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Role of Wearable Technology And Geo-Fencing Device In Management of Renal Data And Quality of Life In Relation To Chronic Kidney Disease Patients With Type 2 Diabetes

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Objectives : To study role of wearable devices (fire-boltt quantum watch) and geo-fencing technology to monitor daily life routine activities on health and quality of life data in chronic kidney disease (CKD) patients with type 2 diabetes in Gurugram city, India .
Methods : Total of 450 CKD patients with type 2 diabetes were taken as subject with an equal ratio of male and female between 50 to 60 years. Wearable monitoring devices like fire-boltt quantum watch and geo-fencing device were put on the wrist of patients for 30 days and a questionnaire was filled out by each patient. In all subjects, blood pressure, blood glucose was measured on daily basis with day to day data of their monitoring of step count, calorie burnt, motion time, sleep monitoring, calorie consumption, monitoring heart rate to know daily routines and recording them for health purpose. Wearable bands, automatically provides a cueing sound with sensing alert when patients move out of the geo-fenced area and which stays until the subject resumes walking in virtual boundary.
Results : Present results shown that both wearable device reading showed that there was a significant normal heart rate ($p<0.05$), increase calorie burnt with a significant decrease of blood glucose and blood pressure levels ($p<0.01$), and increased significantly ($p<0.01$) sleep duration in active physically workout, include walking in CKD patients with type 2 diabetes compared to less physically workout CKD patients with type 2 diabetes, identified by professional physiotherapists. Both device reading showed that after changing lifestyle routine among less physically active patients, their renal functions and wandering events normalize with less requirement of drug dose.
Conclusions : With this study we show that , by using, wearable device ensured online assistive feedback for CKD patients with type 2 diabetes, it is possible with their health awareness, exercising and motivate further studies.