عنوان مقاله:

Administration of 99mTc-DTPA in combination with doxorubicin alters the radiopharmaceutical biodistribution in rats

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نویسندگان:

Tanzim Razaq - *National University of Sciences and Technology (NUST), Islamabad, Pakistan*

Hasan Nisar - *Pakistan Institute of Engineering and Applied Sciences (PIEAS), Islamabad, Pakistan*

Samina Roohi - *Pakistan Institute of Nuclear Science and Technology (PINSTECH), Islamabad, Pakistan*

Adeeb Shehzad - *National University of Sciences and Technology (NUST), Islamabad, Pakistan*

خلاصه مقاله:

Introduction:Diethylenetriaminepentaacetic acid (DTPA) is a chelating agent used as a radiopharmaceutical compound, 99mTc-DTPA, for renography. Doxorubicin (DOX) on the other hand is an effective chemotherapy drug used to treat a variety of solid malignancies. Both 99mTc-DTPA and DOX may be used in close succession in patients undergoing DOX based chemotherapy to evaluate renal function. This study aims to investigate the possible alteration in the biodistribution of 99mTc-DTPA when given in combination with DOX in rats. Methods: The study was divided in two arms; a control group (n=10) where 99mTc-DTPA alone and the experimental group (n=30) where DOX was injected prior to 99mTc-DTPA administration. The experimental group was further divided into six subgroups (n=5 each) based on the time intervals (4, 8, 18, 36, 72, 96 hours) between DOX and 99mTc-DTPA administration. In each group, the subjects were sacrificed 2 hours post 99mTc-DTPA injection, the organs isolated and counted for radioactivity. Results: The results revealed that the percent total retained dose (%TRD) significantly ($p<0.001$) decreased in urinary tract while significantly ($p<0.001$) increased in liver and biliary tree as compared to the experimental group. Conclusion: The results of this pre-clinical study put the accuracy of renal scintigraphy in question in patients receiving DOX based chemotherapy. However, human studies are proposed for validity of results with regards to clinical practice.

کلمات کلیدی:

doxorubicin, 99mTc-DTPA, Radiopharmaceutical, Renography, Total retained dose