ORIGINAL ARTICLE

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Pulmonary epithelial permeability in patients treated with bleomycin containing chemotherapy detected by technetium-99m diethylene triamine penta-acetic acid aerosol (^{99m}Tc-DTPA) scintigraphy

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Purpose: To evaluate pulmonary epithelial permeability using ^{99m}Tc-DTPA scintigraphy in patients treated with bleomycin-containing regimens. ***Material and Methods:*** Twelve non-smoking chemotherapy-naïve patients with no clinical or radiological evidence of pulmonary disease and treated with bleomycin-containing chemotherapy were tested with ^{99m}Tc-DTPA scintigraphy before the first cycle and every 3 weeks until the third month after the end of chemotherapy (total cumulative dose of bleomycin 347.9 mg). ***Results:*** Pretreatment values ($T_{½}$ 74.93 minutes) of ^{99m}Tc-DTPA scintigraphy were significantly higher than those obtained after the total dose of bleomycin ($T_{½}$ 51.00 minutes) ($p < 0.001$). This difference was more important in the later evaluations especially, on the third week and third month measures after discontinuing treatment ($p < 0.001$). All the tests of Within-Subjects Effects were significant ($p < 0.001$). Comparing pretreatment and post-treatment scintigraphies the mean $T_{½}$ ^{99m}Tc-DTPA values decreased as the bleomycin dose increased. ***Conclusion:*** We conclude that cumulative bleomycin doses are related to increased pulmonary epithelial permeability at a dose of 256.5 mg. However, whether this is related to clinical toxicity is uncertain and large, multi-center prospective studies are needed.

Key words: pulmonary epithelial permeability, bleomycin, lung toxicity, ^{99m}Tc-DTPA scintigraphy