GCT-P01 Salvage therapy for patients with recurrent and persistent malignant ovarian germ cell tumours

J. Yang[1]
[1]Dept of Gynecological Oncology, Peiking Union Medical College Hospital, Beijing, China

Background: To explore the clinical characteristics, salvage therapy and prognosis of recurrent and persistent malignant ovarian germ cell tumours (MOGCTs).
Methods: The clinical data of 59 recurrent and persistent MOGCTs cases admitted in PUMCH during January 2000 to April 2018 were retrospectively analyzed. There were 21 recurrent and 38 persistent cases. The patients' age ranged from 1 to 39 years. FIGO stage: stage I in 33 cases, stage II in 4, stage III in 21 and stage IV in 1 case. There were 19 cases of immature teratoma, 26 cases of yolk-sac tumour, 1 case of dysgerminoma and 13 cases of mixed germ cell tumours. Primary cytoreductive surgery without fertility-sparing was performed in 10 cases, and primary fertility-sparing cytoreductive surgery was performed in 49 cases. Among the latter, secondary fertility-sparing cytoreductive surgery was performed in 40 cases, and secondary cytoreductive surgery without fertility-sparing was performed in 9 cases.
Preliminary results: During the mean follow-up duration of 51.8 months (range 2–279 months) after recurrence, 19 cases (32.2%) had a second relapse, and 16 patients (27.1%) died. The 5-year overall survival rate after relapse was 69.0%, 5-year progression-free survival rate after relapse was 66.0%. Optimal salvage surgery after recurrence was an independent prognostic factor ($p < 0.05$). Standardized primary therapy should be emphasized in the treatment of MOGCTs. For recurrent and persistent MOGCTs, optimal cytoreductive surgery and the adjuvant standardized chemotherapy have significant impacts on the prognosis of patients. For young nulliparous patients, secondary fertility-sparing salvage therapy can be taken into consideration.

GCT-P02 False elevation of alpha-fetoprotein in malignant ovarian germ cell tumours with hepatitis B infection

J. Yang[1]
[1]Dept of Gynecological Oncology, Peiking Union Medical College Hospital, Beijing, China

Background: Serum alpha-fetoprotein (AFP) plays a crucial role in the management of malignant ovarian germ-cell-tumours (MOGCTs) and is an important index for chemotherapy termination. However, AFP elevations can also be caused by several benign diseases which may confuse/impact treatment decisions.
Methods: We describe two patients who were diagnosed as MOGCTs with persistent elevated AFP. In Case 1, a 29-year-old woman underwent left adnexectomy and was diagnosed with stage I yolk-sac tumour. She received three cycles of chemotherapy and AFP levels only declined after the first cycle and remained persistent elevated around 250 ng/ml during the last two cycles. A second-look surgery and additional two cycles of chemotherapy were performed, while no residual tumours were found and AFP level still high.
Results: A comprehensive evaluation revealed chronic active hepatitis without liver dysfunction in this patient, then she stopped further chemotherapy and started antiviral treatment. After that, the AFP levels gradually declined but remained above normal limits at the last follow-up. In Case 2, a 34-year-old woman was diagnosed with immature teratoma (stage I, grade 2) with initial abnormal AFP level of 14.71 ng/ml. She received complete staging surgery and chemotherapy, but the AFP level continued to increase to 188.2 ng/ml after the fourth cycle. She was diagnosed with chronic hepatitis B with normal HBV-DNA and liver function. She also accepted antiviral treatment and AFP levels started to present a downward trend. The false elevation of AFP in GCTs is a rare condition and should be interpreted by a thorough evaluation to avoid unnecessary treatments.

GCT-P03 Gene signatures for testicular germ cell tumours

F.E. von Eyben[1], J. Parraga-Alava[2,3]
[1]Center for Tobacco Control Research, Odense, Denmark; [2]Grupo SISCOM, ESPAM MFL, Calceta, Ecuador; [3]Department of Informatics Engineering, University of Santiago, Chile

Background: Germ cell neoplasia in situ (GCNIS) has a high expression of *LIN28A*, *NANOG*, and *POU5F1*, genes associated with embryonic stem cells that reprogram for induced pluripotent stem cells (iPSC). There is little information as to the gene expression in the histologic types of testicular germ cell tumour type II (TGCT).
Methods: We evaluated 203 samples of normal testis tissue (NT), GCNIS, and TGCT from two archived microarrays and one RNAseq dataset. We evaluated how the histological types of TGCT expressed 24 genes.
Results: NT had a signature of *LDHC*. The histological types of TGCT had signatures: seminoma *KLF4*, embryonal carcinoma *DNMT3B*, yolk-sac tumour *AFP*, and teratoma *RB1*. TGCT signatures were *CCND2*, *LIN28A*, *NANOG*, *POU5F1*, and *PRAME*. Yolk-sac tumour was associated with *AFP* and choriocarcinoma was associated with *GCB5*. Seminoma and embryonal carcinoma were associated with *LDHB*. Eight highly expressed genes, including *LIN28A, NANOG*, and *POU5F1* were TGCT signatures. Our study has implications for implementation of iPSC technology in regenerative medicine.

GCT-P04 The influence of microenvironment components on cisplatin sensitivity in germ cell tumour cells

M.A. Skowron[1], K. Eul[1], P. Albers[2], D. Nettersheim[1]
[1]Department of Urology, Urological Research Lab, University Medical School, Düsseldorf, Germany; [2]Department of Urology, University Medical School, Düsseldorf, Germany

Background: Type II germ-cell-tumours (GCTs) are the most common malignant tumours of young men with rising incidence. Although GCTs are sensitive to cisplatin-based chemotherapy, development of resistance leads to a lethal outcome. The (testicular) tumour microenvironment has an important influence on GCTs themselves, such as the development of drug resistance or the promotion of proliferation and anti-apoptotic signals. Mostly consisting of fibroblasts, immune cells (e.g. macrophages), and the extracellular matrix, the microenvironment secretes cytokines, mitogens, or other growth factors that can act directly on tumour cells, leading to the stimulation of different signalling pathways. Conversely, also the cells of the microenvironment can be influenced by GCTs. This study investigates the cross-talk between GCTs and their microenvironment and how this interaction influences development of cisplatin resistance.
Methods: GCT cell lines (seminoma; TCam-2, embryonal carcinoma; 2102EP, NCCIT, NT2/D1, and choriocarcinoma; JAR, JEG-3, BeWo) were cultivated in standard growth medium and medium conditioned by adult fibroblasts (MPAF), Sertoli cells (FS1), or M2 macrophages (differentiated from THP-1) with and without addition of cisplatin. By XTT cell viability assay, the influence of the conditioned medium on sensitivity towards cisplatin was evaluated over 96 hours.
Results: Cisplatin resistance was elevated in all GCT cell lines cultured in conditioned medium developed from microenvironmental components, such as fibroblasts, Sertoli cells, and macrophages. Thus, factors secreted by the stroma cells mediate a decrease in cisplatin sensitivity of GCT cells. Further studies need to identify these chemokines,