Feature

Cardiovascular Risk Reduction in Persons Living With HIV: Treatment Development, Feasibility, and Preliminary Results

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Persons living with HIV (PLWH) have elevated risks for cardiovascular disease (CVD). Our goal was to develop and pilot test a tailored intervention to improve CVD risk perception and the adoption of heart-healthy behaviors. In-depth qualitative interviews were conducted with 30 PLWH participants to examine learning needs and preferences. An intervention manual was developed and tested in an open pilot with eight participants. Participants were stable on antiretroviral therapy and were recruited from two urban HIV clinics in the northeastern United States. Thematic analysis identified five major themes: (a) tailored structure and design for PLWH, (b) learning needs (specific to HIV), (c) desire for prompts/reminders (to exercise), (d) importance of participant resources, and (e) need for personal evaluation and goal setting. Feasibility and acceptability of the intervention were demonstrated with high session attendance and treatment satisfaction. Further testing is warranted.

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Cardiovascular disease (CVD) has emerged as a major cause of morbidity and mortality in persons living with HIV (PLWH; Sackoff, Hanna, Pfeiffer, & Torian, 2006), and PLWH have an elevated risk for CVD when compared to the general population (Drozd et al., 2017). Acute myocardial infarction (AMI) rates are significantly higher in PLWH compared to age- and gender-matched controls (11.3 vs. 6.98 per 1,000 person-years), and the relative risk is 75% higher for those infected with HIV (Triant, Lee, Hadigan, & Grinspoon, 2007). One-third of adult PLWH are at moderate to high 10-year risk of having a cardiac event (Kaplan et al., 2007). Compared to uninfected

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matched controls, PLWH are twice as likely to have high predicted 10-year risk of AMI (Bergersen, Sandvik, Bruun, & Tonstad, 2004). Although advances in the medical treatment of HIV over the past 30 years have led to an increased lifespan for PLWH, one-quarter of all non-HIV-related deaths in HIV-infected adults are now due to CVD (Sackoff et al., 2006).

Traditional risk factors for CVD significantly contribute to the elevated rate of risk in PLWH (Paisible et al., 2015). For example, smoking is much more prevalent in PLWH (50%-70%) compared to the general population, where the smoking prevalence is approximately 18% (Cioe, Crawford, & Stein, 2014; Mdodo et al., 2015). Hypertension, diabetes, dyslipidemia, and obesity are also more prevalent in PLWH and contribute to CVD risk (Kaplan et al., 2007). Hypertension and prehypertension in PLWH have been associated with an increased relative risk of AMI (relative risk = 1.88) compared to uninfected controls (Armah et al., 2014). Similarly, increased body mass index (BMI) and larger waist circumference have been associated with elevated CVD risk (Janiszewski et al., 2011).

The American Heart Association (AHA) published primary prevention guidelines for the general population in which increased physical activity, healthy diet, blood pressure management, and smoking cessation were considered the cornerstones of CVD risk reduction (Eckel et al., 2014). The 2020 Impact Goal of the AHA focuses on cardiovascular health (as opposed to CVD) and places emphasis on prevention at all levels of cardiovascular risk. Specific health behaviors to achieve cardiovascular health on an individual level include 150 minutes or more of physical activity per week, a BMI less than 25, blood pressure less than 130/85 mm Hg, and abstinence from smoking. Studies focused on improving physical activity levels in PLWH have demonstrated some success. Webel, Moore, Hanson, and Salata (2013) showed that a self-management intervention improved physical activity levels by incorporating a socioecological model that included factors at the individual, interpersonal, and environmental levels. Cutrono and colleagues (2016) showed that a 3-month combined aerobic and resistance exercise training program improved muscular strength and metabolic risk factors. Alternately, a home-based physical activity intervention was not successful in improving physical activity levels in PLWH (Jaggers et al., 2016). Behavior change can be difficult; however, theories of behavior change, such as the Health Belief Model (HBM; Rosenstock, Strecher, & Becker, 1988), suggest that knowledge, perception of risk, self-efficacy for change, and motivation are key antecedents to behavior change. Interventions that are focused on improving perception of CVD risk in PLWH have not been specifically designed, despite the significantly elevated risk for CVD in PLWH.

Studies in the general population (Homko et al., 2008) and among PLWH (Temu et al., 2015) have demonstrated that overall CVD risk factor knowledge and risk perception are low. Cioe and colleagues (2014) found that while general CVD risk factor knowledge was fairly high among urban PLWH in the United States, it was not predictive of CVD risk perception, and in fact, individuals tended to underestimate their levels of personal risk. Having a sedentary lifestyle is common among PLWH, and some interventions to improve physical activity levels for PLWH have not been successful (Rehm & Konkle-Parker, 2016; Vancampfort et al., 2016; Vancampfort, Mugisha, Richards, De Hert, Lazzarotto, et al., 2017). Another study demonstrated that PLWH face unique challenges and barriers to adopting the lifestyle behavior changes that are required to lower CVD risk (Capili, Anastasi, Chang, & Ogedegbe, 2014). An intervention that specifically targets improving CVD risk perception in PLWH may help improve the adoption of multiple heart-healthy behaviors, such as physical activity, healthy diet, and smoking cessation.

Qualitative research methods have been shown to be useful in the development and revision of tailored interventions (Lewin, Glenton, & Oxman, 2009; O'Cathain et al., 2015), treatments that are specific for an individual or a group to improve health or change behavior. In particular, qualitative methods may elucidate the specific needs and content priorities of the targeted population. They can be used to address issues related to intervention messages and the mode of delivery, as well as to help establish study procedures to ensure meaningfulness and appeal of the proposed intervention (de Visser et al., 2015). Finally,