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## Olaparib in the treatment of leptomeningeal carcinomatosis

Lays Costa Marques<sup>1</sup>, Ana Claudia Gonçalves Lima<sup>1</sup>, Nilceana Maya Aires Freitas<sup>1</sup>, Deidimar Cassia Batista Abreu<sup>1</sup>, Rafael Gonçalves Portela<sup>1</sup>, Felipe Marcio Araujo Oliveira<sup>1</sup>, Leandro Gonçalves Oliveira<sup>1</sup>

<sup>1</sup>Instituto Goiano de Oncologia e Hematologia – Goiânia (GO), Brazil.

Leptomeningeal carcinomatosis (LC) is a complication of breast cancer that carries a poor prognosis. The median overall survival was only 3.8 months. Due to the scarcity of data on therapeutic interventions, patterns of practice vary widely. Preclinical studies have shown that PARP inhibitors penetrate the central nervous system, suggesting a possible role in treatment. We report a case of a patient with BRCA2 and LC mutation who demonstrated an excellent clinical response to Olaparib. A woman had classic lobular carcinoma in the right breast at the age of 50 years. Immunohistochemistry was positive 100% for estrogen receptor and 70% for progesterone, HER2, and E-cadherin negative. Treatment was carried out initially with quadrantectomy and expanded to axillary dissection with 37/39 lymph nodes compromised, pT2 pN3 M0, adjuvant chemotherapy with 4 cycles ACdd and 12 paclitaxel, radiotherapy, and letrozole since March 2019. The genetic panel had a pathogenic mutation in BRCA2. At the age of 53 years, she presented with a headache of strong intensity, peripheral facial paralysis on the right, diplopia, syncope, asthenia, and loss of performance status (ECOG: 3, previous 0). There was negative systemic staging of the occasion and magnetic resonance of the skull with nonspecific white matter enhancement. There was lumbar puncture with positive cerebrospinal fluid for oncotic cytology. He underwent radiotherapy in the total skull with 30 Gy, followed by Olaparib. After 5 months, she presented complete remission of symptoms and negative oncotic cytology of cerebrospinal fluid. Our patient with leptomeningeal metastasis in the context of breast cancer with BRCA2 mutation maintained a complete clinic to Olaparib after 22 months of therapy, her response suggests the efficacy of Olaparib, and its survival far exceeds the reported medians for CL in breast cancer. In conclusion, the present process supports the potential role of PARP inhibitors in the treatment of LC and other CNS metastases of breast cancer in patients with hereditary BRCA mutations.

**Keywords:** breast cancer; BRCA2 genes; PARP inhibitor.