Effects of Dietary Regimens on The Development of Cart-Associated Metabolic Syndrome

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Abstract

Background & Aims: This study investigated the interactions between a low protein high calorie (LPHC) diet and an integrase inhibitor- containing antiretroviral drug regimen in light of evidence suggesting that the initiation of cART in patients with poor nutritional status is a predictor of mortality independent of immune status.

Methods and Results: Freshly weaned Sprague Dawley rats (120) were randomized into the normal LPHC or normal protein high calorie (NPHC) diet groups(n=40/group) initially for 15 weeks, after which the experimental animals in each diet group were further randomized into four treatment sub-groups (n =10/group): Control (normal saline), Test group 1: (TDF+3TC+DTG and Tesamorelin), Test group 2: (TDF+3TC+DTG), and Positive control: (AZT+3TC +ATV/r) with treatment and diets combined for 9 weeks. Body weights (weekly), glycemic control (fasting blood glucose and oral glucose tolerance tests), lipid profiles, liver weights, hepatic triglycerides and adiposity were assessed.

Conclusions: The obesogenic activities of the LPHC diet exceeded that of the NPHC diet and interacted with both integrase-containing and classical cART drug regimens to reproduce cART associated metabolic dysregulation. The effects were however reversed by co-administration with tesamorelin, a synthetic growth hormone releasing hormone analogue.

Keywords: Integrase inhibitors: Combined antiretroviral therapy: Low protein high calorie diet: Normal protein high calorie diet: Metabolic dysregulation: Tesamorelin.