

MULTI-COUNTRY ESTIMATE OF DIFFERENT MANIFESTATIONS OF ASPERGILLOSIS IN ADULT CYSTIC FIBROSIS PATIENTS

J. Armstead¹, D.W. Denning²

¹Student, New castle University Medical School, New castle, United Kingdom ; ²National Aspergillus Centre, University Hospital South Manchester, Manchester, United Kingdom

Introduction: *Aspergillus spp.* can lead to allergic bronchopulmonary aspergillosis (ABPA), *Aspergillus* sensitisation and *Aspergillus* bronchitis in CF. The relative frequencies of these entities have recently been ascertained in a large UK adult CF cohort. We have used this data to estimate the burden of aspergillosis and ABPA case ascertainment in adult CF patients in 30 countries with the highest recognised rates of CF.

Method: National and international CF registry data was accessed and assessed for completeness and age distribution. Published proportions of ABPA (17.7%), *Aspergillus* sensitisation (14.6%) and *Aspergillus* bronchitis (30%) in CF were applied to those >18 years old (Baxter et al, 2013) and compared with notified ABPA cases.

Results: Of the 75,472 estimated CF patients, 36,626 were >18 years old. The proportion of adults to children varied from 66.23% in Italy to 9.47% in Switzerland. ABPA case load is anticipated to be 6,483 cases of which only 1,564 cases (24%) are actually recorded, indicating substantial underdiagnosis. The ABPA diagnosis rate compared with estimated rates varies by country from 101% (France) to 14.5% (Greece), although genetic variation could account for genuine differences compared with the UK. *Aspergillus* bronchitis is not currently recognised or recorded in CF registries but there are an anticipated 10,988 cases. *Aspergillus* sensitisation may also be associated with increased bronchiectasis and reduced FEV1, and there are an anticipated 5,347 patients affected who do not have ABPA or *Aspergillus* bronchitis.

Conclusion: ABPA and *Aspergillus* bronchitis are estimated to affect 47.7% of the adult CF population, a combined total of 17,471 patients in 30 countries. Apart from France, there is probably substantial underdiagnosis of ABPA. ABPA also occurs in children and teenagers, but the frequency at different ages needs to be established. Newly published diagnostic criteria and methods should facilitate better recognition of aspergillosis in CF, allowing better CF disease control.

Reference:

Baxter CG et al. Classification of aspergillosis in adult cystic fibrosis. *J Allergy Clin Immunol* 2103; 132:560-566.

			37.70%	14.60%	30%	17.70%	
Country	Year	Estimated >18 population	None	Asp sensitisation	Asp bronchitis	ABPA	Documented ABPA
United States	2010	13095	4937	1912	3929	2318	N/A
UK	2011	5290	1994	772	1587	936	906
France	2009	2873	1083	420	862	509	740
Germany	2009	2782	1049	406	835	492	301
Canada	2011	2238	844	327	671	396	N/A
Italy	2009	2550	961	372	765	451	N/A
Australia	2012	1556	587	227	467	275	N/A
Spain	2009	977	368	143	293	173	25
Brazil	2010	367	139	54	110	65	15
Netherlands	2011	768	290	112	230	136	128
Poland	2007	354	133	52	106	63	N/A
Belgium	2010	602	227	88	181	107	75
Ireland	2011	559	211	82	168	99	40
Austria	2009	210	79	31	63	37	11
Switzerland	2009	75	28	11	23	13	34
Sweden	2009	368	139	54	110	65	8
Hungary	2009	223	84	33	67	40	N/A
Israel	2009	302	114	44	91	53	33
Czech Republic	2009	216	81	32	65	38	N/A
Greece	2009	195	74	28	59	35	3
Denmark	2009	259	98	38	78	46	N/A
Slovakia	2007	216	81	32	65	38	N/A
New Zealand	2011	205	77	30	62	36	N/A
Norway	2011	178	67	26	53	32	N/A
Portugal	2009	79	30	11	24	14	2
Serbia	2009	37	14	5	11	7	3
Slovenia	2009	19	7	3	6	3	4
Uruguay	2010	19	7	3	6	3	N/A
Republic of Moldova	2009	6	2	1	2	1	N/A
Latvia	2013	8	3	1	2	1	0
Estimated global population		36626	13808	5347	10988	6483	