

ABSTRACTS

Friday, October 17

CLINICAL/OUTCOMES/POPULATION POSTER SESSION #1:

17:30 – 18:30: HALL & FOYER

P27 – Electrocardiogram-Assisted Blood Pressure Estimation in Patients with Atrial Fibrillation and other Chronic Conditions

Saif Ahmad, Izmail Batkin, Health Parametrics Inc./University of Ottawa; Miodrag Bolic, Health Parametrics Inc./University of Ottawa; Hilmi R. Dajani, Health Parametrics Inc./University of Ottawa; Voicu Groza, Health Parametrics Inc./University of Ottawa; and Sanjeev Chander, Ottawa Cardiovascular Centre

Background: Blood pressure (BP) is an important vital sign characterizing cardiovascular health. Therefore, BP management through accurate monitoring is critical for reducing risk of life-threatening conditions like stroke and myocardial infarction. Automated non-invasive BP (NIBP) devices are increasingly recommended in clinical practice and home monitoring. However, these devices tend to be unreliable in patients with chronic conditions like atrial fibrillation (AF), atherosclerosis, and obesity – resulting in inefficient BP management and hence increased risk. Unreliability arises because NIBP monitors estimate BP by analyzing arterial pulses alone and these patients may present weak, erratic, and/or unpredictable arterial pulses. **Method/Results:** Health Parametrics Inc., a University of Ottawa spinoff, is investigating a novel technology for increasing the accuracy and reliability of automatic NIBP estimation. Briefly, we have developed a simple method for simultaneous acquisition of electrocardiogram (ECG) and arterial pulse data within the automatic NIBP monitoring paradigm. Algorithms analyze arterial pulses with the assistance of ECG data, which tends to be less affected by the above conditions, to improve BP estimation accuracy. We recently conducted a pilot clinical investigation in which 13 patients (N=13) with chronic conditions including AF and obesity were recruited. For each patient, in about 30 minutes, 6 BP measurements taken by our prototype were compared with 6 BP measurements taken by BpTRU, a commonly used clinical NIBP device (78 measurements/device for N=13). The average systolic and diastolic BP measured by our prototype and BpTRU was statistically similar (Student's t-test, $p>0.05$). Moreover, standard deviation of systolic and diastolic BP measured by our device was lower than that of BpTRU in 77% and 69% of the patients respectively. **Conclusion:** These initial results suggest that our technology has the potential to improve the accuracy and reliability of NIBP estimation in patients with chronic conditions – leading to improved BP management and therefore reduced risk.

CLINICAL/OUTCOMES/POPULATION POSTER SESSION #2:

15:30 – 17:00: HALL & FOYER

P28 - Use of Web-based app to provide clinical decision support for hypertension at point of care

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Background: Medical research has exploded over the last few decades it almost become impossible for physician to keep up with the latest studies. For a general practitioner there are over 850 guidelines that they need to know and implement. Multiple studies have confirmed that less than 50% of care delivered in North America is as per the guidelines. We have developed a Web and Ipad based software which allows for point of care delivery of latest Hypertension Guidelines. The tool has been deployed in multiple clinics and pharmacies in Ontario & Alberta as part of an evaluation study to see if it allows for more evidence based care. Consistent with our overall goal of creating a sustainable intervention, we will next mount an independent randomized controlled trial of the intervention, comparing knowledge/literacy and attitudinal outcomes between physicians and patients who will be randomized to an intervention group or control group. We intend to assess knowledge about screening and diagnosis, goals of treatment and treatment options for hypertension among the users before and after using the app.