Title: Pulmonary involvement in patients with Marfan syndrome

Body: Pulmonary involvement is not generally considered a main feature of Marfan syndrome, an autosomal connective tissue disorder caused by mutations in the extracellular matrix protein fibrillin1 particularly affecting vascular, skeletal and ocular systems. However, thanks to the substantial progress in treatments, life expectation of these patients has been dramatically improved in the last 20 years determining changes in different organ systems. The number of patients with a degree of underlying pulmonary pathology may be higher than expected. Clinical history, chest CT, spirometry, lung volumes, and diffusing capacity have been assessed in 64 patients of our national referral center (mean age 32±14 years; M 45%). None of the patients reported chronic respiratory symptoms and only 5 were smokers. Fourteen per cent reported a previous pneumothorax and 2 of them underwent surgery. Three reported bullae and 1 underwent bullectomy. Eleven per cent had radiological signs of emphysema and 32% apical blebs. Twenty-three per cent had cardiothoracic surgery. Forty-five per cent had moderate to severe rib cage abnormalities; 4 of them underwent repeated surgical corrections. Only 37% of our patients had normal lung function; 19% showed a restrictive pattern and 44% an obstructive pattern or an isolated diffusion impairment or an isolated hyperinflation. All patients with previous pneumothorax showed an obstructive pattern and diffusion impairment. In conclusion, in the absence of respiratory symptoms, pulmonary abnormalities should be actively detected and monitored and particular attention should be paid to prevent pneumothorax. Our results support the importance of lung volume determination and, when needed, chest CT in Marfan patients.