

Joint Event on
Cancer Treatment & Breast Cancer and Biomarkers

March 20-21, 2019 Paris, France

Sesquiterpene lactones as a candidate anti-cancer agent in childhood cancer

Despite improvements in treatment of pediatric cancers, new treatment strategies are needed. Sesquiterpene lactones (SL) are natural compounds with proofs of anti-cancer effects in adults. The effect of SL on pediatric cancers remains unclear. The aim of this study is to evaluate the in vitro effects of dehydroleucodine (DhL) and *Inula viscosa* extracts (containing high levels of active SL) in pediatric cancers. *Inula viscosa* plant extract (InV), DhL (sigma) and cisplatin (Kocak) (CDDP) were evaluated on various pediatric cell lines. Neuroblastoma cell line KELLY, Ewing sarcoma cell line SK-ES and hepatocellular carcinoma cell line Hep-G2 were cultured. After treating with these chemical compounds, MTT cell viability assay, Annexin V+PI test by flow cytometry were performed. Morphological changes of cells were investigated using Toluidine blue staining. Immunohistochemistry was performed to determine proliferation index (Ki67) and apoptosis mechanisms (Caspase 3, 8 and 9). The statistical analysis of all findings was evaluated between and within groups by Mann-Whitney U test. The p value less than 0.05 were considered statistically significant. In Kelly, DhL and InV showed cytotoxic effect as CDDP. The underlying mechanism of this effect was on inducing apoptosis rather than anti-proliferation. In HEP-G2; CDDP, InV, and DhL decreased proliferation, led to apoptosis especially via intrinsic pathway. For SK-ES; DhL and InV showed less anti-proliferative effect than CDDP. However, remarkable apoptosis percentiles were found in cells. According to the results of this in vitro study, InV, and DhL are found to be candidate anti-cancer agent on pediatric cancer cells with their cytotoxic effects. This effect is planned to be evaluated in further studies.

Biography

Aylin Erol has completed her MSc from Basic Oncology at Dokuz Eylul University, Turkey. Currently, she is pursuing her PhD at the Dokuz Eylul University. She has published four papers with the project group and also, had one oral presentation. Her work focuses specifically on the anti-cancer natural products for pediatric cancers.

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