Decline In The Prevalence Of Airflow Limitation In Us Adults Aged 40-79: Nhanes, 1988-1994 And 2007-2010

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Rationale: The objective of this study was to investigate changes in the prevalence of airflow limitation for the US adult population between 1988-1994 and 2007-2010.

Methods: Spirometry data from the National Health and Nutrition Examination Surveys, nationally representative surveys of the non-institutionalized US population, conducted during 1988-1994 and 2007-2010 were analyzed. The prevalence of airflow limitation was estimated in adults aged 40-79 using pre-bronchodilator spirometry test results based on criteria from the American Thoracic Society (ATS) and a modification of the Global Initiative for Obstructive Lung Disease (GOLD) criteria. Airflow limitation was defined as forced expiratory volume in 1 second (FEV_1)/forced vital capacity (FVC) < lower limit of normal (LLN) (ATS) and as FEV_1/FVC < 70% (GOLD), respectively. Cut points for moderate or worse airflow limitation were defined as FEV_1/FVC < LLN plus FEV_1 < 70% predicted (ATS) or FEV_1 /FVC < 70% plus FEV_1 < 80% predicted (GOLD).

Results: Based on ATS criteria, the overall age-adjusted prevalence of airflow limitation among adults 40-79 years decreased from 19.8% (SE 0.9) in 1988-1994 to 14.5% (SE 0.7) in 2007-2010 ($p<0.01$). Significant decreases between the two survey periods were seen for those aged 60-69 years (24.4% vs. 15.4%; $p<0.01$), 70-79 years (24.4% vs. 17.2%; $p<0.05$), for men (22.6% vs. 15.3%; $p<0.01$) and women (17.5% vs. 13.8%; $p<0.05$), and for non-Hispanic white adults (21.2% vs. 15.8%; $p<0.01$). Using the modified GOLD criteria, the overall age-adjusted prevalence of airflow limitation decreased from 22.1% (SE 0.7) to 19.9% (SE 1.0) ($p<0.05$). Significant decreases between the two survey periods were only seen among men (27.6% vs. 23.9%; $p<0.05$) and Mexican-American adults (15.1% vs. 10.3%; $p<0.05$). The prevalence of moderate or worse airflow limitation decreased from 7.2% (SE 0.5) to 4.3% (SE 0.4) ($p<0.01$) based on the ATS criteria and from 11.7% (SE 0.5) to 9.0% (SE 0.6) ($p<0.01$) based on the modified GOLD criteria. During 2007-2010, an estimated 5.4 million adults aged 40-79 years had moderate or worse airflow limitation based on the ATS criteria.

Conclusions: The overall prevalence of airflow limitation in US adults decreased from 1988-1994 to 2007-2010 based on both the ATS and modified GOLD criteria. Significant declines in the prevalence of airflow limitation for the various age, gender, and race-ethnic groups varied by the criteria used to define airflow limitation.

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