

A Comprehensive Overview of Diabetic Pneumopathy

Asim Abid Minhas

Dear Editor,

Diabetic pneumopathy is a new complication of diabetes described recently that consists of structural and functional abnormalities of the lungs of diabetics. A chronic metabolic disease such as diabetes mellitus (DM) with hyperglycemia arises due to decreased action or secretion of insulin or both. While the main modality in the management of diabetes is to monitor the levels of sugar in the blood, newer research studies have shown a new link of diabetes with respiratory problems. This article reviews the diabetic pneumopathy including its pathogenesis, its presentation, the diagnosis, and the management with references to previous literature.

Diabetic pneumopathy results from the combination of endothelial dysfunction and inflammation and that happens mainly as a result of high blood sugar levels over a long period of time, alongside with microvascular changes in the blood vessels of the lung due to the fact they cannot take up enough oxygen¹. A key player in this area is Advanced Glycosylation End (AGE) products which causes scarring and other problems through insulin resistance². This condition often coexists with dyslipidemia in diabetes making it harder to combat lung inflammation and further reducing lung function³. Diagnosing diabetic pneumopathy can be challenging when symptoms like coughing, wheezing and dyspnea occur since these clinical signs are not specific. The diagnosis of diabetic pneumopathy may be difficult to achieve in cases where symptoms like coughing, wheezing plus dys-

pnea appear because the manifestation of these symptoms is not specific. In some cases, they present with other respiratory issues; for example, HRCT images or chest radiography can show typical radiological features like interstitial lung abnormalities and ground-glass opacities or pulmonary fibrosis which are common in diabetic pneumopathy⁴.

Diabetic pneumonia cannot be diagnosed unless a complete medical evaluation which includes history, physical examination, pulmonary function tests (PFTs), imaging studies and laboratory tests is done. From PFTs: results can show low diffusing capacity and poor gas exchange and either restrictive or obstructive ventilatory deficit. Both chest X-rays and HRCT scans can show lung involvement which can guide management. Inflammatory markers can be elevated from laboratory tests due to this condition and other biomarkers of endothelial dysfunction⁵. Managing diabetic pneumopathy is challenging. The objectives of the most important thing are to alleviate symptoms, control glucose levels and address any other health problems that may be there. In some cases when needed for inflammation and oxidative stress like corticosteroids or antioxidants medicines may be required. Lung function and general quality of life can be improved by participating in a pulmonary rehabilitation program and making lifestyle changes such as quitting smoking and losing weight⁶.

Diabetic pneumopathy in short ends up being a complicated mix between diabetes and pulmonary issues. For patient health, this is highly significant. Possession of knowledge on causes as well as symptoms that render an effective identification through diagnosis techniques and how it can also be dealt with helps medical practitioners: therefore, studying this condition is a must. Why it happens

Dow University of Health Sciences
Email: asimabidminhas@outlook.com
Date of Submission: 21st April 2024
Date of Revision: 4th July 2024
Date of Acceptance: 27th August 2024

more needs to be known so we can find solutions such as targeted therapies to minimize its impact in those with diabetic pneumopathy.

References

1. Barnes PJ. Inflammatory mechanisms in patients with chronic obstructive pulmonary disease. *J Allergy Clin Immunol* 2016;138(1):16-27. [DOI: 10.1016/j.jaci.2016.05.011].
2. Wang C, Wang H, Luo J, Hu Y, Wei L. Potential mechanisms of diabetic lung injury. *Front Pharmacol* 2017;8:818. [DOI: 10.3389/fendo.2021.731974].
3. Leung CC, Lam TH, Chan WM, et al. Lower lung cancer mortality in obesity. *Int J Epidemiol*. 2011;40(1):174-182. [DOI: 10.1093/ije/dyq134].
4. Kinoshita F, Hamada S, Hayakawa H, et al. Detection of early interstitial lung abnormalities in smokers from the COPD Gene study. *Acad Radiol* 2019;26(4):481-489. [DOI: 10.1513/AnnalsATS.202012-1557OC].
5. Man SF, Connett JE, Anthonisen NR, Wise RA, Tashkin DP, Sin DD. C-reactive protein and mortality in mild to moderate chronic obstructive pulmonary disease. *Thorax*. 2006;61(10):849-853 [DOI: 10.1136/thx.2006.059808].
6. Holland AE, Hill CJ, Jones AY, McDonald CF. Breathing exercises for chronic obstructive pulmonary disease. *Cochrane Database Syst Rev* 2012;10:CD008250. [DOI: 10.1002/14651858.CD008250.pub2].



This open-access article distributed under the terms of the Creative Commons Attribution NonCommercial 4.0 License (CC BY-NC 4.0). To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc/4.0/>