

The interaction between cis-platinum (Platinum analogues for cancer therapy) and the Cu by the low dose irradiation studied in Human leukemia - A preliminary report

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The alteration of the cis-platinum (Platinum analogues for cancer therapy) and the Cu by the low dose irradiation was studied in Human leukemia (OCI/M2 p53 -/-) in vitro.

Asynchronously growing cells treated by the 40 μ MOL cis-platinum for one hour were irradiated. The radiation was performed by the single dose of 3Gy of ⁶⁰Co Gamma ray. After 6 hours after irradiation, cells were used for the experiment. The frequency of apoptosis was expressed as the percentage of apoptosis by May Giemsa staining. The Platinum in the cell was spectroimaged by 2 MV proton microbeam (1.5x1.5 μ m) within 24x24 μ m of square area.

The OCI/M2 was resistant to the low dose radiation, which caused the 3.2% cell death in 1Gy irradiation. The Cis-platinum had greater antileukemic effect than the low dose irradiation. It caused 40.2% of cell death after cis-platinum treatment. The maximum antileukemic effect was observed in the combined therapy, which 70.9 % in 3 Gy. That combination was synergistic. In the alteration of the cis-platinum measured as that of platinum by micro PIXE camera, the accumulation of cis-platinum was observed 1 Gy irradiation, instead, there were significant decreases of Cu.

The low dose irradiation increased the intracellular concentration of cis-platinum, which enhanced the antileukemic effect of Cis-platinum. And its uptake might be competitive with the kinetics of Cu.