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HEALTH INFORMATION TECHNOLOGY AND CARDIOVASCULAR HEALTH OF DIABETES PATIENTS

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Background: Cardiovascular disease (CVD) is the most frequent cause of morbidity and mortality in type 2 diabetes (T2D) patients. Effective control of blood pressure, lipid profiles and weight can reduce cardiovascular complications significantly. Health information technologies (HITs) in the management of diabetes, appears effective in reducing HbA1c, however, their effect on T2D patients' cardiovascular health has not been well evaluated.

Objective: We used meta-analysis to identify a common effect of HIT on CVD management across randomized control trails (RCT).

Methods: We systematically searched Medline, Cumulative Index of Nursing and Allied Health Literature and the Cochrane Library for peer reviewed RCTs that studied the effect of HITs (i.e. mobile phone-based applications, web-based applications, SMS/Text and others) on systolic blood pressure (SBP), diastolic blood pressure (DBP), HDL, LDL and triglycerides. We hand searched reference lists of eligible articles and reviewed articles to identify missed articles. To address the concern that the trials' effect on CVD outcomes may be a mixed product of HITs and standard treatment (e.g. medication regimens and/or lifestyle therapies), we restricted analysis to studies that compared effects between HITs intervention plus standard care and standard care. We analyzed data using random effects meta-analytic models.

Results: We included in the final analyses six eligible studies (six estimates) with measurement of SBP, five (five estimates) of DBP, five (five estimates) of HDL, four (four estimates) of LDL and five (five estimates) of triglycerides. HITs are associated with significant reductions in SBP, DBP and LDL. Standardized mean differences were =-0.58, 95% CI (-1.06, -0.10), -0.70 (-1.34, -0.07) and -0.30 (-0.47, -0.14), respectively.

Conclusions: HIT are effective in CVD management, especially in blood pressure control and LDL management for T2D patients. HIT should be promoted for the prevention of diabetes complication, especially among T2D patients whose CVD health is not properly managed.

BIOGRAPHY

Eduardo J Simoes has completed his MD from University of Pernambuco, Brazil, his MSc from University of London, England and MPH from Emory University, USA. He is the Chair and Distinguished Professor of University of Missouri, USA. He has over 120 publications that have been cited 4691 times (Google Scholar), and his publication H-index are 33 (Google Scholar) and 27 (Scopus). He has been serving as an editorial board member of five reputed journals.

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