

Targeting Cancer Stem Cells: A Potential Breakthrough in Ovarian Cancer Treatment

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Description

In recent years, there have been significant advances in the field of oncology, with the development of new treatments and therapies that offer hope to patients with previously untreatable cancers. Early detection, prevention, and effective treatment are key to improving outcomes for cancer patients. The patient in question has a history of invasive poorly differentiated ductal carcinoma of the right breast with axillary nodal metastasis, which was initially treated with bilateral mastectomies, adjuvant chemotherapy, and hormone blockers. However, a subsequent radiographic monitoring revealed new liver lesions, which were biopsied and determined to be a high-grade neuroendocrine carcinoma. Further testing, including strong Chromogranin A, Synaptophysin, and GATA3 stains, suggested that the liver lesion may represent a metastatic breast carcinoma with neuroendocrine differentiation. However, a second opinion suggested that the tumor did not appear morphologically consistent with a small cell carcinoma or a large cell neuroendocrine carcinoma, raising the possibility of an unusual primary site of origin.

Possible neuroendocrine differentiation was suggested in up to thirty percent of mammary carcinomas of no specific type description. Additional imaging studies were recommended to further correlate the findings and help determine the best course of treatment for the patient. The latest discoveries in oncology have shown the existence of a population of cells in disease tissue called cancer stem cells (CSCs). These cells have the ability to self-renew and have high malignant potential. CSCs are thought to play a crucial role in the development and progression of cancer, and they can survive even after treatment. Some authors refer to CSCs as tumor-initiating cells (TICs), as they are responsible for generating new cells through the alteration of various signalling pathways.

External environmental factors can influence stem cells, and oncogenic mutations can alter them. The development of metastases is a complicated process involving epithelial-mesenchymal transition (EMT), which allows cancer cells to enter the bloodstream, cause local metastases, acquire migrating properties, and colonize distant tissues. Ovarian cancer has the highest mortality rate among gynaecological oncological patients. To improve the survival rate for ovarian cancer patients, it is necessary to develop new diagnostic tools, treatment

methods, and effective therapies. Studies on the molecular characteristics of CSCs and their signalling pathways have led to the hypothesis that they are closely associated with disease relapse and treatment resistance. Therefore, developing treatments targeting ovarian CSCs could be a breakthrough in oncology [1-5].

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Conflict of Interest

The author declares there is no conflict of interest associated with this manuscript.

References

1. Chobanian, Nishan and Charles S. Dietrich III. "Ovarian cancer." *Surg Clin N Am* 88 (2008): 285-299.
2. Desai, Arpita, Jingyao Xu, Kartik Aysola and Yunlong Qin. "Epithelial ovarian cancer: An overview." *World J Transl Med* 3 (2014): 1.
3. Kujawa, K. Aleksandra and Katarzyna Marta Lisowska. "Ovarian cancer-from biology to clinic." *Postepy Hig Med Dosw* 69 (2015): 1275-1290.
4. McCluggage, W. Glenn. "Morphological subtypes of ovarian carcinoma: A review with emphasis on new developments and pathogenesis." *Pathol* 43 (2011): 420-432.
5. Jones, Sian, Tian-Li Wang, Ie-Ming Shih and Tsui-Lien Mao. "Frequent mutations of chromatin remodeling gene ARID1A in ovarian clear cell carcinoma." *Sci* 330 (2010): 228-231.

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