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Letter to the editor regarding "Imaging modalities for drug-related osteonecrosis of the jaw (3), Positron emission tomography imaging for the diagnosis of medication-related osteonecrosis of the jaw"

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We have read with great interest the article titled "Imaging modalities for drug-related osteonecrosis of the jaw (3), Positron emission tomography imaging for the diagnosis of medication-related osteonecrosis of the jaw "by Kitagawa et al. and published on November 2019 on Japanese Dental Science Review [1].

The authors describe their experience on the use of FDG PET and 3-phase bone scintigraphy in the diagnosis and management of Medication Related Osteonecrosis of Jaws (MRONJ), namely in monitoring the effect of hyperbaric oxygen therapy. The authors confirm the validity of nuclear medicine imaging in the management of jaw osteonecrosis, even if its use seems to be still limited.

We think that PET imaging can be useful to accurately detect bone margins of resection in the surgery of MRONJ.

In such cases, establishing the correct size of lesion is mandatory because of the high risk of recurrence in case of underestimation of the extension of the osteonecrotic-osteomyelitic bone fragment to be resected. Being MRONJ a "metabolic" disease, the use of conventional imaging (OPT scan or Cone Beam CT) alone could not be sufficient to assess the real extension of the lesions. Nuclear medicine imaging is able to identify metabolic alterations that are not "visible" using CT alone, thus avoiding underestimation of the real extension of impaired bone. Metabolic evaluation of jaws using bone seeking radiopharmaceuticals can reveal increased osteoblastic activity in areas of regenerative vascularity or inflammation whereas metabolic imaging using 18F-fluorodeoxyglucose (FDG) allows to identify areas of enhanced glucidic metabolism related to regenerative or infective processes. It may have great impact on diagnosis and management of MRONJ [1–3]. Although nuclear medicine imaging is characterized by lower spatial resolution than CT, the evidence of normal osteoblastic activity or normal glucidic metabolism can exclude osseous alterations referable to MRONJ allowing surgeons to better plan the segmental surgery. In our opinion, the role of 18F-FDG PET/CT should be largely investigated in this field because of theoretical lower radiation dose and higher resolution than bone scintigraphy. Hence, we agree with the importance of assessing such lesions with the aid of nuclear medicine imaging which can even provide further tridimensional details to better assess the extension of the specimen and plan the correct surgical resection on "metabolically healthy bone margins". Such tools could integrate and improve also surgical planning focused on the guided or navigated surgical procedures.

Author contribution statement

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Prof. Sergio Baldari: reviewing.
Prof. F.S. De Ponte: reviewing.

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