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Esophageal hypomotility in systemic sclerosis: Close relationship with pulmonary involvement

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Purpose: Esophageal motility was assessed in patients with systemic sclerosis (SSc) by scintigraphy and compared with (i) extent of scleroderma, (ii) duration of disease, (iii) index of anti-topoisomerase I antibody (topo I), and (iv) pulmonary involvement. ***Methods:*** A multiple-swallow test was performed in 47 patients with SSc in the supine position with ^{99m}Tc-DTPA. A region of interest on the entire esophagus was defined and the retention ratio (RR) was calculated from a time-activity curve. ***Results:*** Patients with diffuse scleroderma had higher RRs than those with limited scleroderma (48.8% vs. 30.0%; $p < 0.05$). There was no correlation between the RRs and the duration of disease. Patients with positive topo I had higher RRs than those who were negative (53.8% vs. 29.7%; $p < 0.05$). Patients with reduced % diffusion capacity for carbon monoxide (%DL_{CO}) had higher RRs than those with normal %DL_{CO} (40.5% vs. 19.6%; $p = 0.03$). Patients with reduced % vital capacity (%VC) had higher RRs than those with normal %VC (54.6% vs. 25.0%; $p < 0.005$). Patients with pulmonary fibrosis had higher RRs than those who were negative (58.5% vs. 20.3%; $p < 0.00005$). ***Conclusion:*** Esophageal dysfunction in patients with SSc showed a correlation with the extent of scleroderma, positive topo I, and pulmonary involvement. The RR can be an objective clinical marker for the severity of organ fibrosis.

Key words: esophageal scintigraphy, systemic sclerosis, esophageal hypomotility, anti-topoisomerase I antibody, pulmonary involvement