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2015 ABSTRACT

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The Prevalence and Pathogenesis of HIV-Associated Pulmonary Arterial Hypertension among Underserved Urban Populations.

Introduction:

Pulmonary arterial hypertension (PAH) is a non-infectious complication of HIV which has become increasingly important as HIV survival has increased. Although HIV is an independent risk factor for PAH, the pathogenesis of HIV-associated PAH (HIV-PAH) is largely unknown and specific prevalence data for minority populations have not been investigated.

Background:

The three-year survival for HIV-PAH is significantly higher for persons diagnosed at New York Heart Association (NYHA) functional classes I & II (~85%) compared to patients diagnosed at NYHA functional classes III & IV (~30%). Unfortunately, HIV-PAH is associated with non-specific symptoms; thus, it is often diagnosed late, leading to the need for more expensive therapeutic options and a greater health burden. African-Americans may have an escalating risk for developing HIV-PAH given the rapid increase in HIV infection among African-American women. In addition, studies suggest that the prevalence of preclinical HIV-PAH may be higher than that of clinically diagnosed HIV-PAH. If this is true, routine PAH screening should be considered for persons with HIV, given the poor prognosis of HIV-PAH when diagnosed late or left untreated. This study will use targeted screening to determine the prevalence of HIV-PAH among African-Americans in Atlanta with a view to developing screening guidelines for this high-risk population.

The HIV protein Nef has been implicated in HIV-PAH pathogenesis, but the exact mechanism is unknown. Additional studies are needed to explore the role of Nef in HIV-PAH pathogenesis among humans. This study will 1) investigate the relationship between HIV-PAH and exosomal Nef and 2) determine if exosomal Nef has predictive or prognostic value with regards to the development and progression of HIV-PAH, respectively. Knowledge gained regarding exosomal Nef's role in HIV-PAH pathogenesis may prove useful in developing screening guidelines and may identify pathways that could be targeted to intervene in HIV-PAH pathogenesis.

Hypothesis and Objectives:

We hypothesize that: 1) targeted screening for HIV-PAH among an urban underserved community will improve the early detection of PAH; and 2) there is a relationship between HIV-PAH and the levels of exosomal Nef.

Specific Aim 1:

To determine whether targeted screening for HIV-PAH among an urban underserved community improves early detection of PAH.

Specific Aim 2:

To determine whether there is a correlation between PAH and HIV Nef-driven exosome-linked factors.