

# ECHOSOUND TECHNIQUE FOR SHORT-TERM FOLLOW-UP OF THE DENOSUMAB AND AROMATASE INHIBITORS EFFECTS ON BONE MINERAL DENSITY IN BREAST CANCER PATIENTS

P. Pisani<sup>1</sup>, M. Muratore<sup>2</sup>, F. Conversano<sup>1</sup>, E. Casciaro<sup>1</sup>, R. Forcignanò<sup>3</sup>, M. Ciccarese<sup>3</sup>, G. Surico<sup>3</sup>, L. Quarta<sup>2</sup>, E. Quarta<sup>2</sup>, A. Greco<sup>4</sup>, T. De Marco<sup>4</sup>, S. Casciaro<sup>1</sup>

<sup>1</sup> *National Research Council, Institute of Clinical Physiology, Lecce, Italy,*

<sup>2</sup> *O.U. of Rheumatology, Galateo Hospital, San Cesario di Lecce, ASL-LE, Lecce, Italy,*

<sup>3</sup> *O.U. of Oncology, Vito Fazzi Hospital, ASL-LE, Lecce, Italy,*

<sup>4</sup> *Echolight Spa, Lecce, Italy*

**Objective:** To monitor the short-term Denosumab therapeutic effects on bone status in breast cancer patients in treatment with Aromatase Inhibitors (AIs), through an innovative echographic technique known as EchoSound approach [1].

**Materials and Methods:** 106 breast cancer patients, selected for AIs therapy administration and programmed for annual spinal/femoral dual X-ray absorptiometry (DXA) were recruited. All the patients underwent DXA examination before AIs therapy administration starting (time T0). Then, patients were split into 2 groups: 73 patients received only AIs treatment (Group A) and the remaining 33 patients received an additional Denosumab treatment, in order to contrast the bone loss due to AIs effect (Group B). Follow-up measurements were conducted at 12 (T1) and 18 (T2) months from AIs administration starting. At T1 both DXA exams and echographic scans (by EchoSound Technology) were realized, whereas only the echographic scans were carried out at T2, since DXA is not suitable for short-term follow-up.

**Results:** At T1, Group B reported an increase in lumbar spine bone mineral density (BMD) of  $3.89\% \pm 1.41\%$  ( $p < 0.05$ ) and  $4.15\% \pm 0.56\%$  ( $p < 0.05$ ) as measured by DXA and EchoS scans, respectively; on the other hand, Group A reported a BMD decrement of  $1.92\% \pm 1.55\%$  ( $p < 0.001$ , DXA) and  $2.24\% \pm 0.82\%$  ( $p < 0.001$ , EchoS). A supplementary BMD increment in Group B was revealed at T2, resulting in a total BMD increase of  $4.86\% \pm 0.95\%$  ( $p < 0.05$ ) during the whole 18-months period; whereas Group A showed a total BMD decrement of  $3.80\% \pm 1.01\%$  ( $p < 0.001$ ) in the same period. A similar trend was shown for femoral neck BMD. In Group B: at T1 BMD increment of  $2.90\% \pm 1.21\%$  ( $p < 0.05$ , DXA) and  $3.19\% \pm 0.27\%$  ( $p < 0.05$ , EchoS); at T2, total BMD increment of  $3.49\% \pm 0.30\%$  ( $p < 0.05$ ). In Group A: total BMD decrease of  $2.22\% \pm 0.92\%$  ( $p < 0.001$ ).  
**Conclusion:** The EchoSound approach allowed a reliable short-time follow-up of Denosumab effects on BMD variations in patients being treated with AIs.

## Reference:

[1] Casciaro et al, 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:

*Osteoporosis International* 28 (Suppl 1); 2017