Pulmonary Embolism location following splenectomy: a potential model for CTEPH development.

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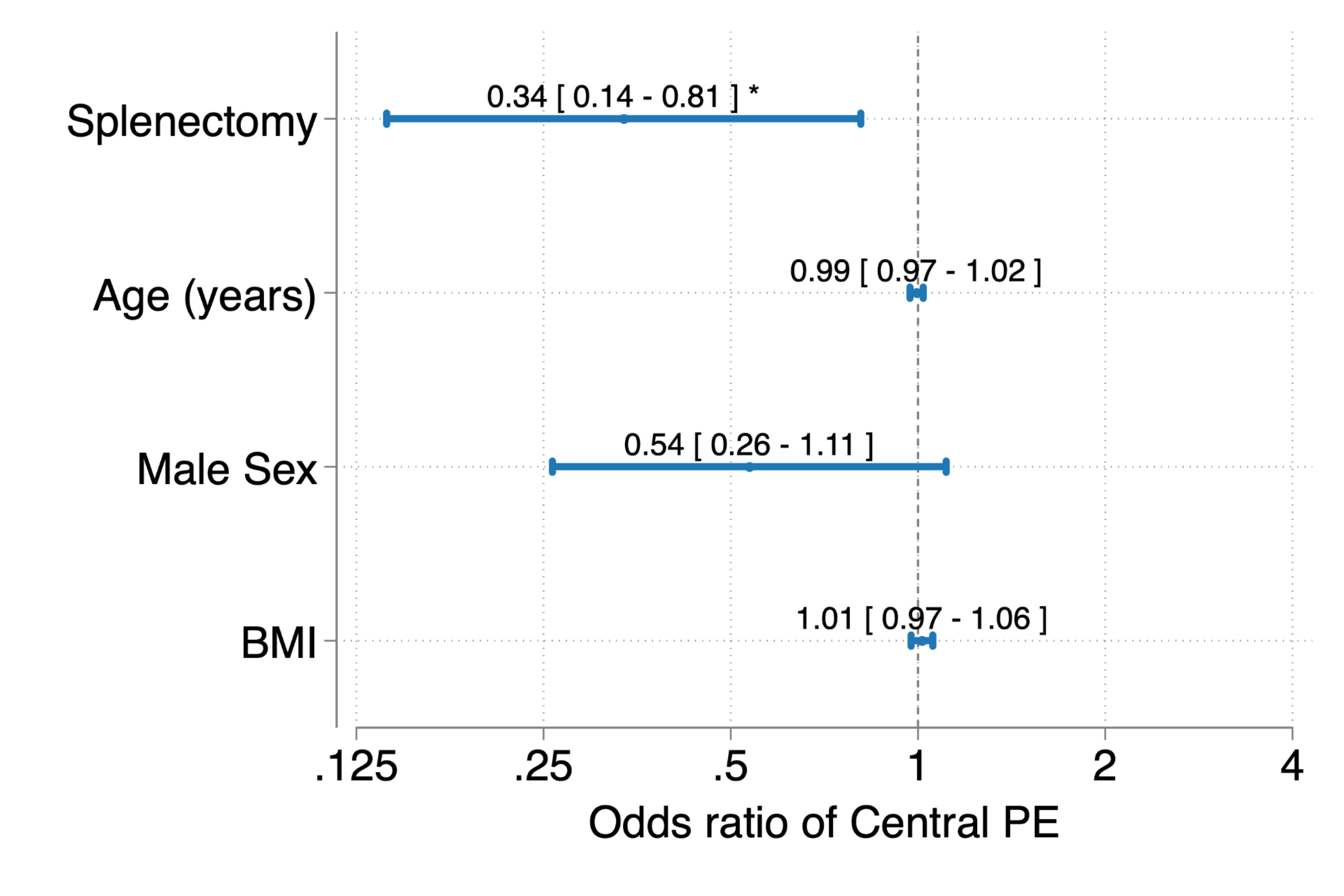
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RATIONALE: Prior splenectomy may predispose patients to developing Chronic Thromboembolic Pulmonary Hypertension (CTEPH) after pulmonary embolism (PE), as shown by a higher CTEPH prevalence than can be explained by their venous thromboembolism risk alone. The mechanism leading patients to have an increased risk is not known, but might relate to microparticles normally cleared by the spleen that contribute to clot formation in distal arteries or interfere with breakdown of clots. We theorized that the location of clot, clot burden, or structure of clot may differ in the population of PE patients with splenectomy.

METHODS: We performed a retrospective review of patients with splenectomy and PE compared against all comers with PE in our multihospital medical system. Two physicians independently analyzed the patient's CT angiography images from index PE. We quantified clot burden based on the Qanadli index, characterized PE as peripheral or central, and evaluated for evidence of chronic PE . Logistic regression (central vs peripheral, [chronic changes vs not?]) and Poisson (Qanadli score) regressions were used to evaluate for independent association between prior splenectomy and PE characteristics after accounting for age, gender and BMI. We collected secondary data points to compare in each group as well including characteristics of clot burden (PA dilation, echocardiogram indicators of right heart strain, vital signs during hospitalization or ER visit).

RESULTS: [would report N included, %male/female, age, and BMI] There was high inter-rater agreement between central vs. peripheral assessments (Kappa = 0.71), and excellent agreement in clot burden assessment (Kappa = 0.95 for Qanadli score). Patients with prior splenectomy had lower odds of central pulmonary embolism than patients without splenectomy (odds ratio 0.34, 95% CI 0.14-0.81). There was no statistically significant difference in clot burden between the groups [Qanadli score 0.8 times as high in patients with splenectomy, 0.33-1.93 ] . [also talk about chronic changes? Hypothesis mentions – should be consistent whichever way we go]

CONCLUSIONS: Among patients with PE, splenectomy was independently associated with more peripheral clot location but no difference in clot burden. in this population. Further evaluation and analysis of clot characteristics in this population could help physicians to better understand the mechanism of development of CTEPH in both this population and in the general CTEPH population as well.



**Figure 1: Adjusted odds ratio of central pulmonary embolism (PE), with 95% confidence intervals.**