**Occupational Burden of Idiopathic Pulmonary Fibrosis (225 word edition)**

Idiopathic pulmonary fibrosis (IPF) is a diagnosis of exclusion. It is made in the presence of a usual interstitial pneumonia (UIP) pattern on high resolution CT scan or biopsy. The diagnosis requires that known causes of interstitial lung disease (such as drug toxicity, connective tissue disease, domestic, and occupational or environmental exposures) be excluded.[1]

We found 15 case-control studies covering occupational exposures in IPF. Associations with metal, wood, silica, and agricultural dust are most commonly reported. [6-21]

We found four review articles covering occupational exposures in IPF.[2-5] One included a meta-analysis (based on six studies) and reports population attributable risk percentages for agriculture and farming (20.8%), livestock (4.1%), wood dust (5%), metal dust (3.4%), stone/sand/silica (3.5%), and smoking (49.1%). [4]

We abstracted data for five exposure categories: “vapors, gases, dusts, and/or fumes (VGDF),” “metal dust,” “wood dust,” “silica dust,” and “agricultural dust” from 12 of the identified case-control studies. We calculated PAF as follows: PAF=pc(OR – 1)/OR, where pc is the proportion of cases exposed and OR is the odds ratio. We calculated pooled OR and pooled PAF for occupational exposures using Stata. 39 risk estimates from 12 studies (1326 IPF cases in total) were used. Each exposure category was assessed with 5-11 risk estimates. Pooled ORs were significantly elevated for each category; pooled PAF estimates by category ranged from 6-23% (Table 1 and 2).

**References:**

1. William D. Travis, Ulrich Costabel, David M. Hansell, Talmadge E King, Jr,

David A. Lynch, Andrew G. Nicholson, Christopher J. Ryerson, Jay H. Ryu,

Moisés Selman, Athol U. Wells, Jurgen Behr, Demosthenes Bouros, Kevin K.

Brown, Thomas V. Colby, Harold R. Collard, Carlos Robalo Cordeiro, Vincent

Cottin, Bruno Crestani, Marjolein Drent, Rosalind F. Dudden, Jim Egan, Kevin

Flaherty, Cory Hogaboam, Yoshikazu Inoue, Takeshi Johkoh, Dong Soon

Kim, Masanori Kitaichi, James Loyd, Fernando J. Martinez, Jeffrey Myers,

Shandra Protzko, Ganesh Raghu, Luca Richeldi, Nicola Sverzellati, Jeffrey

Swigris, Dominique Valeyre, and A. T. S/E. R. S Committee on Idiopathic In-

terstitial Pneumonias . An official american thoracic society/european respi-

ratory society statement: Update of the international multidisciplinary clas-

sification of the idiopathic interstitial pneumonias. Am J Respir Crit Care

Med, 188(6):733–748, Sep 2013. doi: 10.1164/rccm.201308-1483ST . URL

http://dx.doi.org/10.1164/rccm.201308-1483ST

2. M Turner-Warwick. In search of a cause of cryptogenic fibrosing alveolitis

(cfa): one initiating factor or many? Thorax, 53 Suppl 2:S3–S9, August 1998.

ISSN 0040-6376.

3. R Hubbard. Occupational dust exposure and the aetiology of cryptogenic

fibrosing alveolitis. Eur. Respir. J., 18(32 suppl):119s–121s, 2001.

4. Varsha S Taskar and David B Coultas. Is idiopathic pulmonary fibrosis an

environmental disease? Proc. Am. Thorac. Soc., 3(4):293–298, 2006.

5. Mridu Gulati and Carrie A Redlich. Asbestosis and environmental causes of

usual interstitial pneumonia. Current opinion in pulmonary medicine, 21:193–

200, March 2015. ISSN 1531-6971. doi: 10.1097/MCP.0000000000000144 .

6. Jonathan Scott, Ian Johnston, and John Britton. What causes cryptogenic

fibrosing alveolitis? a case-control study of environmental exposure to dust.

BMJ, 301(6759):1015, 1990.

7. K. Iwai, T. Mori, N. Yamada, M. Yamaguchi, and Y. Hosoda. Idiopathic pul-

monary fibrosis. epidemiologic approaches to occupational exposure. Am. J.

Respir. Crit. Care Med., 150(3):670–675, Sep 1994. doi: 10.1164/ajrccm.150.

3.8087336 . URL http://dx.doi.org/10.1164/ajrccm.150.3.8087336

8. Richard Hubbard, Ian Johnston, David B Coultas, and John Britton. Mortality

rates from cryptogenic fibrosing alveolitis in seven countries. Thorax, 51(7):

711–716, 1996.

9. J. Mullen, M. J. Hodgson, C. A. DeGraff, and T. Godar. Case-control study of

idiopathic pulmonary fibrosis and environmental exposures. J. Occup. Envi-

ron. Med., 40(4):363–367, Apr 1998.

10. K. B. Baumgartner, J. M. Samet, D. B. Coultas, C. A. Stidley, W. C. Hunt, T. V.

Colby, and J. A. Waldron. Occupational and environmental risk factors for

idiopathic pulmonary fibrosis: a multicenter case-control study. collaborating

centers. Am. J. Epidemiol., 152(4):307–315, Aug 2000.

11. Richard Hubbard, Marie Cooper, Marilyn Antoniak, Andrea Venn, Sayeed

Khan, Ian Johnston, Sarah Lewis, and John Britton. Risk of cryptogenic fi-

brosing alveolitis in metal workers. The Lancet, 355(9202):466–467, 2000.

12. Yoshihiro Miyake, Satoshi Sasaki, Tetsuji Yokoyama, Kingo Chida, Arata

Azuma, Takafumi Suda, Shoji Kudoh, Naomasa Sakamoto, Kazushi

Okamoto, Gen Kobashi, et al. Occupational and environmental factors andidiopathic pulmonary fibrosis in japan. Ann. Occup. Hyg., 49(3):259–265,

2005.

13. Torbjörn Gustafson, Anna Dahlman-Höglund, Kenneth Nilsson, Kerstin

Ström, Göran Tornling, and Kjell Torén. Occupational exposure and severe

pulmonary fibrosis. Respir. Med., 101(10):2207–2212, 2007.

14. Germania A Pinheiro, Vinicius C Antao, John M Wood, and James T Was-

sell. Occupational risks for idiopathic pulmonary fibrosis mortality in the united

states. Int. J. Occup. Environ. Health, 14(2):117–123, 2008.

15. Ma Cecilia Garcı́a-Sancho Figueroa, Guillermo Carrillo, Rogelio Pérez-

Padilla, Ma Rosario Fernández-Plata, Ivette Buendı́a-Roldán, Mario H Var-

gas, and Moisés Selman. Risk factors for idiopathic pulmonary fibrosis in

a mexican population. a case-control study. Respir. Med., 104(2):305–309,

2010.

16. Cecilia Garca-Sancho, Ivette Buenda-Roldn, Ma Rosario Fernndez-Plata,

Carmen Navarro, Rogelio Prez-Padilla, Mario H Vargas, James E Loyd, and

Moiss Selman. Familial pulmonary fibrosis is the strongest risk factor for idio-

pathic pulmonary fibrosis. Respiratory medicine, 105:1902–1907, December

2011. ISSN 1532-3064. doi: 10.1016/j.rmed.2011.08.022 .

17. N. J. Awadalla, A. Hegazy, R. A. Elmetwally, and I. Wahby. Occupational

and environmental risk factors for idiopathic pulmonary fibrosis in egypt: a

multicenter case-control study. Int J Occup Environ Med, 3(3):107–116, Jul

2012.

19. Paolocci, Giulia, et al. "Risk factors for idiopathic pulmonary fibrosis in Southern Europe: A case-control study." (2013): P1912. ERS (abstract).

20. Magnus Ekstrom, Torbjorn Gustafson, Kurt Boman, Kenneth Nilsson, Goran

Tornling, Nicola Murgia, and Kjell Toren. Effects of smoking, gender and oc-

cupational exposure on the risk of severe pulmonary fibrosis: a population-

based case-control study. BMJ open, 4(1):e004018, 2014.

21. J-W Koo, J-P Myong, H-K Yoon, C K Rhee, Y Kim, J S Kim, B S Jo, Y Cho,

J Byun, M Choi, H-R Kim, and E-A Kim. Occupational exposure and idio-

pathic pulmonary fibrosis: a multicentre case-control study in korea. The

international journal of tuberculosis and lung disease : the official journal of

the International Union against Tuberculosis and Lung Disease, 21:107–112,

January 2017. ISSN 1815-7920. doi: 10.5588/ijtld.16.0167 .