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The effect of telehealth, telephone support or usual care on quality of life, mortality and healthcare utilization in elderly high-risk patients with multiple chronic conditions. A prospective study

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ABSTRACT

Background and objective: To assess the effect of home based telehealth or structured telephone support interventions with respect to usual care on quality of life, mortality and healthcare utilization in elderly high-risk multiple chronic condition patients.
Patients and methods: 472 elderly high-risk patients with plurimorbidity in the region of Valencia (Spain) were recruited between June 2012 and May 2013, and followed for 12 months from recruitment. Patients were allocated to either: (a) a structured telephone intervention, a nurse-led case management program with telephone follow up every 15 days; (b) telehealth, which adds technology for remote self-management and the exchange of clinical data; or (c) usual care. Main outcome measures was quality of life measured by the EuroQol (EQ-5D) instrument, cognitive impairment, functional status, mortality and healthcare resource use. Inadequate randomization process led us to used propensity scores for adjusted analyses to control for imbalances between groups at baseline.
Results: EQ-5D score was significantly higher in the telehealth group compared to usual care (diff: 0.19, 0.08–0.30), but was not different to telephone support (diff: 0.04, −0.05 to 0.14). In adjusted analyses, inclusion in the telehealth group was associated with an additional 0.18 points in the EQ-5D score compared to usual care at 12 months ($p < 0.001$), and with a gain of 0.13 points for the telephone support group ($p < 0.001$). No differences in mortality or utilization were found, except for a borderline significant increase in General Practitioner visits.
Conclusions: Telehealth was associated with better quality of life. Important limitations of the study and similarity of effects to telephone intervention call for careful endorsement of telemedicine. Clinicaltrials.gov (identifier: NCT02447562).

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Telecuidados, apoyo telefónico o cuidados habituales: impacto sobre la calidad de vida, mortalidad y uso de recursos sanitarios en pacientes ancianos de alto riesgo con múltiples condiciones crónicas. Un estudio prospectivo

Palabras clave:
Ancianos
Calidad de vida
Múltiples enfermedades crónicas
Telecuidados
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RESUMEN

Fundamento y objetivo: Evaluar el impacto de un programa de telecuidados domiciliarios o de apoyo telefónico con respecto a cuidados habituales sobre la calidad de vida, la mortalidad y el uso de recursos en ancianos de alto riesgo pluripatológicos.
Pacientes y métodos: Se reclutaron 472 pacientes ancianos con plurimorbilidad en la región de Valencia entre junio de 2012 y mayo de 2013 y se les siguió durante 12 meses. Los pacientes fueron asignados a: *a)* una intervención de apoyo telefónico estructurado, con recordatorios y seguimiento por enfermería cada 15 días; *b)* telecuidados, que añade tecnología para el automanejo y la transmisión remotos de información clínica; o *c)* cuidados habituales. Las medidas de resultado fueron calidad de vida medida con el instrumento EuroQoL-5D (EQ-5D), afectación cognitiva, estatus funcional, mortalidad y uso de recursos sanitarios. Debido a fallos en el proceso de aleatorización, se ajustó los análisis mediante *propensity scores* para controlar las diferencias basales entre grupos.
Resultados: La puntuación EQ-5D fue significativamente mayor en el grupo de telecuidados frente a cuidados habituales (dif. 0,19, 0,08 a 0,30), pero no frente a apoyo telefónico (dif. 0,04, −0,05 a 0,14). En análisis ajustados, la inclusión en el grupo de telecuidados se asoció con la obtención de 0,18 puntos adicionales en la escala EQ-5D comparado con cuidados habituales a 12 meses ($p < 0{,}001$), y con 0,13 puntos en el caso de apoyo telefónico ($p < 0{,}001$). No se hallaron diferencias en mortalidad o uso de recursos, salvo un incremento marginal en visitas al médico de AP.
Conclusiones: Los telecuidados se asociaron con una mayor calidad de vida. Limitaciones importantes del estudio y la similitud de los efectos con la intervención de apoyo telefónico llaman a un apoyo ponderado de las tecnologías *e-health*. Clinicaltrials.gov (identifier: NCT02447562).

Introduction

Healthcare systems globally are facing major challenges such as the increasing number of patients with multiple chronic conditions that require a complex response over a prolonged time period, coordinating inputs from a wide range of health professionals, all optimally embedded within a system that promotes patient empowerment.[1–3]

The introduction of remote monitoring strategies for delivering healthcare has been one of the responses to these pressures. Telehealth programs, which require the use of information and communication technologies, enable the remote exchange of data between patients and professionals to facilitate the diagnosis, monitoring and management of chronic patients. Alternatively, programs based on regular structured telephone follow-up contacts between patients and healthcare providers have also been implemented. The shared aim of remote care is to enable early intervention, prevent a worsening of long-term conditions and reduce the frequency of secondary care use. This is expected to result in better health outcomes and cost savings. However, evidence for the effect of remote care programs on outcomes and utilization and costs is unclear.[4–9]

La Fe Health Department in Valencia (Spain) implemented in 2011 a telephone-based, nurse-led case management program offered to highly complex chronic patients as identified by a predictive stratification tool used in the Department (the GeChronic predictive model). On this basis, a multiplatform technological tool (the NOMHAD Chronic® platform) was developed to empower and regularly follow-up patients through different home-based devices and to offer specific personalized information about their disease to them and their caregivers (telehealth intervention). The aim of this study was to evaluate the effects on health related quality of life (HRQoL), mortality and healthcare resource utilization of the telehealth program compared to structured telephone intervention and usual care.

Methods

Design

We initially designed a pragmatic, controlled, randomized, non-blinded clinical trial (Consort and TIDieR checklists available at Appendix A and B) with 12 months follow-up, but randomization failed due to a breach in the implementation of the protocol of randomization and registry of baseline information, and the analysis strategy was modified to control for possible selection bias.

Setting

The study was conducted in the Valencia-La Fe Health Department, an urban geographical area with about 180,000 inhabitants in the city of Valencia, Spain, served by one reference teaching hospital and 6 primary care centres. The Valencia-La Fe Health Department is part of the Valencia Health Agency (Spanish National Health System), an extensive network of hospitals, primary care centres and other facilities managed by the regional government, which provides universal free healthcare services to the population of the Valencia region (5 million inhabitants).

Patients

Inclusion criteria were age (≥18 years old) and high complexity, according to having a probability >98% of using more than 10 non-planned admissions in the following 12 months according to the score of the GeChronic predictive model (10). Patients who signed the informed consent and did not meet the exclusion criteria were included. Exclusion criteria were: existence of cognitive or sensorial impairment or with insufficient knowledge of one of the two official languages of the Valencia Region that, according to the healthcare professional, could affect their participation in the study; non-residents or temporary residents in the Health Department; homeless or participants with high-risk of

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