

FEMALE SEX PREDISPOSES TO RESIDUAL PULMONARY HYPERTENSION AFTER PULMONARY ENDARTERECTOMY

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Objective: There is little published literature that examines the clinical factors that predict the risk for residual pulmonary hypertension (PH) after PEA. **Methods:** We defined residual pulmonary hypertension as a post-operative pulmonary vascular resistance of greater than 400 dyn·s/cm⁵. We examined the results of 479 consecutive operations conducted between January 1, 2010 and June 30, 2013. Patients who did not survive to discharge were excluded. All continuous variables were compared using an independent samples t-test and categorical variables were compared using chi square. A multivariate logistic regression model for odds of residual PH was constructed. **Results:** There were 42 (8.9%) of the patients who had residual PH. There are several notable differences between the two groups. First, patients who had residual pulmonary hypertension were more frequently female (69.0% vs. 47.3%, p=0.007) and had lower average BMI (26.0 vs. 30.8, p<0.001). These residual PH patients were sicker at the time of PTE, as evidenced by larger proportions in the higher NYHA functional groups (p for trend 0.001) and worse baseline hemodynamics (baseline PVR 1097.2 vs 642, p<0.001). There was no difference in history of coagulopathy, splenectomy or VTE between those with residual PH and those without. Adjusting for baseline PVR, the odds a female developed residual PH after PEA was 2.82 times higher (95% CI: 1.31-6.03) than the odds a male developed residual PH. **Conclusions:** Females are predisposed to residual pulmonary hypertension, independent of their baseline PVR. Female predominance of small vessel disease in IPAH is well known and similar mechanisms may lead to residual PH in patients with CTEPH who undergo PEA.

Table 1: Baseline characteristics of patients with and with residual pulmonary hypertension (post-operative PVR >400 dyn·s/cm⁵) after PTE. All categorical variables are presented as number (percent) and comparisons were made using chi-square tests.

	Post-operative PVR <400 n=431	Post-operative PVR >400 n=42	p-value
Demographics			
Age (years)	53.43 (±14.5)	51.04 (±14.5)	0.308
Sex (% Female)	204 (47.3%)	29 (69.0%)	0.007
BMI (kg/m ²)	30.81 (±7.3)	26.01 (±6.3)	<0.001
NYHA Class (%)			0.001
I	1 (0.2%)	0 (0.0%)	
II	64 (14.8%)	1 (2.4%)	
III	342 (79.4%)	33 (78.6%)	
IV	20 (4.6%)	8 (19.0%)	
Baseline Hemodynamics			
Right Atrial Pressure (mmHg)	10.46 (±5.7)	14.45 (±5.9)	<0.001
Mean PA Pressure (mmHg)	43.69 (±11.5)	54.63 (±10.3)	<0.001
Cardiac Output (L/min)	4.56 (±1.3)	3.47 (±1.0)	<0.001
Cardiac Index (L/min/m ²)	2.24 (±0.6)	1.91 (±0.5)	0.001
PVR (dyn·s/cm ⁵)	642.47 (±342.3)	1097.22 (±383.3)	<0.001
Clinical Risk Factors			
History of Coagulopathy	214 (49.7%)	15 (35.7%)	0.085
History of Splenectomy	16 (3.7%)	1 (2.4%)	0.637
History of VTE	323 (74.9%)	30 (71.4%)	0.459