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The purpose of this ancillary project is to evaluate prolonged sedentary behavior as a potential therapeutic target for intervention after an acute coronary syndrome (ACS). More than 1.1 million patients are hospitalized annually for ACS in the United States alone. With the advent of new technologies and medications, most patients hospitalized with an ACS survive, however they remain at high risk for recurrent cardiac events and mortality; underscoring a critical need to identify prognostic risk factors that can be targeted for intervention. One such risk factor may be sedentary behavior. Evidence suggests that sedentariness is a “toxic” health behavior (and not merely the absence of physical activity), conferring pathophysiological changes that greatly contribute to morbidity/mortality risk. ACS patients are particularly prone to high volumes of sedentariness after hospitalization; accruing, on average, 12-13 hours/day, with many exceeding 15 hours daily. This raises the question as to whether reducing sedentary behavior may represent another therapeutic target for secondary prevention of ACS patients independent from, and in addition to, physical activity. No existing guidelines for secondary prevention in ACS patients, however, mention sedentary behavior as a risk factor to be treated. This omission may be due to a lack of empirical evidence, as no study to date has assessed whether objectively-measured sedentary behavior incurs increased morbidity/mortality risk post-ACS, independent of cardiac disease severity and physical activity. The NHLBI-funded ‘Post-Hospital Syndrome’ (PHS) study provides a unique opportunity to evaluate sedentary behavior as a prognostic risk factor among ACS survivors. This study comprises a cohort of 1,000 ACS patients who present to the emergency room and are followed throughout their hospital stay to determine whether in-hospital stress, sleep, physical activity, and/or weight loss are associated with 30-day rehospitalization. In this ancillary study, we propose to additionally measure sedentary behavior objectively for 30 days post-discharge among 862 PHS study patients using triaxial accelerometers that can distinguish both posture and movement. We will also ascertain ACS recurrence and mortality at 1-year follow-up. Finally, we will assess biomarkers of inflammation, procoagulant activity, and dyslipidemia in-hospital and at 1-month follow-up. These data will be used to primarily evaluate whether objectively-measured sedentary behavior is associated with risk of 1-year recurrent events/mortality among post-ACS patients. These data will also be used to inform future interventions to reduce sedentary behavior among ACS survivors by (1) determining the type of activity (standing or walking) that sedentary-reduction strategies should be targeting, and (2) identifying an intermediary target (e.g. inflammation, procoagulant activity, dyslipidemia) to assess intervention efficacy. The results of this study could have a major impact on secondary prevention guidelines for ACS patients by determining whether they should be modified to promote reductions in sedentary behavior. Thus, our findings could have a powerful, sustained impact on public health.