



PDA based Interface for Remote Vital Sign Monitoring Initial Clinical Experience



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Personal Health Monitor



Ambulatory Monitoring: small sensors and a phone. Non intrusive monitoring for a prolonged period of time.

Multiple sensors: ECG, Motion and Fall detection, Oximetry, Blood Pressure, Weight, Blood Glucose.

Instant feedback: software runs on the user's mobile phone. It analyses and stores vital sign data on the phone providing instant personal feedback to the user.

External help: If required, the phone can be pre-set, in the event of a serious arrhythmia, to loudly play a message with pre-set instructions for any bystander, so they know how to assist.

Communication: data and analysis instantly sent to the Health Care data server using 3G or any other Internet connection.

Arrhythmia detection: The application on the phone detects various arrhythmias and provides alert algorithms.

Remote access and review: Web-based by clinical team.

Introduction

Mobile or remote ECG monitoring is widely used for the detection of significant clinical arrhythmias.

Their potential application is extended by many commercially available biodata sensors now using wireless technologies such as Bluetooth®.

With an appropriate phone-internet interface, they may be suited for wide-ranging monitoring of vital signs such as ECG, BP and oximetry in an ambulatory setting.

Aim

- To explore the technical and clinical feasibility of using novel PDA-based software to provide concurrent biodata for remote web-based diagnosis.

Methods

- A cohort of 70 cardiac patients and rehabilitation volunteers were provided with commercially standard ambulatory monitors and a mobile phone to measure ECG, BP and digital SatO2 signals.
- Simultaneous, patient-activated, and real-time monitoring were available. Data were uploaded to a dedicated website for assessment by the clinical team.
- Technical feasibility, patient responses, trace quality and clinicians' acceptance were assessed.

Results

User friendliness of the equipment and software were agreed by the majority of subjects. Minimal technical training was required, with the focus on artefact minimisation and recording technique.

Technical reliability was very good. ECG trace quality was stable and of sufficient quality for clinical diagnosis, but detection of atrial complexes provided some challenges.

Acceptability by patients was indicated by their willingness to recommend its use to others, denial of anxiety, and statements of reassurance value regarding their treatment.

Significant action resulting from the use of PHM in this cohort included CIED implantation and start of new treatment such as anticoagulation with warfarin.

Conclusions

This PDA based system for remote monitoring proved to be user friendly, technically feasible and reliable for a wide range of patients, was acceptable in use and relevant for clinical decision making.

Information

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