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The ginsenoside, Rh2, induces apoptosis in endometrial cancer cells

Yong Beom Kim
Seoul National University Bundang Hospital, South Korea

The ginsenoside-Rh2 has been found to inhibit the growth of many types of cancer cells. However, the effect of Rh2 on the growth of endometrial cancer cells has not been investigated. In this study, to determine the anticancer effect of Rh2 in endometrial cancer and to elucidate the mechanism underlying this effect, we investigated the effects of Rh2 on the cell proliferation and epithelial–mesenchymal transition (EMT) in the human endometrial cancer cell lines, HEC1A and Ishikawa. We found that Rh2 inhibited cell proliferation and significantly induced apoptosis. The levels of cleaved poly ADP ribose polymerase (PARP) and cleaved caspase-3 were significantly increased in the HEC1A and Ishikawa cells treated with Rh2, indicating that Rh2 clearly suppressed the growth of HEC1A and Ishikawa cells *in vitro*. We also confirmed the apoptotic effects of Rh2, using terminal deoxynucleotidyltransferase-mediated digoxigenin-dUTP-biotin nick end labeling (TUNEL) assay. Next, we investigated the effect of Rh2 on EMT in the HEC1A cell line. Rh2 treatment increased E-cadherin expression and decreased vimentin, TGF-β and Snail expression in the cells. Moreover, the migration assay results showed that Rh2 inhibited the migration of HEC1A cells and the invasion assay performed using Matrigel showed that Rh2 inhibited the invasive ability of HEC1A cells. Taken together, our results suggest that Rh2 exerts anticancer effects in endometrial cancer cells through the induction of apoptosis and inhibition of EMT.

Biography

Yong Beom Kim, Director of the Division of Gynecologic Oncology in Seoul National University Bundang Hospital, is an active Clinician and Surgeon in the management of gynecologic cancer patients. He is also active on minimally invasive surgery especially with laparoscopic and robotic surgery. His research group is working on programs for improving the treatment of gynecologic cancer patients. There are two major research areas. The first is directed at clinical trial for the development of novel clinical strategies in collaboration with KGOG and NRG. The second is focused on the study of translational research to identify the mechanism of platinum resistance and the overall goal is to develop pharmacologically-driven agent for overcoming platinum resistance in ovarian cancer patients.

ybkimlh@snubh.org

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