

CONGRESO IBEROAMERICANO DE NUTRICIÓN

¿Nutrición basada en la videncia o en la evidencia?



ACADEMIA
ESPAÑOLA DE
NUTRICIÓN
Y DIETÉTICA



www.renhyd.org



3 de JULIO de 2019

Conferencias Cortas
Temática Libre II

PONENCIA 3



The Healthy Heart Score, a potential primordial prevention tool for cardiovascular prevention

Mercedes Sotos-Prieto^{1,2,*}

¹Division of Food Sciences and Nutrition, School of Applied Health Sciences and Wellness, Ohio University, Athens, Estados Unidos de América. ²Department of Nutrition and Environmental Health, Harvard T.H. Chan School of Public Health, Harvard University, Boston, Estados Unidos de América.

*msotosp@hsph.harvard.edu | sotospri@ohio.edu

Introduction: Despite efforts in primary and secondary prevention of cardiovascular disease (CVD), it remains the leading cause of death worldwide (1), suggesting the need for primordial prevention strategies (2,3). The Healthy Heart Score, a previously validated primordial prevention tool that assesses the 20-year CVD risk, focuses only on modifiable behaviors (<https://healthyheartscore.sph.harvard.edu/>) (4). Previous results have demonstrated that the Healthy Heart Score is associated with the development of relevant clinical risk factors that precede CVD events such as diabetes, high cholesterol, and hypertension (5), and overall mortality, CVD and cancer (6). Specifically, women with a higher predictive CVD risk had an 18-fold higher risk of type 2 diabetes *mellitus*, 5-fold higher risk of hypertension, and 3-fold higher risk of hypercholesterolemia (5) during 20 years. These results from

epidemiological data support the importance of primordial prevention of CVD or the prevention of the clinical risk factors in the first place by lifestyle modification. However, the application of the Healthy Heart Score in the clinical care setting has not been tested. The clinical care setting is a place where the Healthy Heart Score tool could be used to assess CVD risk and initiate the communication about primordial prevention between patients and clinicians. Knowing that physicians have limited time to assess lifestyle factors, we conducted a qualitative study among health providers and patients in Southeastern Ohio to really understand their thoughts about the feasibility, utility and barriers of the use of the Healthy Heart Score in the clinical setting. Preliminary results show that both healthcare providers and patients agree that the tool can be utilized in the clinical setting as a

CVD prevention tool and increase patient motivation to make lifestyle changes.

In this pilot study, we assessed the clinical utility and feasibility of the Healthy Heart Score in the clinical care setting for the primordial prevention of CVD in an urban and a rural population. We evaluated how the Healthy Heart Score assessment and intervention may impact modifiable behavior change when used in the primary care setting compared to usual preventative care. Our hypothesis was that this combination will lead to favorable changes in lifestyle behaviors (changes in the Healthy Heart Score) and clinical biomarkers (anthropometrics, blood pressure, lipids, and hemoglobin A1c (HbA1c)) compared with usual care after 3 months.

Methods: The Healthy Heart Score includes 9 modifiable lifestyle factors: smoking, BMI, physical activity, alcohol, fruits & vegetables, nuts, whole grains, sugar-sweetened beverages and red & processed meats. A friendly App is being developed currently for assessment.

The study was a 12-week parallel-randomized controlled trial in an Urban and in a Rural clinical care setting in Ohio (USA). The urban randomized clinical trial has been already finalized, however we are in the recruitment phase for the rural trial (expected n=50). Participants were >18 years with no CVD diagnosis, BMI>25, and/or having at least one of the following clinical risk factors: elevated blood pressure, pre-high cholesterol, pre-diabetes but not currently taking medications. Block randomization was used to allocate intervention (n=35) and control (n=35) in the urban trial (expected n=50 for the rural one). The intervention consisted of one-on-one lifestyle recommendations based upon their individual Healthy Heart Score results by a Registered Dietitian plus a set of lifestyle recommendations materials (that included education materials based on each component of the Healthy Heart Score and other lifestyle behaviors). The Healthy Heart Score, anthropometric and biochemical data were collected to measure changes after the 12 w intervention. Clinical trial registration: NCT03482427.

Results: Combine results from both urban and rural interventions will be presented. Currently we can only report the results from the urban clinical setting. 50% completed the intervention (n=15 intervention, n=25 control). The intervention group consumed more fruit (p=0.033), vegetables (p<0.001), and nuts (p=0.003) while consuming less processed meat (p<0.001) and alcohol (p=0.037) than the control group after 12-weeks. Neither diet score nor Healthy Heart Score significantly changed in either group following 12-weeks. Additionally, both HDL-C and HDL-C/LDL-C ratio was decreased in the intervention (p=0.018 and 0.044, respectively).

Conclusions: One-on-one lifestyle interventions based on individual Healthy Heart Score can be useful in changing dietary and lifestyle habits, which could lead to favorable outcomes in CVD risk. Larger and longer randomized controlled trials are needed to determine the benefits of Healthy Heart Score in a primary care setting. The Healthy Heart Score could be a potential primordial prevention tool for counseling to a broader audience including not only the clinical care setting but workplace scenarios.

conflict of interests

Author states that there are no conflicts of interest in preparing the manuscript.

funding

Ohio University, Start-up funds, and Interdisciplinary Grant.

references

- Benjamin EJ, Virani SS, Callaway CW, Chamberlain AM, Chang AR, Cheng S, et al. Heart Disease and Stroke Statistics—2018 Update: A Report From the American Heart Association. *Circulation* [Internet]. 2018 Mar [cited 2018 Oct 2]; Available from: <https://www.ahajournals.org/doi/full/10.1161/CIR.0000000000000558>
- Lloyd-Jones DM, Hong Y, Labarthe D, Mozaffarian D, Appel LJ, Van Horn L, et al. Defining and setting national goals for cardiovascular health promotion and disease reduction: the American Heart Association's strategic Impact Goal through 2020 and beyond. *Circulation*. 2010 Feb 2; 121(4): 586-613.
- Patnode CD, Evans CV, Senger CA, Redmond N, Lin JS. Behavioral Counseling to Promote a Healthful Diet and Physical Activity for Cardiovascular Disease Prevention in Adults Without Known Cardiovascular Disease Risk Factors: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force. *JAMA*. 2017 Jul 11; 318(2): 175-93.
- Chiuve SE, Cook NR, Shay CM, Rexrode KM, Albert CM, Manson JE, et al. Lifestyle-Based Prediction Model for the Prevention of CVD: The Healthy Heart Score. *J Am Heart Assoc Cardiovasc Cerebrovasc Dis* [Internet]. 2014 Nov 14 [cited 2018 Dec 6];3(6). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4338684/>
- Sotos-Prieto M, Mattei J, Hu FB, Chomistek AK, Rimm EB, Willett WC, et al. Association Between a Healthy Heart Score and the Development of Clinical Cardiovascular Risk Factors Among Women. *Circ Cardiovasc Qual Outcomes* [Internet]. 2016 Feb [cited 2018 Sep 27]; Available from: <https://www.ahajournals.org/doi/10.1161/CIRCOUTCOMES.115.002372>
- Sotos-Prieto M, Mattei J, Cook NR, Hu FB, Willett WC, Chiuve SE, et al. Association Between a 20-Year Cardiovascular Disease Risk Score Based on Modifiable Lifestyles and Total and Cause-Specific Mortality Among US Men and Women. *J Am Heart Assoc*. 2018 Nov 6; 7(21): e010052.