1. **TABLES:**

**eTable 1** – Characteristics of Included Studies

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| *Name of the Study (First Author)* | *Type of Study* | *Countr y and Year*  *Publis hed* | *Study Period* | *PH Definition* | *Sampl e Size of PH*  *patien ts (N)* | *Male/ Fema le (N)* | *Mean Age (years*  *)* | *Co-Morbidities Reported (N; %)* |
| *Impact of diabetes in patients with pulmonary hypertension*  *.*  *(Abernathy et al. (41))* | Retrospective Cohort | USA; 2015 | January 1998 to December 2009 | Patients were stratified according to the Dana Point classification. | 261 | 84/17  7 | 53.4±  14 | Systemic Hypertension: 101  (38.7%)  Atrial fibrillation: 50  (19.2%) |
| *Impact of Diabetes on Survival and Right Ventricular Compensati on in Pulmonary Arterial Hypertensio n*  *(Benson et al. (40))* | Retrospective Cohort | USA; 2014 | January 1,  1996, to  March 1,  2011 | PAH was diagnosed according to consensus criteria, including a mean pulmonary artery  pressure of ≥25 mmHg and a pulmonary capillary wedge  pressure (PWP) of ≤15 mmHg. | 113 | 27/86 | 41.3±  14.3 | Systemic hypertension: 51  (45.1%)  Hyperlipidemia: 38  (33.6%)  coronary artery disease: 4 (3.5%) |
| *Prognostic Factors in Patients With Pulmonary Hypertensio n—A Nationwide Cohort Study (Chang et*  *al. (39))* | Retrospective Cohort | Taiwa n; 2016 | January 1999 to December 2011 | A first‐time discharge diagnosis of PH (ICD‐9‐CM codes  416.0 and 416.8; based on the clinical symptoms and a pulmonary artery  pressure above 25 mm Hg. | 1,092 | 479/6  13 | 58.95  ±23.3  4 | Systemic Hypertension: 431  (39.5%)  Hyperlipidemia: 84  (7.7%)  coronary artery disease: 230 (21.1%) |
| *The prevalence and clinical outcome of supraventric ular tachycardia in different etiologies of pulmonary hypertension (Fingrova et*  *al. (38))* | Retrospective Cohort | Czech Republ ic; 2021 | January 2003 to December 2018. | After confirmation of the pulmonary artery mean pressure (PAMP) ≥ 25 mm Hg by the baseline right heart catheterization. | 755 | 307/4  48 | 60±1  5 | Systemic Hypertension: 434  (57.5%)  Systemic embolism or stroke: 56 (7.4%) Supraventricular tachycardia prevalence: 220  (29.1%) |
| *Survival and prognostic factors in patients with connective tissue disease-*  *associated pulmonary* | Retrospective Cohort | Korea; 2017 | April 2008 to December 2012. | Systolic Pulmonary artery pressure >40 mmhg as measured by Doppler echocardiography | 174 | 25/14  9 | 50.9±  16.9 | Smoking: 6 (3.4%) Systemic Hypertension: 50  (28.7%)  Hepatitis: 25 (14.4%) Pericardial effusion: 51 (29.3%)  Pleural effusion: 46  (26.4%) |

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| *hypertension diagnosed by echocardiog raphy: results from a Korean nationwide registry (Kang et al. (37))* |  |  |  |  |  |  |  | Proteinuria: 52  (29.9%)  Systemic Sclerosus: 50 (28.7%)  Systemic Lupus Erythematosus: 61  (35.1%)  Mixed connective tissue disorder: 10  (5.7%)  Rheumatoid arthritis: 22 (12.6%)  Overlap syndrome: 7  (4.02%) |
| *Association of anemia and long- term survival in patients with pulmonary hypertension (Krauski et al. (36))* | Retrospective Cohort | USA; 2011 | November 1998 to December 2007 | Dana Point classification was used in this study, as confirmed by right heart catheterization | 145 | 36/10  9 | 55.8±  14.6 | Anemia: 38 (26.2%) Systemic Hypertension: 43  (29.7%)  Atrial Fibrillation: 18  (12.4%) |
| *Impact of the COVID- 19*  *Pandemic on Pulmonary Hypertensio n Patients: Insights from the BNP-PL*  *National Database (Mamzer et*  *al. (35))* | Retrospective Cohort | Poland  ; 2022 | March 2020 to December 2020. | Patients with PAH and CTEPH diagnosis in the database, as confirmed by right heart catheterization | 65 | 23/42 | 55.7±  19.6 | Systemic Hypertension: 26  (40%)  coronary artery disease: 8 (12.3%)  Hypothyroidism: 17  (10.8%)  Chronic kidney disease: 8 (12.3%) History of deep vein thrombosis: 6 (9.2%)  Atrial fibrillation: 12  (18.5%) |
| *COVID-19*  *in Patients with Pulmonary Hypertensio n: A National Prospective Cohort Study (Montani et al. (34))* | Prospective and Retrospective Cohort | France  ; 2022 | February 1,  2020, to April  30, 2021 | Precapillary PH was defined by a mean pulmonary arterial pressure (mPAP) of  >25 mm Hg with a normal pulmonary arterial wedge pressure (PAWP) of  <15 mm Hg and pulmonary vascular resistance (PVR) of .3 WU | 211 | 96/11  5 | 62.57  ±14.9  3 | Obesity (BMI > 30): 52 (24.6%)  Chronic respiratory diseases: 74 (35.1%) Systemic Hypertension: 80  (37.9%)  Other cardiac diseases: 74 (35.1%)  sleep disorders: 26  (12.3%)  Chronic renal failure: 58 (27.5%)  Immunosuppression: 35 (16.6%) |
| *Pulmonary Hypertensio n an*  *Independent* | Retrospective Cohort | USA; 2015 | January 1,  2006, to  December 31,  2008 | Severe PH was defined as right atrial pressure >20 mmHg,  mean pulmonary | 53 | 15/38 | 60±1  5.59 | Systemic Hypertension: 37  (69.8%)  coronary artery |

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| *Risk Factor for Death in Intensive Care Unit: Correlation of Hemodynam ic Factors with Mortality (Saydain et al. (33))* |  |  |  | artery pressure >55 mmHg, or cardiac index (CI) <2 L/min/m2. |  |  |  | disease: 27 (50.9%) Chronic obstructive pulmonary disease: 21 (39.6%)  Chronic renal failure: 15 (28.3%)  obstructive sleep apnea: 8 (15.1%)  Cirrhosis: 4 (7.5%) Interstitial lung disease: 4 (7.5%)  Cancer: 3 (5.7%) Sickle cell disease: 2 (3.8%)  Sepsis: 22 (41.5%) |
| *Echocardiog raphic Predictors of Mortality in Patients with Pulmonary Hypertensio n and Cardiopulm onary Comorbiditi es*  *(Steiner et al. (32))* | Retrospective Cohort | USA; 2015 | June 2006 to November 2011 | Patients with reported estimated pulmonary artery systolic pressures (ePASP) > 60 mmHg on transthoracic echocardiography | 152 | 150/2 | 78.8±  10.2 | Heart Failure: 78  (51.3%)  coronary artery disease: 80 (52.6%) Systemic Hypertension: 114  (75%)  Atrial Fibrillation: 57  (37.5%)  Pulmonary Embolism: 4 (2.6%) Chronic obstructive pulmonary disease: 55 (36.2%)  Pulmonary Fibrosis: 15 (9.9%)  Valvular Heart Disease: 71 (46.7%) |
| *Influence of Body Weight and Diabetes Mellitus in Patients With Pulmonary Hypertensio n*  *(Trammell et al. (31))* | Retrospective Cohort | USA; 2020 | January 1,  2003, to  September 30,  2015 | New diagnosis based on International Classification of Diseases, Ninth Revision (ICD-9) code for PH (416.0, 416.2,  416.8, 416.9) | 110,4  95 | 106,5  62/3,  933 | 70.63  ±12.9  7 | Any heart disease: 78,135 (70.7%)  Any lung disease: 80,112 (72.5%)  Obesity (BMI >30):  47,399 (42.9%) |
| *Developmen t and Validation of a Nomogram for Predicting All-Cause Mortality in Patients with Hemodialysi s Having Pulmonary*  *Hypertensio* | Retrospective Cohort | China; 2023 | January 2014  to June 2019 | Measured Tricuspid Regurgitation Velocity  >2.8 m/s by echocardiogram | 274 | 107/1  67 | 54.6±  12.8 | Systemic Hypertension: 205  (74.8%)  Smoking: 78 (28.5%) cardiovascular disease: 78 (28.5%) |

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| *n (Wu et al.*  *(42))* |  |  |  |  |  |  |  |  |
| The association between obesity, mortality and filling pressures in pulmonary hypertension patients; the “obesity paradox  *(Zafrir et al. (29))* | Prospective Cohort | Israel; 2012 | NA | PH was defined as mean PAP of more than 25 mmHg, measured by right heart catheterization. | 105 | 44/61 | 66±1  2 | Systemic Hypertension: 69  (65.7%)  coronary artery disease: 35 (33.3%) Pericardial effusion: 11 (10.5%)  Right heart failure: 56 (53.3%) |
| Developmen t of an Electronic Frailty Index for Predicting Mortality and Complicatio ns Analysis in Pulmonary Hypertensio n Using Random Survival Forest Model  *(Zhou et al. (28))* | Retrospective Cohort | Hong Kong; 2022 | January 1st, 2000, to  December 31st, 2017 | A mean pulmonary arterial pressure >25 mmHg at resting by right heart catheterization | 2,560 | 965/1  ,595 | 60.13  ±30.4  1 | Respiratory disease: 2,537 (99.1%)  Systemic Hypertension: 2,511  (98.1%)  cardiovascular disease: 1,916  (74.8%)  Gastrointestinal Disease: 1,014  (39.6%)  Kidney disease: 768  (30%)  Endocrine disease: 88  (3.4%)  Obesity: 71 (2.8%) |

**eTable 2**: Risk of Bias Analysis by the NIH Quality Assessment Tool® for Observational Cohort and Cross-Sectional Studies.

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| **Criteria** | Aberneth y et al | Benso n et al | Chang et al | Fingro va et al | Kang et al | Krasu ski et al | Mamz er et al | Monta ni et al | Saydai n et al | Steine r et al | Tramme ll et al | Wu et al | Zafrir et al | Zhou et al |
| 1. Was the research question or objective in this paper clearly stated? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2. Was the study population clearly specified and defined? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3. Was the participation rate of eligible persons at least 50%? | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 4. Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5. Was a sample size justification, power description, or variance and effect estimates provided? | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 7. Was the time frame sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed? | Yes | Yes | Yes | Yes | CD | Yes | No | No | CD | Yes | Yes | CD | CD | Yes |
| 8. For exposures that can vary in amount or level, did the study examine different levels of the exposure as  related to the | No | No | No | No | No | No | No | No | No | No | No | No | No | No |

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| outcome (e.g., categories of exposure, or exposure measured as continuous variable)? |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9. Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants? | Yes | Yes | No | Yes | Yes | CD | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 10. Was the exposure(s) assessed more than once over time? | No | No | No | No | No | No | No | No | No | No | No | No | No | No |
| 11. Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants? | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 12. Were the outcome assessors blinded to the exposure status of participants? | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 13. Was loss to follow-up after baseline 20% or less? | Yes | Yes | Yes | Yes | No | Yes | Yes | No | Yes | Yes | Yes | Yes | No | Yes |
| 14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)? | No | No | Yes | No | No | No | No | No | Yes | No | CD | Yes | Yes | Yes |
| Overall Rating (Quality of Evidence) | Low | Low | Low | Low | Very Low | Low | Very Low | Very Low | Low | Low | Low | Low | Low | Fair |
| Risk of Bias | Moderat e | Moder ate | Moder ate | Moder ate | High | Mode rate | High | High | Moder ate | Moder ate | Moderat e | Moder ate | Modera te | Unclea r |

# NA: Not available. CD: Cannot Determine