European Respiratory Society
Annual Congress 2013

Abstract Number: 2838

Publication Number: P4173

Abstract Group: 5.2. Monitoring Airway Disease

Keyword 1: COPD - diagnosis **Keyword 2:** Biomarkers **Keyword 3:** Inflammation

Title: Routine serum protein electrophoresis and detection of alpha$_1$-antitrypsin deficiency

Dr. Stefania 13406 Ottaviani stefania.ottaviani@yahoo.it [1], Maria 13407 Trevisan mariateresa.trevisan@ulss20.verona.it [2], Ilaria 13408 Ferrarotti I.ferrarotti@smatteo.pv.it [1], Marina 13409 Gorrini m.gorrini@smatteo.pv.it [1], Raffaele 13410 Baldo mariateresa.trevisan@ulss20.verona.it [2], Luisa 13415 Quargentan mariateresa.trevisan@ulss20.verona.it [2] and Dr. Maurizio 13421 Luisetti m.luisetti@smatteo.pv.it MD [1]. [1] S.C. Pneumologia, Fondazione IRCCS Policlinico S.Matteo, Pavia, Italy and [2] UOA Di Laboratorio Analisi, Ospedale "G. Fracastoro", San Bonifacio (VR), Italy .

Body: Background: Alpha$_1$-antitrypsin (AAT) deficiency (AATD) is a largely underdiagnosed genetic disorder. Reduced serum levels of AAT lead to a higher risk of developing emphysema and chronic liver disease at an early age. Several strategies are currently being proposed to improve detection rates. Aims: Little attention has previously been paid to subjects with a reduced alpha-1 globulin (A1G) electrophoresis band. We therefore investigated the potential of routine serum protein electrophoresis (RSPEP) to improve AATD detection rates based on this marker. Methods: The RSPEP pilot study included 214,894 electrophoresis samples. Nephelometric measurement of AAT was performed and a number of subjects were referred for verification of AATD diagnosis. Data were compared with results from the Italian AATD targeted detection program. Results: In the 16-year period (1996-2012) the program obtained 3595 samples. Patients with severe AATD, who were tested because of a reduced A1G band, comprised 0.75% of the total sample. In the RSPEP pilot study, 601 samples showed A1G to be < 2.8% of the total protein content. Nephelometric assay data are reported in Table 1. Among subjects with low plasma AAT concentration, 21 were referred for further testing and 8 were found to have severe AATD (1.33% of the sample with reduced A1G content). Conclusions: The RSPEP strategy combines detection of reduced A1G levels and nephelometric AAT measurement. By applying an appropriate AAT level cutoff, this technique allows the identification of asymptomatic AATD subjects and increases AATD detection rates at a low cost.

AAT (g/L)	n°	%
≤ 0.5	21	0.01
> 0.5 ≤ 1	294	0.1
> 1 ≤ 1.13	61	0.03
≥ 1.13	225	0.1