

The in vitro effect of aspirin and ibuprofen on the proliferation of cervical cancer (HeLa) cells compared to non-cancerous (HEK 293) cells

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Background

Studies have shown that antiinflammatory drugs can affect growth and development of cancer. This study was carried out to determine the effects of aspirin and ibuprofen on viability of cervical cancer cells (HeLa) compared to non-cancerous cells (HEK 293).

Methods

In this laboratory-experimental study, cervical cancer cells (HeLa) and non-cancerous cells (HEK 293), were randomly divided into control group and groups exposed to aspirin and ibuprofen (at doses of 0.01, 0.1, 1, and 10mg/ml. Twenty-four hours after exposure to the drugs, the viability of cells, was measured using MTT assay method. Statistical analysis was performed using ANOVA.

Results

The viability of HeLa cells significantly decreased when exposed to aspirin at doses of 0.01, 0.1, 1, and 10 mg/ml ($p<0.05$, $p<0.001$, $p<0.001$, and $p<0.001$, respectively); however, the viability of HEK 293 cells did not significantly changed in comparison with the control group. The viability of HeLa cells significantly decreased in the groups that received 0.1, 1, and 10 mg/ml of Ibuprofen ($p<0.05$, $p<0.001$, and $p<0.001$, respectively) and cell viability of HEK293 cells significantly decreased only in the group exposed to 10mg/ml of ibuprofen compared to the control group ($p<0.001$).

Conclusion

The results of this study showed that aspirin and ibuprofen can have cytotoxic effect on cervical cancer cells, while have no significant cytotoxic effects on non-cancerous cells.