

Increased mortality associated with borderline pulmonary hypertension: Insights from The National Echocardiography Database of Australia

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BACKGROUND: There is increasing evidence that current thresholds for diagnosing pulmonary hypertension (PHT), underestimate the prognostic impact of sub-clinical/borderline PHT.

OBJECTIVES: To determine the prognostic impact of increasing pulmonary pressures within the National Echocardiography Database of Australia (NEDA) cohort (N=313,492).

METHODS: We extracted echocardiographic data from NEDA. The distribution of measurable, estimated right ventricular systolic pressures (eRVSP) were examined in 157,842 men and women. All had data-linkage to long-term survival during median follow-up of 1,543, (IQR 799, 2720) days. The relationship between eRVSP and long-term mortality were then examined.

RESULTS: The cohort comprised 74,505 men and 83,437 women aged 65.6±17.7 years. Overall, 17,955 (11.4%), 7,016 (4.4%) and 4,515 (2.9%) individuals had eRVSP levels indicative of mild (40-49 mmHg), moderate (50-59 mmHg) or severe PHT (≥60 mmHg), respectively. As expected, these individuals were more likely to die during long-term follow up

(adjusted HR 9.73, 95% CI 8.60 – 11.0 for severe PHT; $p < 0.001$). After adjustment for age, sex and evidence of left heart disease, a clear threshold of increased mortality equating to borderline PHT was also found: those individuals with eRVSP levels within the 3rd (28.05 to 32.0 mmHg – HR 1.410, 95% CI 1.310 to 1.517) and 4th (32.05 to 38.83 mmHg – HR 1.979, 95% 1.853 to 2.114) quintile distribution, having significantly higher mortality ($p < 0.001$) than the lowest quintile.

CONCLUSIONS: In the large and unique NEDA cohort, we not only confirmed the prognostic impact of clinically accepted levels of PHT, but also identified a distinctly lower threshold for increased risk of mortality (eRVSP >30mmHg) indicative of borderline PHT.