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The goal of this ancillary R01 is to evaluate sleep and sedentary behavior after stroke or transient ischemic attack (TIA) as potential therapeutic targets to reduce risk of secondary cardiovascular disease (CVD). We will also identify modifiable predictors of poor sleep and sedentary behavior post-stroke/TIA to guide early intervention efforts. Stroke is the leading cause of serious long-term disability in the U.S., with nearly 1 million inpatient admissions per year (~1 person every 40 sec). New technologies and medications for acute stroke/TIA ensure that most patients survive, but within 1 year, 1 in 4 survivors will die or have a recurrent CVD event. Identification of novel secondary prevention targets is thus vitally important. Evidence from large observational cohort studies and laboratory-based mechanistic experiments have indicated a link between both poor sleep duration (short or long) and sedentary behavior with increased risk for incident and recurrent CVD morbidity and mortality. Stroke survivors are particularly likely to experience poor sleep duration and high volumes of sedentariness after hospitalization. No existing guidelines for secondary prevention mention sleep or sedentary behavior as risk factors to target in stroke survivors. To influence guidelines, research must determine whether objectively-measured sleep duration and sedentary behavior are associated with increased morbidity/mortality risk post-stroke. It is also important to understand whether, and how, these emerging risk factors may interact to increase post-stroke recurrence and mortality risk. We will therefore conduct a comprehensive and objective assessment of the overall 24-h behavioral activity profile to investigate the independent and joint contributions of poor sleep and sedentary behavior to stroke recurrence/mortality. The current parent study is a longitudinal cohort study of stroke/TIA patients who present to the emergency room and are followed for 1 year to determine (1) predictors of stroke-induced post-traumatic stress disorder (PTSD) and (2) whether stroke-induced PTSD is a risk factor for recurrent CVD events and mortality. In this ancillary project we propose to use triaxial wrist-accelerometers to measure sleep and sedentary behavior objectively for 45 days post-discharge in 1,016 patients enrolled in the parent study. We will also survey patients at enrollment and 1-month follow-up to identify predictors of poor sleep and sedentary behavior post-discharge. These findings will be used to primarily evaluate whether objectively-measured sleep duration and sedentary behavior are associated with risk of 1-year recurrent events/mortality in stroke/TIA survivors. If these behaviors explain a substantial portion of excess risk for recurrent cardiovascular events and mortality, we will
have a foundation to target these behaviors for secondary risk reduction in this patient population. Findings will inform novel interventions to improve sleep and reduce sedentary behavior among stroke survivors by (1) determining why stroke survivors are prone to poor sleep and high volumes of sedentariness and (2) offering novel strategies targeting identified predictors to improve these modifiable outcomes.