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| <b>Name</b>             | Hyun Woo Lee   |  |
| <b>Country</b>          | South Korea  |   |
| <b>Organization</b>     | Seoul National University College of Medicine,<br>Seoul Metropolitan Government-Seoul National University Boramae Medical Center |   |
| <b>Current Position</b> | Assistant professor  |   |

## Educational Background

- 2019.3.1-2023.2.24 Ph.D. in Internal Medicine, Seoul National University, Seoul, Korea  
 2014.3.1-2016.2.26 M.S. in Clinical Medical Science, Seoul National University, Seoul, Korea  
 2005.3.1-2011.2.28 B.S. in Medicine, Soonchunhyang Medical School, Asan, Chungnam, Korea

## Professional Experiences

- 2019.5-2020.2 Fellowship in pulmonology, Seoul National University Hospital, Seoul, Korea  
 2020.3- Assistant Professor, Seoul Metropolitan Government-Seoul National University Boramae Medical Center  
 2023.3- Assistant Professor, Seoul National University College of Medicine

## Professional Organizations

- Member of Korean Association of Internal Medicine  
 Member of Korean Academy of Tuberculosis and Respiratory Diseases  
 Member of American Thoracic Society (ATS)  
 Member of European Respiratory Society (ERS)  
 En bloc Member of Asian Pacific Society of Respirology

## Main Scientific Publications

1. **Lee HW**, Min J, Park J, Lee YJ, Kim SJ, Park JS, Yoon HI, Lee JH, Lee CT, Cho YJ, Clinical Impact of Early Bronchoscopy in Mechanically Ventilated Patients with Aspiration Pneumonia, *Respirology*. 2015 Oct;20(7):1115-22.
2. **Lee HW**, Kim HJ, Lee CH, The impact of olodaterol on the risk of mortality and serious adverse events: a systematic review and meta-analysis, *Br J Clin Pharmacol*. 2017 Jun;83(6):1166-1175.
3. **Lee HW**, Lee JK, Oh SH, Kim DK, Chung HS, Heo EY, Effect of perioperative systemic steroid treatment on patients with obstructive lung disease undergoing elective abdominal surgery, *Clin Respir J*. 2018 Jan;12(1):227-233.
4. **Lee HW**, Lee CH, Park YS, The location of stage I-III non-small cell lung cancer and survival rate: Systematic



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- review and meta-analysis. *Thorac Cancer*. 2018 Dec;9(12):1614-1622.
5. **Lee HW**, Jin KN, Lee JK, Kim DK, Chung HS, Heo EY, Choi SH. Long-term follow-up of ground-glass nodules after 5 years of stability. *J Thorac Oncol*. 2019 Aug;14(8):1370-1377.
  6. **Lee HW**, Park Y, Jang EJ, Lee YJ. Intensive care unit length of stay is reduced by protocolized family support intervention: a systematic review and meta-analysis. *Intensive Care Med*. 2019 Aug;45(8):1072-1081.
  7. **Lee HW**, Park J, Jo J, Jang EJ, Lee CH. Comparisons of exacerbations and mortality among regular inhaled therapies for patients with stable chronic obstructive pulmonary disease: Systematic review and Bayesian network meta-analysis. *PLoS Med*. 2019 Nov 15;16(11):e1002958.
  8. **Lee HW**, Park YS, Park S, Lee CH. Poor prognosis of NSCLC located in lower lobe is partly mediated by lower frequency of EGFR mutations. *Sci Rep*. 2020 Sep 10;10(1):14933.
  9. **Lee HW**, Park J, Jang EJ, Lee CH. Comparisons of exacerbations and mortality among LAMA/LABA combinations in stable chronic obstructive pulmonary disease: systematic review and Bayesian network meta-analysis. *Respir Res*. 2020 Nov 25;21(1):310.
  10. **Lee HW**, Lee DH, Lee JK, Lee S, Koo BK, Joo SK, Heo EY, Jung YJ, Kim W, Kim DK. Pulmonary function is associated with fibrosis severity in patients with biopsy-proven nonalcoholic fatty liver disease. *Liver Int*. 2020 Dec;40(12):3008-3017.
  11. Park J, Kim HJ, Lee CH, Lee CH, **Lee HW**. Impact of long-term exposure to ambient air pollution on the incidence of chronic obstructive pulmonary disease: A systematic review and meta-analysis. *Environ Res*. 2021 Mar;194:110703.
  12. **Lee HW**, Yoon CH, Jang EJ, Lee CH. Renin-angiotensin system blocker and outcomes of COVID-19: a systematic review and meta-analysis. *Thorax*. 2021 May;76(5):479-486.
  13. **Lee HW**, Kim HJ, Jang EJ, Lee CH. Comparisons of efficacy and safety between triple (ICS/LAMA/LABA) therapies in chronic obstructive pulmonary disease: Systematic review and Bayesian network meta-analysis. *Respiration*. 2021;100(7):631-643.
  14. **Lee HW**, Sim YS, Jung JY, Seo H, Park JW, Min KH, Lee JH, Kim BK, Lee MG, Oh YM, Ra SW, Kim TH, Hwang YI, Rhee CK, Joo H, Lee EG, Lee JH, Park HY, Kim WJ, Um SJ, Choi JY, Lee CH, An TJ, Park Y, Yoon YS, Park JH, Yoo KH, Kim DK. A multicenter study to identify the respiratory pathogens associated with exacerbation of chronic obstructive pulmonary disease in Korea. *Tuberc Respir Dis (Seoul)*. 2022 Jan;85(1):37-46.
  15. **Lee HW**, Lee HJ, Lee JK, Park TY, Heo EY, Kim DK. Rapid FEV1 decline and lung cancer incidence in Korea. *Chest*. 2022 Mar 19:S0012-3692(22)00452-4.
  16. Kim SW, Lee HJ, Lee JK, Park TY, Heo EY, Kim DK, Chung HS, **Lee HW**. Association between oxygen saturation level during bronchoscopy and post-bronchoscopy adverse events: a retrospective cohort study. *Respir Res*. 2022 Jun 2;23(1):144.
  17. Lee SW\*, **Lee HW\***, HJ Kim, DK Kim, JJ Yim, SH Yoon, N Kwak. Deep Learning-Based Prediction Model Using Radiography in Nontuberculous Mycobacterial Pulmonary Disease. *Chest*. 2022 Jun 28;S0012-3692(22)01188-6. (\*Co-first authors)
  18. **Lee HW**, Baek MG, Choi S, Ahn YH, Bang JY, Sohn KH, Kang MG, Jung JW, Choi JH, Cho SH, Yi H, Kang HR. Peripheral blood transcriptomic clusters uncovered immune phenotypes of asthma. *Respir Res*. 2022 Sep 8;23(1):237
  19. **Lee HW**, Park HM, Jang EJ, Lee CH. Different inhaled corticosteroid doses in triple therapy for chronic obstructive pulmonary disease: Systematic review and Bayesian network meta-analysis. *Sci Rep*. 2022 Sep 20;12(1):15698.
  20. **Lee HW**, Kang SC, Kim SY, Cho YJ, Hwang SS. Long-term Exposure to PM10 Increases Lung Cancer Risks: A Cohort Analysis. *Cancer Res Treat*. 2022 Oct;54(4):1030-1037.
  21. **Lee HW**, Lee JK, Lee MG, Shin KC, Ra SW, Kim TH, Hwang YI, Jung KS, Yoo KH, Kim DK. Risk Factors of Rapid FEV1 Decline in a Real-World Chronic Obstructive Pulmonary Disease Cohort. *Respiration*. 2022;101(12):1078-1087.
  22. **Lee HW**, Chung GE, Koo BK, Sim H, Choi M, Lee DH, Choi SH, Kwak SH, Kim DK, Kim W. Impact of Evolutionary Changes in Nonalcoholic Fatty Liver Disease on Lung Function Decline. *Gut Liver*. 2023 Jan 15;17(1):139-149.
  23. Choi KY, Lee HJ, Lee JK, Park TY, Heo EY, Kim DK, **Lee HW**. Rapid FEV1/FVC decline is related with incidence of obstructive lung disease and mortality in general population. *J Korean Med Sci*. 2023 Jan 2; 38(1): e4.
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24. **Lee HW**, Yang HJ, Kim H, Kim UH, Kim DH, Yoon SH, Ham SY, Nam BD, Chae KJ, Lee D, Yoo JY, Bak SH, Kim JY, Kim JH, Kim KB, Jung JI, Lim JK, Lee JE, Chung MJ, Lee YK, Kim YS, Lee SM, Kwon W, Park CM, Kim YH, Jeong YJ, Jin KN, Goo JM. Deep Learning With Chest Radiographs for Making Prognoses in Patients With COVID-19: Retrospective Cohort Study. *J Med Internet Res*. 2023 Feb 16;25:e42717.
  25. **Lee HW**, Jin KN, Oh S, Kang SY, Lee SM, Jeong IB, Son JW, Han JH, Heo EY, Lee JG, Kim YJ, Kim EY, Cho YJ. Artificial Intelligence Solution for Chest Radiographs in Respiratory Outpatient Clinics: Multicenter Prospective Randomized Study. *Ann Am Thorac Soc*. 2023 May;20(5):660-667.
  26. Lee HJ, Lee JK, Park TY, Heo EY, Kim DK, **Lee HW**. Validation of the Rome proposal for severity of acute exacerbation of chronic obstructive pulmonary disease. *Ther Adv Respir Dis*. 2023 Jan-Dec;17:17534666231172917.
  27. **Lee HW**, Lee JK, Hwang YI, Seo H, Ahn JH, Kim SR, Kim HJ, Jung KS, Yoo KH, Kim DK. Spirometric interpretation and clinical relevance according to different reference equations. *J Korean Med Sci*. 2024 Jan 29;39(4):e20.
  28. Lee HJ, Lee JK, Park TY, Heo EY, Kim DK, **Lee HW**. Clinical outcomes of long-term inhaled combination therapies in patients with bronchiectasis and airflow obstruction. *BMC Pulm Med*. 2024 Jan 23;24(1):49.
  29. Park H, Lee HJ, Lee JK, Park TY, Jin KN, Heo EY, Kim DK, **Lee HW**. Diffusing Capacity as an Independent Predictor of Acute Exacerbations in Chronic Obstructive Pulmonary Disease. *Sci Rep*. 2024 Feb 5;14(1):2936.
  30. **Lee HW**, Sun J, Lee HJ, Lee JK, Park TY, Heo EY, Rhee CK, Kim DK. Differential response to roflumilast in patients with chronic obstructive pulmonary disease: real-world evidence. *J Thorac Dis*. 2024 Feb 29;16(2):1338-1349.
  31. **Lee HW**, Lee JK, Kim Y, Jang AS, Hwang YI, Lee JH, Jung KS, Yoo KH, Yoon HK, Kim DK. Differential decline of lung function in COPD patients according to structural abnormality in chest CT. *Heliyon*. 2024 Mar 12;10(7):e27683.
  32. **Lee HW**, Lee HJ, Oh S, Lee JK, Heo EY, Kim DK. Combined effect of changes in NO<sub>2</sub>, O<sub>3</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and CO concentrations on small airway dysfunction. *Respirology*. 2024 May;29(5):379-386.
  33. Bae J, Lee HJ, Choi KY, Lee JK, Park TY, Heo EY, Lee CH, Kim DK, **Lee HW**. Risk factors of acute exacerbation and disease progression in young patients with COPD. *BMJ Open Respir Res*. 2024 Jul 17;11(1):e001740.
  34. Choi YH, Kim DH, Jeon ET, Lee HJ, Park TY, Yoon SH, Jin KN, **Lee HW**. Cluster analysis of thoracic muscle mass using artificial intelligence in severe pneumonia. *Sci Rep*. 2024 Jul 23;14(1):16912.
  35. Jin KN, Lee HJ, Park H, Lee JK, Heo EY, Kim DK, **Lee HW**. Mucus Plugs as Precursors to Exacerbation and Lung Function Decline in COPD Patients. *Arch Bronconeumol*. 2024 Jul 27:S0300-2896(24)00282-5.
  36. Kim DH, Jeon ET, Lee HJ, Park H, Lee JK, Heo EY, Kim DK, **Lee HW**. Longitudinal Changes in Maximal Forced Inspiratory Flow and Clinical Outcomes in Patients With COPD. *Chest*. 2024 Aug 14:S0012-3692(24)04917-1
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