

## \*Diabetes Mellitus in HIV and Aging

- The most important prevention for adult onset diabetes mellitus is to avoid excess weight gain. Since most HIV patients come into care at or below normal weight, patients initiating ART should be encouraged to avoid excess weight gain.
- Screening for diabetes should be done regularly, before and after the initiation of HAART, using glycosolated hemoglobin with appropriate diagnosis follow up. For patients with diabetes, glycosolated hemoglobin should be checked at least twice yearly.
- The target glycosolated hemoglobin (6.5% for younger patients) should be increased to 8% for frail patients, especially if their life expectancy is less than 5 years, are at high risk for hypoglycemia, polypharmacy or drug interactions.

The incidence of type 2 diabetes mellitus is reported to be as much as four times higher in HIV-infected patients compared to uninfected patients and increases with increasing age. The incidence of the metabolic syndrome is higher. The increase in risk in ART- treated patients may be related to the use of certain antiretroviral drugs, such as thymidine analogues and protease inhibitors (Llibre et al. 2009; De Wit et al. 2008), obesity, hepatitis C coinfection. It appears that the new protease inhibitors and newer classes of antiretroviral drugs do not promote glucose intolerance.(Rasmussen et al 2012) Prevention of diabetes is similar to the approach in uninfected older patients, focusing on lifestyle changes such as weight loss, aerobic exercise and proper diet. Screening for glucose intolerance should be performed regularly, before and after initiation of ART (Simone & Appelbaum 2008). There is some debate on whether screening should be done with fasting blood glucose levels (FBG) or using glycated hemoglobin. The American Diabetes Association has recommended that glycated hemoglobin is an acceptable screening tool, with a diagnosis of diabetes when the

glycated hemoglobin is equal to or greater than 6.5% (American Diabetes Association, 2014). However, studies have shown that while this test is highly specific, it is insensitive and should be combined with FBG( $\geq 126$ ) for screening.(Eckhardt 2011). Management of patients may include switching to less glucose intolerant antiretroviral drugs and using the American Diabetes Association guidelines. This includes the use of oral hypoglycemic agents and insulin. The target glycated hemoglobin should less than 7% (Diabetes Care 2014) for younger patients but should be increased to 8% for frail patients, especially if their life expectancy is less than 5 years, are at high risk for hypoglycemia, polypharmacy or drug interactions (Reuben 2013) . Recent studies have shown no benefit and possible harm from tight glucose control in type 2 diabetes mellitus (Wilson 2011). The glycated hemoglobin should be checked at least twice yearly. Care of HIV infected diabetics should focus on prevention of complications (such as foot ulcers, retinopathy, hypertension and vascular disease) as much as with HIV-uninfected patients. Renal function and presence of proteinuria should also be carefully

monitored as both diabetes and HIV increase the risk. There is increasing prevalence of obesity in the older population (American Geriatrics Society, 2013) and since obesity is a risk factor for development of the metabolic syndrome and hyperglycemia, clinicians should counsel their older patients with HIV to maintain proper BMI.

Morphologic changes are common in older patients with HIV/AIDS. Increasing age is risk factor for loss of subcutaneous fat (lipoatrophy) and/or increase in central fat deposition (lipohypertrophy). Management options include switching ART (removing thymidine analogues, using NNRTIs or INSTIs), surgical removal of fat, use of growth hormone or analogues.

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