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Effects of antiepileptic drugs on the placental function as a protective barrier

Our aim is to explore a novel mechanism of potential teratogenicity of antiepileptic drugs (AEDs) -altered expression of placental and systemic carriers for hormones, nutrients and medications. We have previously demonstrated that AEDs affect the expression and activity of placental uptake and efflux carriers for essential compounds, including folate and thyroid hormones, in a human placental cell line and in pregnant mice. This talk will present our recent findings on the effects of AEDs on the human placenta, with a focus on the most teratogenic AED, valproic acid. Identification of AED effects on the placental barrier and fetal exposure to xenobiotics and endogenous compounds could be a first step towards a more rational pharmacotherapy and supplemental therapy in pregnant women with epilepsy.

Biography

Sara Eyal has been a faculty member at the Institute for Drug Research at the School of Pharmacy in Pharmaceutical and Clinical Pharmacy. Her group is investigating changes in biological barriers (mainly blood-brain barrier, the placental barrier and tumor barriers) and ways to image, in vivo, these changes. This work is being done in collaboration with fellow HUJI researchers, Hadassah Medical Center physicians, and other researchers from Israel and abroad, and is being carried out in cell cultures, human tissues, and animal models. Besides biochemical and analytical methods, other in vivo approaches utilized in her studies include MRI and optical imaging.

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