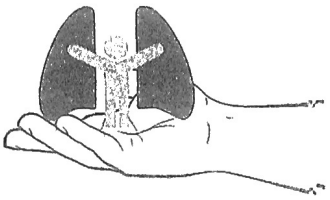

AUTOFLUORESCENCE BRONCHOSCOPY AS INNOVATIVE MARKER OF AIRWAY COMPLICATIONS AFTER LUNG TRANSPLANTATION

L. Rosso[2], R. Carrinola[2], A. Palleschi[2], I. Righi[2], G. Invernici[2], M. Cattaneo[2], M. Pappalettera[1], F. Briganti[1], V. Rossetti[1], M. Nosotti[2]

1-Respiratory Unit, 2-Thoracic Surgery and Lung Transplantation Unit, Fondazione IRCCS Ca' Granda - Ospedale Maggiore Policlinico, Milan, Italy

Airway complications after lung transplantation lead to significant morbidity and mortality, typically in the first two years. The pathogenesis of post-operative bronchial stenosis is associated to peri-anastomotic ischemia related to multiple and controversial risk factors. Moreover, a technique to predict the stenosis onset is still lacking. The auto-fluorescence bronchoscopy (AFB) is currently used in oncology: the different blood supply of healthy mucosa from the pathological can identify precancerous lesions due to the different capacity of absorption of ultraviolet light. The increase in thickness of the precancerous mucosa prevent the absorption of frequencies of the red light by hemoglobin, and therefore the mucosa presents a bright red color as opposed to the "normal" green color. A similar result is obtained when ultraviolet light hits an ischemic or infected mucosa.

Aim of this prospective study was to find a relationship between the degree of bronchial vascularization and the onset of airway stenosis with AFB and investigate its possible role as pre-clinical marker.

From February 2014 and October 2015, we enrolled all consecutive patients transplanted. Exclusion criteria were < 18 years old, intensive care unit stay > 7 days, postoperative survival < 6 months.

Rejection surveillance by transbronchial pulmonary biopsies was scheduled as usual. All procedures were performed with AFB (Olympus EVIS Lucera Spectrum AFI) weekly during the first month and next quarterly up to the first year of follow-up. All procedures were recorded on a USB storage device. The degree of fluorescence was measured using a histogram. The magenta color identifies the ischemic mucosa and the green color the normal vascularized mucosa. Results, in terms of intensity ratio (R/G ratio), were correlated with graft cold ischemic time and with the onset of complications of airways.

Twenty-three patients resulted eligible for the study. We examined 39 bronchial anastomosis and we considered each as a unit for statistical purpose. We observed 8 bronchial stenoses from 6 subjects. After logistic regression, R/G ratio at 45 days, 3 and 6 months, and 1 year correlated with stenosis onset ($p=0,0417$; 0,0231; 0,0036; 0,0027 respectively).