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J Pulm Respir Med 2015, 5:3
http://dx.doi.org/10.4172/2161-105X.S1.008

International Conference and Exhibition on
Lung Disorders & Therapeutics
July 13-15, 2015 Baltimore, Maryland, USA

A dual hit of HIV-1 plus IVDU on Pulmonary vascular remodeling

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Intravenous Drug Use (IVDU) has been found to be one of the major risk factors for HIV-infection in the HIV Related Pulmonary Arterial Hypertension (HRPAH) patients. Our previous findings showing enhanced pulmonary vascular remodeling in HIV-infected lung tissues from IV heroin and/or cocaine abusers indicates that IVDU and HIV-1 potentially act in concert to cause pulmonary arteriopathy. Our study of lung tissues from simian immunodeficiency virus (SIV)-infected morphine treated macaques (VM) demonstrated significant pulmonary vascular remodeling when compared with either the SIV-infected or un-infected morphine treated groups. Furthermore, the endothelial cells (ECs) lining the vessels showing medial hypertrophy or initial stage intimal lesions in lung sections from VM macaques demonstrated an increase in positivity for both TUNEL and Ki67. This observation was supported by cell culture studies demonstrating enhanced apoptosis followed by enhanced proliferation of apoptotic resistant endothelial cells upon simultaneous treatment with HIV-Tat and morphine compared to either treatment alone. However, what causes the polarization of endothelial cells from apoptosis to apoptosis resistant hyper-proliferative state is not clear. In light of the emerging realization of cross talk between autophagy and apoptosis is controlling the cell death and cell-survival, we examined autophagy in ECs exposed to Tat and morphine. Our findings indicate that morphine in combination with viral protein(s) results in the synergistic induction of autophagy of pulmonary ECs that may be involved in switching of apoptotic cells to apoptosis resistant proliferative ECs. This may have led to the increase in the severity of angio-proliferative remodeling of the pulmonary vasculature that was observed on SIV/HIV-infection in the presence of opioids.

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Sensitivity of direct smear microscopy for the diagnosis of TB in high HIV prevalent population Nnewi, Nigeria

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Background: Diagnosis of tuberculosis (TB) amongst HIV patients is a great challenge due to the low density of Acid Fast bacilli (AFB) in their sputum.

Objective: The study was conducted to determine the sensitivity of direct smear microscopy (DSM) for TB diagnosis in HIV endemic setting using culture as a gold standard.

Method: Sputum specimen of 550 TB suspects were screened microscopically for AFB using Ziehl-Nielsen method at NAUTH Nnewi and positive samples subjected to culture on Lowenstein-Jensen medium with each patient also screened for HIV status.

Result: They comprised of 238 (43%) DSM TB positive cases and 312 (57%) DSM TB negative cases. Out of 238 DSM TB positive cases, 180(33%) were culture positive cases with 12(2.1%) culture negative cases, 13 (2.4%) contaminated specimen, 3 (0.5%) NTM and 30(5.5%) lost specimen resulting in 58 (10.5%) specimen which were excluded from analysis respectively. Among the 180 culture positive TB cases 34 (19%) were HIV-positive patients while 146 (81%) were HIV Negative culture positive TB cases, 109 (61%) males as compared to 71 (39%) females within 21-40 years age group mostly affected. Findings from this study showed that the difference in the detection of PTB between these two methods was statistically significant (p=0.0001), identifying high sensitivity case detection rate of DSM as compared to specificity by culture detection more especially in HIV positive persons.

Conclusion: To improve TB case detection for effective treatment, we recommend the use of culture as back up to enhance the specificity and accuracy of DSM especially in HIV positive persons.

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