

Wireless vitals- new methods for large scale patient monitoring in an emergency department setting

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Background

Approximately 70% of all 2,5 million ED visitors in Sweden have their vital signs measured, often on multiple occasions. Automated systems for patient monitoring exist, but integration with patient records is limited and in many instances, vital signs are still measured and registered manually. This is a laborious and time consuming process associated with an apparent risk of error. Also, manual measurements and documentation limit the capacity for re-evaluation, since every single measurement requires a substantial amount of time. This problem can potentially be overcome by continuous monitoring and electronic feeding of data into patient records and triage systems, which also carries the potential to rapidly detect patient deterioration. The purpose of this study was to investigate the feasibility and performance of a small, wireless device (RespiHeart) to continuously monitor pulse, respiratory rate and oxygen saturation in ED patients using new, spectrophotometric techniques compared to standard equipment.

Methods

Pulse, respiratory rate and oxygen saturation was monitored simultaneously by RespiHeart and standard equipment (Philips IntelliVue MP30) in a convenience sample of 50 ED patients without life-threatening conditions. Signal characteristics and correlation of measurements was investigated.

Result/Conclusion

Vital signs measured by RespiHeart showed good correlation with standard equipment and was well-tolerated by patients. Interestingly, RespiHeart was more sensitive to changes in respiratory rate than standard equipment. Further studies to investigate blood pressure and body temperature measurements are now underway and software integration with patient records is being developed. In summary, RespiHeart shows promise to streamline ED routine procedures and save resources.

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