Conference Abstract

Early detection of Heart Failure exacerbation by telemonitoring in old people

Elena Villalba Mora, *Fundación para la investigación Biomédica, Hospital Universitario de Getafe, Spain*

Roberto Petidier-Torregrossa, *Servicio de Geriatría, Hospital Universitario de Getafe, Spain*

Cristina Alonso-Bouzon, *Servicio de Geriatría, Hospital Universitario de Getafe, Spain*

Jose Antonio Carnicero-Carreño, *Fundación para la investigación Biomédica, Hospital Universitario de Getafe, Spain*

Leocadio Rodríguez-Mañas, *Servicio de Geriatría, Hospital Universitario de Getafe, Spain*

Correspondence to: Elena Villalba Mora, Hospital Universitario de Getafe, Spain, *E-mail:* elena.villalba@salud.madrid.org

Abstract

Introduction: Around 10% of all persons over 70 years of age suffer heart failure in Spain. This is the most common cause of hospitalization amongst patients aged 65 years and over, being the third leading cause of cardiovascular mortality. Although some works have demonstrated that the use of telemedicine in the monitoring after discharge has improved the rates of readmission in patients with heart failure, there are no many works focused on older people, which represents a population with special clinical and functional characteristics.

Our main hypothesis was that by telemonitoring functional status and vital signs, we can early detect heart failure exacerbation, minimising readmissions and length of hospitalisations.

Methods: We conducted a two-year randomized non-blind trial with a follow-up of 3 months after discharge from a hospitalisation due to heart failure exacerbation. The intervention included a telemonitoring system which collected vital signs, symptoms of decompensated heart failure and functional status. The control group received the routine follow-up including home visits.

Following a descriptive analysis of the data, we evaluated through logistic regressions the effect of the intervention and the predictive value of the monitored variables. We assessed the impact on the patients' worsening, measured through the emergency visits and the readmissions.

Results: A total of 90 patients participated in the study, 72.2% were women and the median age was 86 years. 50 patients were selected for the intervention group, out of which, 47 participated in the studied; and 40 were controlled. Both groups were compared using Mann-Whitney and they only differed in the age (median age in the intervention group is one year higher).

Amongst the intervention group, the adherence to the program was high, being the minimum rate of observations 70%. The intervention group had a better clinical outcome than control group, OR 0.411 (95% CI 0.171-0.993), measured by a composed outcome (number of visits to the emergency rooms plus number of readmissions). Moreover, in the intervention group, the 80% of the readmissions were shorter or equal than 7 days of length stay. In contrast, in the control group, this percentage was reached at 13th day. The difference of medians was 3.5 days (p-value 0.02).

Finally, in the intervention group, the gait speed variability and the oxygen saturation as clinical markers were statistically significant, OR 1.34 (95% CI 1.04-1.72) and 0.743 (95% CI 0.566-0.976) respectively. The models for the other recorded variables were not statistically significant.

Conclusions: We demonstrated the feasibility and effectiveness of using telemonitoring to follow-up older heart failure patients. In this particular group, functional variables as gait demonstrated to have a predictive value, opening new ways of managing such patients.

Lessons learned: Functional variables early detect exacerbation in older patients with heart failure. The use of telemonitoring may improve the follow-up of patients after discharge, improving their quality of life.

Limitations: The difficulty of conducting a blind trial with telemonitoring may generate a bias in the selection of the sample.

Suggestions for future research: Studies focusing on the predictive variables. Economic assessment of telemonitoring.

Keywords

remote monitoring; telemedicine; heart failure; older patients; functional variables

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