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Genistein抑制卵巢癌细胞的侵袭转移及其机制

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Molecular Mechanism of Invasion Inhibitory Effects of Genistein on Human Ovarian Cancer Cells

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摘要 目的

探讨Genistein对卵巢癌细胞株SKOV3侵袭转移能力的抑制作用及其机制。

方法

用不同浓度的Genistein处理SKOV3细胞，采用锥虫蓝活细胞拒染法检测癌细胞体外生长活性，划痕损伤实验及Transwell小室观察其对细胞运动及侵袭能力的影响，利用 RT-PCR技术检测Genistein对SKOV3细胞中MTA1 mRNA表达的影响。

结果

Genistein抑制SKOV3细胞的生长，并呈剂量依赖性（P<0.05）；其对SKOV3细胞的运动及侵袭能力均有明显抑制作用（P<0.05）；并且能显著降低MTA1 mRNA的表达（P<0.05）。

结论

Genistein在体外剂量依赖性地抑制卵巢癌细胞株SKOV3的侵袭转移，其作用机制可能与通过降低MTA1的表达有关。

关键词： Genistein 卵巢肿瘤 侵袭 MTA1

Abstract： Objective

To investigate the inhibitory effect of genistein on the invasion potential of human ovarian cancer cell line SKOV3 in vitro and its mechanisms.

Methods

The SKOV3 cell line was exposed to various concentration of genistein. The growth activities of cancer cells were detected by trypan blue staining method. Wound-healing assay and Transwell assay were used to evaluate the migration and invasion ability of SKOV3 cell line. Reverse transcription polymerase chain reaction(RT-PCR) was used to observe the change of MTA1 mRNA expression.

Results

Genistein could effectively inhibit the in vitro growth of human ovary cancer cell line SKOV3 in time and dose-dependent manners. After 12.5, 25, 50 μmol/L Genistein treatment for 48 h, the growth inhibition rates of cancer cells reached 23.5%, 50.1% and 59.1%, respectively（P<0.05）. The migration capabilities of SKOV3 cells were inhibited significantly after 24 h treatment with Genistein at 12.5, 25 and 50 μmol/L（P<0.01）. And the inhibition rates were 20.80%,45.66% and 74.69%, respectively. After 72 h incubation with 0, 12.5, 25 and 50 μmol/L Genistein, the number of cells that passed through the transwell chamber polycarbonate membrane were (127.9±14.5),(109.6±11.8),(64.4±8.3) and (33.5±4.4), respectively（P<0.01）. Compared with control group, MTA1 mRNA expression were down-regulated in Genistein groups （P<0.05）.The relative MTA1 mRNA

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expression levels were (0.608±0.039),(0.515±0.057),(0.442±0.443) and (0.294±0.035) respectively， after 0, 12.5, 25 and 50 μmol/L Genistein treatment for 72 h.

Conclusion

Genistein could effectively inhibit the growth and invasion ability of ovarian cancer in dose dependent pattern in vitro and decreased MTA1 expression may play an important role in this process.

Key words： Genistein Ovarian tumor Invasion MTA1

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