinical course of COVID-19 cases in patients undergoing PRRT and postponing treatment in active COVID-19 infection. Continuous consideration should be given to the risk-benefit ratio of PRRT during this pandemic, accounting for the geographic prevalence of COVID-19 in the patient's area as well as patient frailty and comorbidities which may impact pulmonary and renal complications. Few weeks delay in highly affected areas for individuals with slowly progressing tumors or with severe comorbidities can be considered, while patients with aggressive tumors or those living in scarcely affected areas should receive treatment with no delays.

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STUDI ITALIANI PET/CT

Gestione pazienti neoplasie neuroendocrine

Japanese Journal of Radiology
<https://doi.org/10.1007/s11604-020-01006-3>

SPECIAL REPORT



¹⁸F-FDG PET/CT in asymptomatic patients with COVID-19: the submerged iceberg surfaces

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Abstract

Objective The aim of this case series is to describe our experience in diagnosis and management of oncological asymptomatic patients with COVID-19 who underwent ¹⁸F-FDG PET/CT.

Methods From March 9 to March 31, 2020, we identified 5 patients who had PET/CT findings suspicious for COVID-19, but no symptom of infection.

Results The first three patients were administered an SARS-CoV-2 test in a COVID-dedicated center, while the fourth and fifth were tested in our institution, in accordance with a new internal procedure. The SARS-CoV-2 test yielded positive results in all five patients.

Conclusion In this COVID-19 emergency, our task as radiologists and nuclear medicine physicians is to be able to identify imaging findings suggestive of the disease and to manage patients without overloading the hospital system.

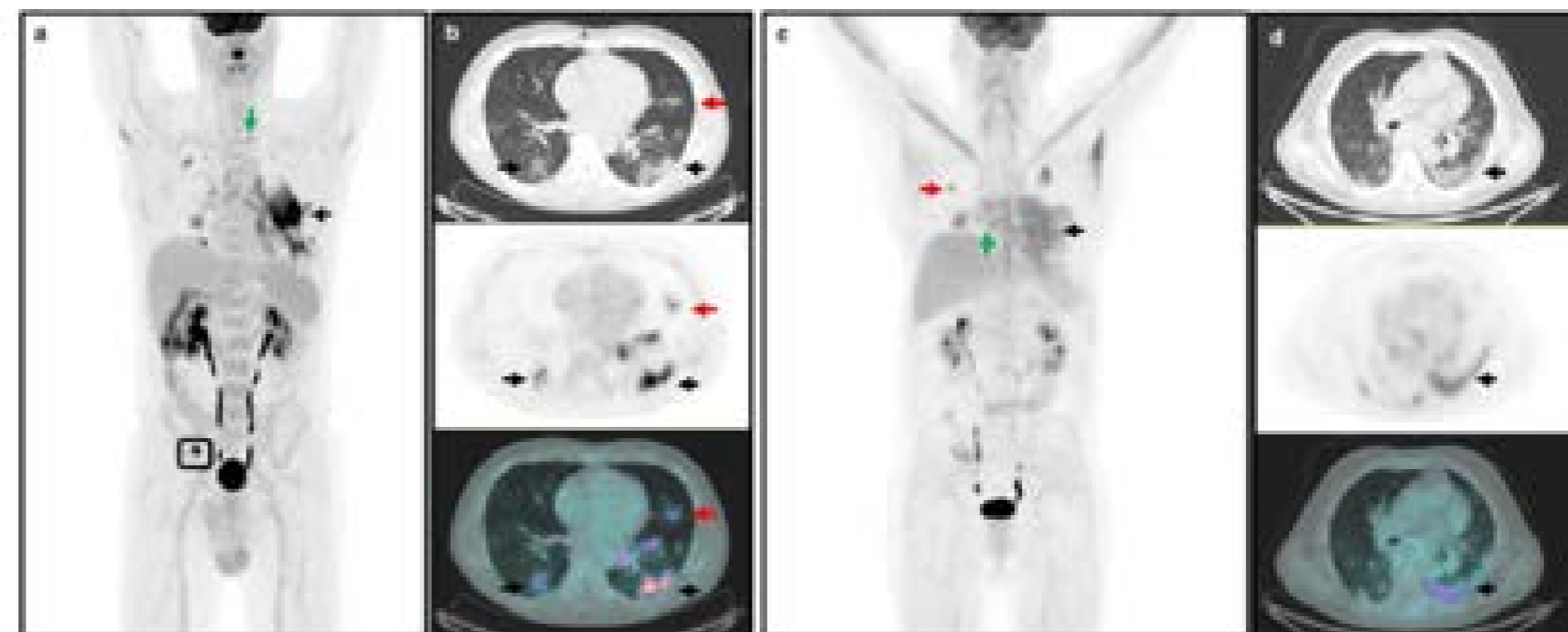


Fig. 1 a Left subclavian lymph nodes (green arrow: SUV bw max=4.6) and right inguinal lymph nodes (box: SUV bw max=10.9); b peripheral and parenchymal GGOs in both lower lobes (black arrows: SUV bw max=10.7); areas of focal consoli-

dations (red arrows: SUV bw max=3.9); c, d: multiple peripheral GGOs in the left lower lobe (black arrows: SUV bw max=4.9); e focal consolidation in the upper lobes (red arrow: SUV bw max=3.6) and right hilar lymph nodes (green arrow: SUV bw max=3.9)

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Gestione pazienti neoplasie neuroendocrine

Incidental Findings Suggestive of COVID-19 in Asymptomatic Patients Undergoing Nuclear Medicine Procedures in a High-Prevalence Region

Domenico Albano^{1,2}, Francesco Bertagna^{1,2}, Mattia Bertoli², Giovanni Bosio², Silvia Lucchini², Federica Motta², Maria Beatrice Panarotto², Alessia Peli², Luca Camoni², Frank M. Bengel³, and Raffaele Giubbini^{1,2}

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¹⁸F-FDG PET/CT Metabolic Behavior of COVID-19 Pneumonia
A Series of 4 Patients With RT-PCR Confirmation

Domenico Albano, MD,*† Luca Camoni, NMT, Msc,† Roberto Rinaldi, NMT,†
Francesco Bertagna, MD,*† and Raffaele Giubbini, MD*†

(Clin Nucl Med 2020)

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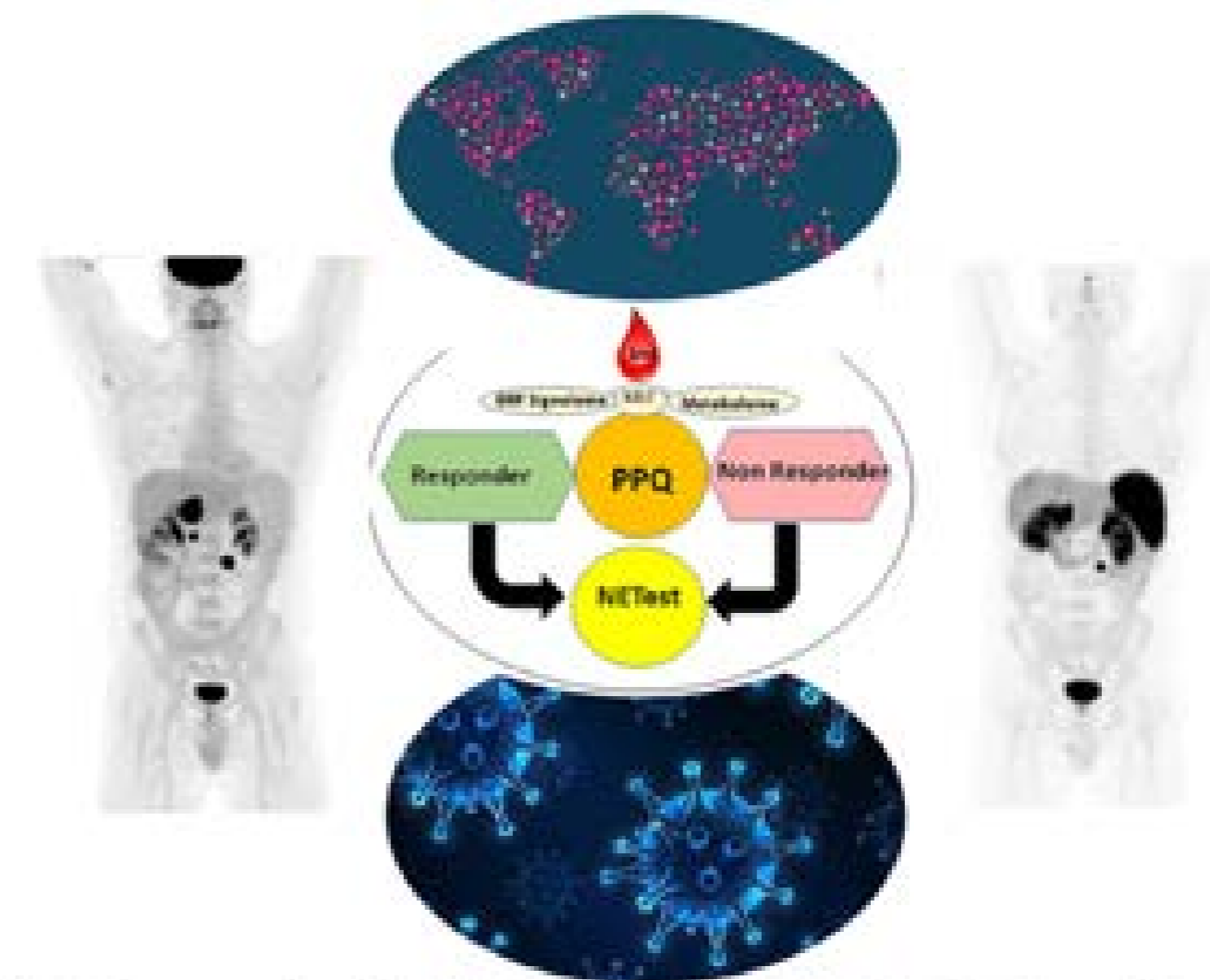


Fig. 1 Metastatic disease as a paradigm model of an intra-individual pandemic. COVID-19 (bottom) has metastasized throughout the continent of the world (top). Targeted therapy can be directed against NCTs using a personalized metabolic-functional imaging FDG PET (left) and SSN-PET (right) assessing glycolytic tumor metabolism and SSTR2 expression. The FDG PET^{18F} demonstrates increased metabolic activity, and the SSN-PET (right) indicates the target-increased SSTR expression in the minimal metastatic disease. The efficacy of PRRT can then be predicted using molecular genomic analysis in blood (PPQ) (center) and monitored in real time using the NCTest, avoiding excessive radiation from frequent measurement CT scans. Fully anonymized images are from MSKCC

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imprudent and negligent if we do not seek to move treatment time needle forwards to increase efficacy (Fig. 1).

Presently, major guidelines recommend surveillance even in asymptomatic metastatic cases of low-grade NETs with low tumor burden [11, 12]. However, a recent meta-analysis indicates the superiority of active treatments over placebo, in terms of progression-free and overall survival [13]. As for COVID-19, it is clear that waiting for the disease to progress, in the single individual and in the community, before taking action, is like securing the cage door after the lion has escaped. The same is true for NET disease, and one should be aware of the risks of “tumor escape” and behave accordingly before the disease engulfs the victim.

similarly to adjuvant chemotherapy [15]. Treating minimal residual disease is, in fact, more effective than attempting to do so in advanced stages, with respect to disease volume, bioavailability and permeation of the drug into tumor cells, and acquired tumor damage/immune response/repair capacity [16].

A critical issue is to have sensitive non-invasive tools that identify residual/recurrent disease at the earliest possible time. These include molecular genomic liquid biopsies such as the NETest and advanced functional imaging [17]. In the same way that confronting COVID-19 would have been much more effective if an early notification test was available and we identified the first ten infected persons before they became multiplex global vectors. In precisely this fashion so would a tumor patient benefit if we could detect an early genomic disease signal and identify a tumor when only minimal aberrant clones commenced proliferation.

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