VOC ANALYSES IN PLASMA SHOW HIGH SENSITIVITY TO DISTINGUISH OVARIAN CANCER PATIENTS FROM HEALTHY CONTROLS

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Introduction/Background Ovarian cancer (ovarian-/tubal-/peritoneal cancer) give dull symptoms why early diagnosis is challenging. Endogenous Volatile Organic Compounds (VOC) are products of metabolic activity in cancer and elevated glycolysis leads to increases in lactate, fumarate, and other metabolites. VOC analyses in plasma and urine have shown to indicate early cancer diagnosis.

Methodology With highly sensitive gas sensors, preoperative plasma from 87 women with stage I-IV ovarian cancer was examined and compared to that from 26 healthy control women. Data analyses were performed using feature extraction from 32 gas sensors per sample. The dataset has been processed by principal component analysis (PCA) for dimensionality reduction and feature reduction (9 principal components were kept retaining 95% of the original information in the features-observations dataset). A support vector machine model was then trained towards algorithmic binary classification: positive (cancer) or negative (no cancer). To avoid overfitting while not losing any observations, 5-fold cross validation was used during training of the classification algorithm.

Results The analysis of VOCs revealed positive results in 85 out of 87 ovarian cancer patients, yielding a sensitivity of 97.7% (95% confidence interval [CI] 91.9 – 99.7%). Out of the healthy controls 22 were negative and 4 showed positive results (specificity 84.6% 95% CI 63.1 – 95.6%). Positive predicted value 95.5% (95 CI: 88.9 - 98.8%) and accuracy of 94.7% (95% CI: 88.8 - 98.0%).

Conclusion VOC analyses in plasma show very high sensitivity to distinguish ovarian cancer patients’ stage I-IV from healthy controls.

Disclosures No disclosures

PREDICTION OF SURGICAL RADICALITY IN PATIENTS OF MALIGNANT OVARIAN GERM CELL TUMOURS POST-NEOADJUVANT CHEMOTHERAPY

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Introduction/Background Malignant ovarian germ cell tumors (MOGCT) are rare but highly chemo-sensitive tumors of young females and are primarily managed with limited surgical staging followed by surveillance or adjuvant chemotherapy in eligible cases. Though there are no formal guidelines indicated for NACT in high-risk candidates for upfront surgery or, the anticipation of visceral- resection, or non-fertility sparing surgery, this approach is often utilized in LMICs like India due to the higher burden of patients presenting in advanced stage. Despite a highly favorable response to NACT in such settings, we encountered a few cases where surgical radicality was high even after optimal cycles of systemic therapy. Unlike epithelial ovarian cancers, there is a dearth of data regarding the predictability of surgical complexity post-NACT in MOGCT.

Methodology This is a retrospective cohort analytical study conducted at a tertiary cancer center, Guwahati. Patients with MOGCT managed with NACT followed by surgery between January 2019 to December 2022 were included. The surgical radicality was assessed using the Aletti score and co-related with various clinicopathological characteristics.

Results On analyzing 26 eligible patients, we found out that 14 (53.8%), 10(38.4%), and 2 (7.6%) patients fell into groups with low, intermediate, and high surgical complexity scores respectively. The surgical radicality was significantly associated with the apparent stage ( p=0.03) and post-NACT response as per RECIST criteria ( p=0.03). The co-relation of surgical radicality with age, performance status, serum tumor markers levels, histology of the tumor, choice of NACT (BEP/EP), and number of cycles of NACT were not statistically significant.

Conclusion The predictive factors for the radicality of the surgery following NACT in MOGCT assist clinicians in making the best decisions for young patients and providing appropriate counseling.

Disclosures Conflict of Interest Disclosure Statement

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SECONDARY ACUTE MYELOID LEUKAEMIA IN A PATIENT WITH BRAC2-ASSOCIATED BREAST AND OVARIAN CANCER

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Introduction/Background We report a case of a 67-year-old patient initially diagnosed with breast cancer in 2002 at our institute.

Right breast mastectomy was performed and progesterone-receptor-negative, oestrogen-receptor-negative, grade 3 invasive ductal carcinoma of no special type identified. The patient received adjuvant chemotherapy and hormonal therapy.

In 2006, a local recurrence in the scar tissue and liver metastases occurred. She received first-line chemotherapy for metastatic disease and partial chest resection.

Methodology In 2007, a contralateral axillary lymph node metastasis was identified, managed with palliative radiation and 6 cycles of second-line chemotherapy, with radiologic complete response attained.

After ovarian cancer was revealed in 2014, she received primary optimal cytoreduction, with grade 3, FIGO (International Federation of Gynaecology and Obstetrics) stage 2B papillary serous adenocarcinoma identified. Radiologic complete response was attained with 6 cycles of paclitaxel-and-carboplatin adjuvant chemotherapy.

Results In 2017, due to progression, second-line systemic chemotherapy of 6 cycles of paclitaxel and carboplatin was administered,