Background. HIV-infection leads to a higher risk of progression from asymptomatic, non-transmissible latent tuberculosis infection (LTBI) to active tuberculosis (TB). Specific comorbid medical risk factors increase this risk which can be decreased by successfully treating LTBI.

Methods. We compared risk of progression between HIV infected and uninfected adults seen at the Saint Louis University Hospital from 2010 to 2015 using a validated online calculator (tstin3d.com). We also recorded information on prescribing practices and treatment completion rates in the two groups.

Results. Of 125 patients included, 10 had HIV, 10 AIDS, and 105 HIV-uninfected. The median annual TB risk amongst the three groups was 8% (3–88%), 22% (11–25%), and 0.5% (0–6%) respectively. Smoking, recent TST/IGRA conversion, and diabetes were more prevalent among HIV/AIDS patients. Nine months of INH was most commonly prescribed for both HIV/AIDS (85%) and HIV-uninfected groups (45%). Of concern, were the equivalent rates of LTBI treatment non-completion seen between HIV/AIDS than HIV-uninfected patients (35% vs. 34%).

Conclusion. TSTin3d.com can facilitate increased provider awareness of TB activation risk factors and can quantify rate of reactivation. We are currently implementing the calculator in the clinic to prospectively study how risk stratification can alter treatment choices for LTBI patients at highest risk for progression to TB.

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556. Characteristics and Outcomes of Patients with Pneumocystis jirovecii Pneumonia Who Were Initiated on Antiretroviral Therapy While Hospitalized: A Preliminary Study

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Session: 61. HIV and Fungal Infection

Background. Pneumocystis jirovecii pneumonia (PJP) is the most frequent and severe respiratory infection in patients with acquired immunodeficiency syndrome (AIDS) with associated 20% mortality. There have been conflicting data regarding the optimal time to initiate antiretroviral therapy (ART) in these patients with most data suggesting benefit for early initiation. The objectives of this study were to compare patients with PJP and AIDS who were initiated on ART while hospitalized compared with those who were not; and to evaluate the association between inpatient initiation of ART and survival.

Methods. We conducted a retrospective chart review of patients 18 years or older with PJP and AIDS who were not on ART prior to admission. We collected demographic, laboratory and clinical information. SPSS was used to compare the two groups: those who initiated ART while inpatient (ART) vs. those who did not (NoART)

Results. Of the study, 25 [7.6%] were in the ART group, 19 (27%) required intensive care unit (ICU), and 16 (25%) required mechanical ventilation (MV). There were no differences in age, gender, race/ethnicity, and smoking between the ART and NoART groups. A higher percentage of patients in the ART group received corticosteroids (96% vs. 72%; P = 0.020), required MV (48% vs. 10%; P = 0.001), and ICU admission (60% vs. 10%; P = 0.000) than in the NoART group respectively. There were no differences in the ART and NoART groups in regards to ICU stay (4 vs. 5.5 days; P = 1.000) and APACHE II scores (15.2 vs. 10.7; P = 0.17). A total of 9 (14%) patients died while in the hospital 6 (24%) in ART vs. 3 (8%) in NoART (P = 0.137).

Conclusion. Patients with PJP pneumonia who were initiated on ART while inpatient were more likely to require ICU admission, corticosteroids, and mechanical ventilation. There were no differences in APACHE II scores, CD4 count and mortality between those who initiated ART while inpatients vs. those who did not. Further studies with larger sample size are needed to evaluate the association between inpatient initiation of ART and survival.

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557. Using a Validated Calculator to Assess the Risk of Disease Progression and Treatment Completion in Patients with Human Immunodeficiency Virus Infection and Latent TB

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Session: 62. HIV and Mycobacterial Infections

Background. Opportunistic infections (OI) and Latent TB infection and Latent TB (LTBI) treatment completion in patients with Human Immunodeficiency Virus (HIV) infection and latency TB (LTB) are common complications in patients with HIV infection. It is important to identify patients at higher risk of disease progression and treatment completion as they are likely to benefit from earlier treatment.

Methods. We developed a risk calculator with data from 1000 patients with HIV infection and LTBI to identify patients at high risk of disease progression and treatment completion and implemented it in our CAREWare EMR system.

Results. Of 125 patients included, 10 had HIV, 10 AIDS, and 105 HIV-uninfected. The median annual TB risk amongst the three groups was 8% (3–88%), 22% (11–25%), and 0.5% (0–6%) respectively. Smoking, recent TST/IGRA conversion, and diabetes were more prevalent among HIV/AIDS patients. Nine months of INH was most commonly prescribed for both HIV/AIDS (85%) and HIV-uninfected groups (45%). Of concern, were the equivalent rates of LTBI treatment non-completion seen between HIV/AIDS than HIV-uninfected patients (35% vs. 34%).

Conclusion. TSTin3d.com can facilitate increased provider awareness of TB activation risk factors and can quantify rate of reactivation. We are currently implementing the calculator in the clinic to prospectively study how risk stratification can alter treatment choices for LTBI patients at highest risk for progression to TB.

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559. White Blood Count, Albumin, and BMI Enhance VACS Index Prognostic Model, but Nadir CD4 and CD8 Metrics Do Not
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Session: 63. HIV Clinical Care and Outcomes
Thursday, October 5, 2017: 12:30 PM

Background. People living with HIV frequently achieve long-term viral suppression necessitating better metrics of disease burden for clinical management and research. The Veterans Aging Cohort Study (VACS) Index predicts hospitalization, mortality, and other outcomes, using routinely available clinical data. We sought to enhance the index by evaluating whether nadir CD4, CD8, CD4/CD8 ratio, white blood count (WBC) or absolute neutrophil count (ANC), albumin, and body mass index (BMI) enhanced prediction. The original index categorized predictors for ease of understanding and calculation of a risk score. We also sought to expand categories and develop a continuous variable model, suitable for use with automated calculation, to provide higher resolution.

Methods. VACS, includes all HIV infected patients in VA Care. Among those who initiated ART 1996–2013, (excluding any treated for HCV infection), we obtained laboratory values from a randomly selected visit 2000–2014, at least one year after ART initiation. Patients were followed for 5-year, all cause mortality until September 30, 2016. We fit Cox models starting with currently used predictors (age, CD4, HIV-1 RNA, hemoglobin, HbA1c, eGFR and HCV status) and decided to include new variables based on model fit, chi-square, strength and significance of individual levels and c-statistic. Functional form for continuous variables was determined graphically. Adequacy of final models was assessed with Kaplan-Meier plots by deciles of risk.

Results. Among 28,390 patients there were 7,293 deaths (7.2 per 100 person-years) in median 4.1 years of follow-up. Nadir CD4, CD8, CD4/CD8 did not improve prediction. WBC and ANC performed equally but WBC was more widely available. C-statistics improved from 0.776 for the original VACS Index (in this sample) to 0.805.

Conclusion. Addition of WBC, albumin, and BMI enhances utility of the VACS Index as a measure of overall severity of disease both as an outcome for research and for patient monitoring in the clinical setting. Validation in external cohorts is in progress.

560. The Impact of Continuous Virologic Suppression on the Development of Non-AIDS Diagnoses
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Background. In the era of effective antiretroviral therapy (ART) non-AIDS diagnoses (NAD) have emerged as significant concerns. HIV viremia is an important driver of systemic inflammation that has been linked to the development of NAD. In this study, we examined the distribution of NAD in a group of early diagnosed and treated HIV-infected individuals with equal access to care to evaluate the effect of continuous virologic suppression (CS) on NAD.

Methods. The U.S. Military HIV Natural History Study (NHS) is a prospective cohort of HIV-infected DoD beneficiaries the majority of whom are dero seroconverters. Medical record review and structured interviews are utilized to capture NAD. We included subjects initiating ART after 1996 if they had ≥2 viral loads (VLs) measured while on ART. CS was defined as having all VLs ≤50 copies/mL. A Cox proportional hazard model was used to evaluate the association between CS and NAD.

Results. Of the 2,642 eligible participants (93% male, 43% African-American AA), median follow-up 6.5 (IQR 3.31–12) years, 985 (37.3%) subjects (94% male, 42% AA, median follow-up 3.74 years) met criteria for CS. The median time from HIV diagnosis to ART initiation was 1.34 (IQR 0.19–5.46) years, while the median seroconversion window was 1.31 (IQR 0.8–2.17) years. A total of 402 (15.2%) NAD were recorded and were recorded (table). Factors associated with NAD included older age at ART initiation (HR 1.6 per 10-year increase [95% CI 1.4–1.8]) and female gender (HR 1.6 [95% CI 1.0–2.7]), while a higher CD4 count was protective (HR 0.93 per 50 cell increase [95% CI 0.90–0.95]). CS status was not associated with NAD (HR 0.75 [95% CI 0.50–1.11]).

Conclusion. In the ART era, about 1 in 7 NHS subjects had a NAD. The numbers of NAD in the CS subjects were lower than the rest of the cohort. While not statistically significant the hazard ratios trended towards demonstrating a benefit for continuous virologic suppression. This trend is consistent with previous reports that have demonstrated a benefit of immunologic reconstitution and virologic control on the incidence of NAD.

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561. Screening for Comorbid Conditions Among People with HIV in Medical Care
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Background. A significant proportion of morbidity and mortality among people living with HIV (PLWH) is attributable to non-HIV comorbid conditions. Despite the importance of detecting and treating comorbidities among PLWH, screening rates for common comorbidities are often suboptimal and may not correspond with risk factor status.

Methods. Comorbidities screening and other clinical data were obtained from the 2012 New York City (NYC) Medical Monitoring Project (MMP), a multi-site surveillance project comprised of demographically representative cohorts of PLWH receiving medical care. MMP medical record abstraction data were analyzed to...