



SUSTAINABILITY OF CARDIOLOGY SERVICES: ECONOMIC EVALUATION AND COMMUNICATION IN REMOTE MONITORING OF PEOPLE WITH PACEMAKERS

Antonio López Villegas^{1,2,3}, Daniel Catalán Matamoros⁴, Knut Tore Lappegard^{1,2}, Remedios López Liria³, Terje Enebakk², Hilde Thunhaug² & Salvador Peiró Moreno⁵

¹University of Tromsø and ²Nordland Hospital (Norway), ³University of Almería, ⁴University Carlos III of Madrid ,

⁵Foundation for the Promotion of Health and Biomedical Research the Valencia Community & (Spain)



BACKGROUND

The use of remote monitoring (RM) of pacemakers is limited, and very few studies have focused on their comparative cost-effectiveness.

OBJECTIVES

Evaluate the effectiveness and costs of RM of people with pacemakers in comparison to the monitoring performed in hospital (HM) in relation to the sustainability of cardiology services.



METHODS

Controlled, non-randomized, non-blinded clinical trial, with data collection carried out during the pre-implant stage and after 12 months. 83 users of pacemakers were assigned to either a TM group (n=30) or HM (n=53) group.

Effectiveness: baseline characteristics and number of in-hospital visits, as well as feasibility, reliability, and safety were analyzed. The questionnaires administered were EuroQol-5D (EQ5D) to evaluate the health-related quality of life and Duke Activity Status Index (DASI) to assess the functional capacity.

The costs were estimated from the NHS and patient's perspective.

To evaluate the workload, time and costs of informal care a controlled, non-randomized clinical trial was conducted, with data collected 12-months after implantation and from informal care perspective. The Survey on Disabilities, Personal Autonomy, and Dependency Situations was used to obtain information on demographic and social characteristics, levels and professional aspects, time and types of care, difficulties in providing care, health status, economic and family or leisure impact due to informal caregiving for patients with pacemakers.

RESULTS

Four scientific articles related to the Project were published in International Scientific Journals included in *Journal Citation Report (JCR)*:

1. López-Villegas A, Catalán-Matamoros D, Martín-Saborido C, Villegas-Tripiana I, Robles-Musso E. **A Systematic Review of Economic Evaluations of Pacemaker Telemonitoring Systems.** Rev Esp Cardiol. 2015. DOI 10.1016/j.recesp.2015.06.021.
2. López-Villegas A, Catalán-Matamoros D, Robles-Musso E, Peiró S. **Comparative effectiveness of remote monitoring of people with cardiac Pacemaker versus conventional: Quality of life at the 6 months.** Rev Esp Salud Pública. 2015; 89(2):149-158.
3. Antonio López-Villegas, Daniel Catalán-Matamoros, Emilio Robles-Musso, Salvador Peiró. **Effectiveness of Pacemaker Tele-Monitoring on Quality of Life, Functional Capacity, Event Detection and Workload.** The PONIENTE trial. Geriatr Gerontol Int. 2015. DOI 10.1111/ggi.12612
4. Antonio López-Villegas, Daniel Catalán-Matamoros, Emilio Robles-Musso, Salvador Peiró. **Workload, time and costs of the informal cares in patients with tele-monitoring of pacemakers. The PONIENTE study.** Clin Res Cardiol. 2015. DOI 10.1007/s00392-015-0921-5

One oral and two Poster communications were presented in the Nordic Conference of Implementation of Evidence Based Practice (February 2015, Bergen):

1. López-Villegas A, Catalán-Matamoros D, López-Liria R. **Evidence-based in remote monitoring of pacemakers in the short-time.**
2. Catalán-Matamoros D, López-Villegas A, López-Liria R. **Communication and Dissemination Strategies to Facilitate the Use of Evidence Based Practice.**
3. López-Liria R, Catalán-Matamoros D, López-Villegas A. **Promoting Evidence Based Practice in Home-Based Rehabilitation in Cardiovascular Diseases.**

Two oral communications were presented to the 1st International Arctic Circle Conference on Healthcare Technology Assessment (June 2015, Bodø, Norway):

1. López-Villegas A. **Economic Assessment on Long-Term Remote Monitoring of Patients with Pacemakers: The Poniente Study.**
2. Catalán-Matamoros D. **Users' Experiences and Satisfaction of Health Communication Devices.**

One oral and two Poster communications were presented in the 12th Health Technology Assessment international (HTAi) Congress (June 2015, Oslo):

1. López-Villegas A, Catalán-Matamoros D. **Comparative effectiveness of remote monitoring of pacemaker versus conventional modality: quality of life ant the 6 months of follow-up.**
2. López-Villegas A, Catalán-Matamoros D. **Evidence-based in remote monitoring of patients with pacemakers: the PONIENTE study.**
3. Catalán-Matamoros D, López-Villegas A. **Analysing the evidence of remote monitoring of pacemakers.**

Two Poster communications were presented in the European Union Geriatric Medicine Society- 11th EUGMS Congress (September 2015, Oslo):

1. López-Liria R, Catalán-Matamoros D, López-Villegas A, Knut Tore Lappegård. **Cardiac rehabilitation for heart failure in primary care.**
2. López-Liria R, Catalán-Matamoros D, López-Villegas A, Knut Tore Lappegård. **Clinical and functional features in pluripathological patients in primary health care.**

Four oral communications were presented and defended in the II International Conference in Health Communication (October 2015, Madrid-Spain):

1. Remedios López-Liria. **Home versus hospital health care services, are the effective?**
2. Terje Enebakk, Hilde Thunhaug. **The NILS-Study in Norway. Challenges met at phone interviews by use of standardized questionnaires.**
3. Knut Tore Lappegård. **Remote monitoring of cardiac implantable electronic devices.**
4. Antonio López Villegas. **Evidence-based in tele-monitoring of patients with pacemakers: the PONIENTE study.**

Three oral communications were presented in 1st International Conference on Telemedicine and Healthcare Sustainability (November 2015, Almería-Spain):

1. Remedios López Liria. **Telemedicine applied to the systems of register and information in home-care.**
2. Daniel Catalán Matamoros. **Users' experiences and satisfaction of tele-health communication.**
3. Knut Tore Lappegård. **Tele-monitoring of cardiac implantable electronic devices.**

CONCLUSIONS

RM of pacemaker users is configured as an equal option to the traditional hospital follow-up in terms of health-related quality of life, functional capacity, reliability and safety. RM promotes early detection of adverse events and in addition, the number of in-hospital visits is significantly reduced. It is a more efficient alternative involving a significant cost savings for patients and their relatives.

From the informal care perspective, the study confirms that caregivers in both groups show similar baseline characteristics, workload and time spent. Moreover, the costs due to the patient care in the telemonitoring group are significantly lower than those presented by the conventional monitoring group in hospital.



COOPERATION ACTIVITIES

More activities has been planned to be developed by the working groups created earlier with the objective of sharing experiences in the Sustainability of Healthcare field. Regarding to academic cooperation and exchange of knowledges between international researches, all of them are working together in several projects as scientific articles and developing researches in different hospitals from Norway and Spain.

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CONTACT DETAILS

Dr. Antonio Lopez Villegas : antoniolopezvillegas@andaluciajunta.es
Nordland Hospital, Norway.