Ehud Baron, J Cardiovasc Dis Diagn 2018, Volume: 06
10.4172/2329-9517-C7-019

World Congress on
Hypertension and Cardiovascular Diseases
November 21-22, 2018 | Paris, France

While you were sleeping- night cardiology health maps

Ehud Baron

X-Cardio Corp. KK, Japan

The Problem: In order to appreciate the meaning of Hypertension beyond BP numeric value, we can employ 24H unobtrusive monitoring of cardiovascular health to assess progress or deterioration, and produce 24H BP graphs and Personal Health Maps (PHM)

Methodology: We suggest PHM for each patient to provide at a glance the position of the patient on the Health Space at any given time. It is based on Fuzzy sets, where each patient get different level of membership in different pathological and healthy conditions. The PHM shows the patient's Pulse Shape trace during the night and condition can be assessed in one glance. In one study in Calcutta hospital, 30 hypertensive and diabetic patients were monitored at home 24H both with ABPM recording their BP every 15 min and continuous PPG that was used to predicted BP and Cardiac Output continuously. In a second clinical trial we compared our Hemodynamics prediction to Continuous Hemodynamics CNAP device, during Hemodialysis in Fresenius Kidney Center, in St. Louis hospital. Using 2-4 light wavelengths allowed us also to interrogate the capillary bed at different penetration levels to estimate features related to the microcirculation.

Findings: We did Fuzzy clustering by an algorithm we developed to cluster the pulse shapes in the feature space. We discovered that different health conditions fell into different clusters.

Conclusions & Significance: The finding that different health condition can be defined by the BP pulse shape clustering, generates a continuous Health space. Cluster centroids that represent various pulse shape belong to different health conditions. This provides a powerful tool to see patients progress or deterioration in a quantitative way that also indicates the way for more effective interventions. It is only the very beginning but first finding look quite promising. This can solve the problem of cardiology at night time, or how to detect deterioration in early stage in an unobtrusive and automatic way during night watch.

Biography

Ehud Baron MD DSc, Ex-prof. and researcher in Technion – Israel Inst. Of Technology, Aalborg University, UC Berkeley and Stanford University. Serial entrepreneur that serves as Chairman, President/CTO in Medical device companies: X-Cardio Corp. KK, Tokyo, GoldTech Sino, HK, Concardio, Inc., Cleveland and HeartBeat Technologies, Ltd., Israel, and JV with LifeQ, SA, US, NL.

ehud@x-cardio.com

Notes: