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Epidemiology of lung function in a global severe asthma population

Adults, Severe asthma, Primary care

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ISAR (www.isaregistries.org) is the first global adult severe asthma registry.

We describe post-bronchodilator (post-BD) lung function of adult severe asthma patients for an initial set of 5 countries using a standardised severe asthma definition.

ISAR prospectively collects data on adult severe asthma patients (≥ 18 years), on GINA Step 5 treatment or uncontrolled on GINA Step 4 from secondary and tertiary care. Baseline aggregate lung function data (post-BD % predicted (pp) FEV₁ and FEV₁/FVC ratio) from the UK and patient-level data from the USA, Italy, South Korea and Ireland were collected from December 2014 to December 2018.

The post-BD ppFEV₁ of the cohort (n=2640; GINA 4=1767; GINA 5=873) did not differ by asthma severity (mean[sd] GINA 4=76%[15.4%]; GINA 5=74%[20.8%]). Based on available patient level data (n= 2092; GINA 4=1629; GINA 5=463), the post-BD FEV₁/FVC ratio had a normal distribution (shown in figure) with a mean of 0.71±0.11 and less than 0.7 for 42% of the patients. The mean pre- to post-BD change from predicted FEV₁ was <9% for both GINA 4 and 5 patients regardless of smoking history (GINA 4(Smoke)=6.9%[6.9%]; GINA 4(Non-smoke)=6.7%[7.8%]; GINA 5(Smoke)=7.6%[8.1%]; GINA 5 (Non-smoke)=7.0%[8.6%]).

Fixed airways obstruction is evident in severe asthma patients, with poor bronchodilator responsiveness regardless of smoking history or treatment on GINA Steps 4 or 5.

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Distribution of post bronchodilator FEV₁/FVC ratio across GINA 4 and GINA 5 patients.

