

Could green tea extract inhibit the tumor growth and invasiveness of 5-FU and MMC-resistant metastatic and remetastatic cell lines in a hamster pancreatic cancer model?

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Introduction

- ✓ Polyphenolic compounds present in tea may reduce a risk of a variety of illnesses, including cancer.
- ✓ Research findings have shown the chemopreventive potential of tea polyphenols in cancer.
- ✓ This study had the aim to elucidate whether the same drugs, which could inhibit the tumor growth in the parental pancreatic cancer cell line, could inhibit in the metastatic and remetastatic pancreatic cancer ones, comparing the inhibition with green tea extract (GTE).

Methods

HaP-T1: a cell line derived from nitrosamine induced pancreatic cancer;

MS-PaS-1: a pancreatic metastatic cell line established from a "return trip" metastases of liver implanted tumor, which showed pancreatic metastases;

MS-PaS-2: a pancreatic remetastatic cell line established from metastases of MS-PaS-1 were used for the experiments. 5-Fluorouracil (5FU), Mytomicin C (MMC) and green tea extract (GTE) were used.

MTT assay and MTT agarose assay were performed. In vitro chemo invasion assay was done.

Results

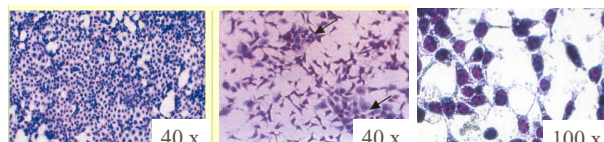
The inhibitory concentration (IC₅₀) of 5-FU, which inhibited the HaP-T1, had to be increased in 50 folds to inhibit MS-PaS-1, and 100 folds to inhibit MS-PaS-2. MMC had to be increased 10 folds to inhibit MS-PaS-1, and 50 folds to inhibit MS-PaS-2.

However, IC₅₀ of GTE had to be increased 3 folds to inhibit MS-PaS-1, and 5 folds to inhibit MS-PaS-2. GTE inhibited the invasiveness of 3 cells lines in a dose dependent manner.

Results

General appearance of

HaP-T1, MS-PaS-1, MS-PaS-2 cell cultures



Subconfluent cell culture dishes were fixed in methanol and stained with Giemsa. Note the difference between the spatial distribution of the cells and the gross appearance of the cytoplasm. MS-PaS-1 grows in colonies (black arrows) and has fibroblast-like appearance. MS-PaS-2 is similar to MS-PaS-2.

Inhibitory concentration (IC₅₀) of the cell growth

	HaP-T1 (µg/µl)	MS-PaS-1 (µg/µl)	MS-PaS-2 (µg/µl)
5-FU			
MTT	0.3	15 ^a	30 ^b
MTT-Agarose	0.2	10 ^c	20 ^d
MMC			
MTT	0.005	0.05 ^e	0.25 ^f
MTT-Agarose	0.03	0.3 ^g	1.5 ^h
GTE			
MTT	0.4	0.4	0.4
MTT-Agarose	0.3	0.9	1.5

Concentrations to inhibit the tumor growth ^aincreased 50 folds, ^bincreased 100 folds, ^cincreased 50 folds, ^dincreased 100 folds, ^eincreased 10 folds, ^fincreased 50 folds, ^gincreased 3 folds, and ^hincreased 5 folds, when compared with parental cell line HaP-T1.

Conclusion

Green tea extract may be a new cancer strategy for pancreatic cancer because it could inhibit the tumor growth and invasiveness in metastatic and remetastatic cells as well as in primary tumor cells in small doses when compared to 5-FU and MMC, leading to the fact that side effects could be decreased. However, further studies will be necessary.

Contato

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