Title: Respiratory involvement in Fabry disease

Body: Fabry disease is an inherited lysosomal storage disease affecting kidney, heart and nervous system. Respiratory involvement has been described, but complete evaluation of pulmonary functional tests (PFTs) has not been yet performed. Our aim is to evaluate the presence and severity of PFTs alteration in adult patients with Fabry disease. A prospective observational study was performed in adults with Fabry disease referring to the Nephrology clinic of San Gerardo Hospital, Monza, Italy, from 2010 to 2012. Medical history and complete PFTs were recorded for each patient. Percentage of predicted for PFT values was considered. Results are expressed as median [IQR]. 16 patients were enrolled (5 male; median age 48 yrs). Among those, 3 were previous and 1 active smoker (median pack/years 4), 3 had asthma, 6 received enzyme replacement therapy (ERT). 5 patients (31%) presented Forced Expiratory Volume in 1 second (FEV1) mildly decreased (2.1L [1.3-2.8], 81% [44-92]) and a FEV1/FVC ratio<70%, 3 of them (19% of total) had no risk factors for airway obstruction. In 10 subjects (63%), specific Airway Resistance (sRAW) and Residual Volume (RV) were increased (152% [133-171] and 140% [131-152], respectively), while Total Lung Capacity (TLC) was normal in all patients (107% [94-114]). Middle Expiratory Flow (MEF) at 75%, MEF50% and MEF25% were slightly decreased (86.5% [79-103], 78.5% [62-100] and 76.5% [57-96], respectively). A minority of patients had airway obstruction, defined as FEV1/FVC<70%, in absence of causes other than Fabry disease. Slight alterations, as increased sRAW, lung hyperinflation and small-airway obstruction, are present in the majority. Complete PFTs could be useful to detect early signs of airway obstruction in these patients.