

Overexpression of cofactor of BRCA1 in HepG2 cells: A step towards understanding the role of COBRA1 in hepatocellular carcinoma

Razan Jamil Masad

The American University in Cairo, Egypt

Cofactor of BRCA1 (COBRA1) is a BRCA-1 interacting protein that represents one of the four subunits of the negative elongation factor (NELF) complex. NELF is known by its ability to stall RNA Polymerase II during the early phase of transcription elongation, resulting in repressed transcription of several genes including ones associated with tumorigenesis of different cancer types. While, it was found to be down-regulated in breast cancer, COBRA1 was found to be up-regulated in the upper gastrointestinal carcinoma. Up to date, the role of COBRA1 in hepatocellular carcinoma (HCC) is unclear. We have previously demonstrated that silencing of COBRA1 in the HCC cell line HepG2, significantly inhibited the proliferation and migration potentials of the cells. Here, we investigated the effect of ectopic expression of COBRA1 on HepG2 cells proliferation and migration. Lipofectamine 3000 was used to transfect HepG2 cells with a pCMV5-HCOBRA1 plasmid. The transfection efficiency was determined by the percentage of EGFP positive cells (pEGFP-N1+) via fluorescent microscope, semi-quantitative RT-PCR, as well as, western blot analysis. The cells proliferation and migration following COBRA1 overexpression were assessed using the trypan blue dye exclusion method and the wound-healing assays respectively. The semi-quantitative RT-PCR was used to analyze the mRNA expressions of the other NELF subunits, TFF1 and TFF3 genes, which are known to be regulated by the NELF complex, as well as, other tumorigenesis related genes. Our results revealed that COBRA1 transfected cells exhibited a comparable proliferation and migration rates to non-transfected cells. These results were accompanied by an insignificant effect of COBRA1 overexpression on the levels of the proliferation marker; Ki-67 and the anti-apoptotic gene; survivin. Also, the mRNA levels of the other NELF subunits, TFF1 and TFF3 were found to be comparable among all the tested groups. Collectively, our results suggest that the proposed involvement of COBRA1 in HCC is supported by and dependent on the assembly of the active NELF complex, which requires the expression of all four NELF subunits. Moreover, COBRA1 mediated role in HCC tumorigenesis might be due to mechanisms and regulatory pathways other than the ones examined here. However, further studies are required to confirm these notions.

rmasad@aucegypt.edu

A case of tuberculoma in a neonate with associated umbilical vein aneurism

Birtukan Derso Endalew

Bahir Dar University, Ethiopia

Introduction: Intracranial tuberculoma in new born is a rare occurrence. We report a 7-month-old male infant presenting to our tertiary care referral center with complaints of global developmental delay and right hemiparesis for 3 months. Radiologic imaging was suggestive of large left frontoinsular space-occupying lesion with initial differential of primitive neuroectodermal tumor or desmoplastic infantile ganglioma. Considering the clinicoradiologic findings and no history suggestive of immunodeficiency or contact with tuberculosis, surgical decompression was done. Final histopathology revealed multiple epithelioid granulomas suggestive of tubercular etiology or intracranial Langerhans cell histiocytosis. He was started on antitubercular therapy after ruling out Langerhans cell histiocytosis using CD1a and Langerin immunohistochemistry staining. Interpretation of tuberculous etiology in infants can be challenging for clinicians, radiologists and pathologists. A high index of suspicion is necessary to diagnose such lesions, predominantly in endemic regions.

Case Presentation: A 2500 gms neonate is born from a para-ii mother at a gestational age of 35 weeks. The mother had only two antenatal follow up. In the last two months before delivery she had productive cough, shortness of breath, easy fatigability. Obstetric ultrasound showed normal pregnancy. Labor started in a week. She delivered 2800 gms male with APGAR of 5 and 6 in the 1st and 5th minutes. With widened anterior fontanel, increased tones of lower extremity of the right side and progressively fails to suck. With investigation the problem is found to be tuberculoma.

birtiederso@gmail.com