ECHOSOUND APPROACH FOR SHORT-TERM FOLLOW-UP OF THE DENOSUMAB EFFECT ON BMD RECOVERY AGAINST AROMATASE INHIBITOR IMPACT IN BREAST CANCER PATIENTS

P. Pisani[1], M. Muratore[2], F. Conversano[1], E Casciaro[1], M Di Paola[1], R. Forcignanò[3], M. Ciccarese[3], G. Surico[3], L. Quarta[2], E. Quarta[2], D. Costanza[2], R. Franchini[1], R. Tarparelli[4], S. Casciaro[1]

1. *National Research Council, Institute of Clinical Physiology*
2. *OU of Rheumatology Galateo Hospital, San Cesario di Lecce, ASL-LE*
3. *OU of Oncology Vito Fazzi Hospital, ASL-LE*
4. *Echolight Spa, LECCE, Italy*

Background The Aromatase Inhibitors (AIs)-based therapy used in breast cancer patients to profoundly lower estrogen levels seems to enhance the loss of bone mineral density (BMD) and to increase the fragility fracture rate [1]. Several clinical studies demonstrated that, in breast cancer patients that received the adjuvant AIs, the subcutaneous administration of Denosumab-based therapy significantly increased BMD values and reduced the rate of clinical fractures.
Objectives To monitor the short-term Denosumab and AIs therapeutic effects on BMD in breast cancer patients through an innovative echographic approach, the EchoSound technology [2].
Methods 154 breast cancer patients selected for receiving the adiuvant AIs therapy were recruited. All the patients underwent spinal and femoral dual X-ray absorptiometry (DXA) examinations before AIs therapy administration starting (time T0). After AIs treatment starting, enrolled patients were divided into 2 groups: 105 patients received only the AIs treatment (Group A), whereas the remaining 49 patients (Group B) received also an additional Denosumab treatment, in order to contrast the BMD reduction induced by AIs administration. Follow-up measurements were conducted at two different time points: 12 (T1) and 18 (T2) months from AIs treatment starting. At time T1, patients underwent both DXA examinations and EchoSound echographic scans, whereas at time T2 only the echographic scans were performed, since DXA cannot be used for short-term follow-ups.
Results At time T1, the following results were obtained on lumbar spine: Group A showed a BMD decrement, which was equal to -2.07%±1.66% (p<0.01) according to DXA and to -2.22%±0.89% (p<0.01) according to EchoSound; Group B showed a BMD increase of 4.06%±1.49% (p<0.01) and 4.31% ±0.62% (p<0.01) as measured by DXA and EchoSound scans, respectively. At time T2, Group A showed a further BMD decrement, resulting in a total decrease of -3.95%±1.09% (p<0.01) with respect to T0 values; on the contrary, in Group B Denosumab treatment produced an additional BMD increment, resulting in a total BMD increase of 4.98%±1.03% (p<0.01) in the same 18-month period. Similar results were obtained for femoral neck BMD: a total BMD decrease of -2.37%±0.97% (p<0. 01) during the whole treatment period was observed in Group A, whereas a total BMD increment of 3.53%±0.43% (p<0.01) was measured in the same period in Group B.
Conclusions By using the EchoSound technology the short-term follow-up of the positive Denosumab effects on BMD reduction in patients treated with adjuvant AIs was feasible and accurate. This approach can be also useful to monitor the therapy effectiveness in patients undergoing specific anti-osteoporotic treatments.

References

1. J Clin Endocrinol Metab.2011;96:308.
2. Clin Cases Min Bone Metab 2015;12:142.

Acknowledgements Work partially funded by FESR PO Apulia Region 2007–13; Action 1.2.4 (grant n. 3Q5AX31: ECHOLIGHT Project).

Published in:
Annals of the Rheumatic Diseases Jun 2017, 76 (Suppl 2) 704; DOI: 10.1136/annrheumdis-2017-eular.4060
http://dx.doi.org/10.1136/annrheumdis-2017-eular.4060