

Abstract

Beta-blockers that are non-selective, beta-1-selective or possess intrinsic sympathomimetic activity (ISA) are thought to differ in their effects on serum potassium, glucose and lactate during exercise. In a randomized, double-blind, cross-over, placebo-controlled study, 21 healthy male volunteers took placebo, propranolol, pindolol and metoprolol on separate occasions. They were subsequently exercised using the same exercise protocol on each visit and serum levels of potassium, glucose and lactate determined before and after exercise. Only propranolol (non-selective beta-blocker with no ISA) was associated with significantly higher increases in serum potassium and glucose than placebo ($p = 0.000$). Increases in serum lactate levels with exercise were not significantly different between propranolol, pindolol (non selective blockers with ISA), metoprolol (beta-1-selective blocker with ISA) and placebo. Interference with metabolic responses to exercise associated with beta-blockade is modified by beta-1-selectivity and ISA amongst indigenous Kenyans.