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Social isolation risk factors in older hospitalized individuals

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ABSTRACT

Background: Elderly people are particularly vulnerable to the effects of social reduction, so there is an urgent need to identify the risks associated with social isolation. The aim of this paper was to analyze associations between psychological, socio-demographic, functional aspects on the risk of social isolation, mortality and re-hospitalization in older persons.
Methods: This is a longitudinal study on 580 hospitalized elderly sample aged ≥70 yrs recruited from 2005 to 2007 in the Geriatrics Operative Unit of INRCA in Fermo, Italy. The comprehensive geriatric assessment (CGA) was used. Outcome measures included 36-month mortality and re-hospitalization.
Results: In all patients, approximately 20% ($n = 112$) of the subjects were socially isolated. Women perceived their social support significantly worse than men (77.7 vs. 22.3%; $p < 0.001$). A multiple logistic regression analysis (goodness of fit $\chi^2 = 102.86$, $p < 0.001$) with risk of social isolation as the dependent variable, showed that women were at a greater risk than men for social isolation (OR = 1.99, 95% CI = 1.13–3.50). Furthermore, patients with a higher number of family components (OR = 0.72, 95% CI = 0.59–0.88) and good parameters of quality of life (PCS-12: OR = 0.94, 95% CI = 0.91–0.98; MCS-12: OR = 0.94, 95% CI = 0.92–0.97) were less likely to be socially isolated. Cox regression models adjusted for gender, quality of life and number of family components, showed that the social isolation did not predict mortality (HR = 1.44, 95% CI = 0.84–2.46, $p = 0.19$), but was associated with higher re-hospitalization rates (HR = 1.28, 95% CI = 1.02–1.59, $p = 0.03$).
Conclusions: Our findings highlight several aspects related to the risk of social isolation and re-hospitalization in a specific group of older persons.

1. Introduction

It is widely known that older persons are more vulnerable to the effects of social isolation (Cattan et al., 2005). For this reason, there is an urgent need to identify the risks associated with social isolation due to its rapidly increasing prevalence among elders (Boden-Albala et al., 2005). Recently, Nicholson (2009) reported an analysis regarding the concept of social isolation in older adults. This author appointed that the concept of "social isolation" has been defined inconsistently, which limits research into this phenomenon. For this reason, it is important to identify a clear definition also to address the methodology of research for analysis of social isolation in elderly, in particular because it is considered a phenomenon with serious health consequences (Cohen, 2004). Often, many authors use this concept inconsistently or with ambiguity, for indicate very low levels social support or very small social networks. Various life events interact negatively on social interaction opportunities, resulting in isolation of elderly people (Tomaka et al., 2006). Age, gender, marital and socio-economic status seem to play an important role on social isolation (Crooks et al., 2008). The higher vulnerability to negative social circumstances may affect the social status of elderly people (Andrew et al., 2008), as well as health risk factor for malnutrition, hospitalization and cognitive decline (Brownie, 2006; Kharicha et al., 2007). Indeed, being widowed, living alone in later stage of life, grieving for a loved one have also been identified as a potential risk factors and are in turn significantly associated with serious adverse effects, including depression, anxiety, cognitive decline, functional limitations, and poorer quality of life (Orfila et al., 2006; Sampson et al., 2009).

Some epidemiological findings have shown an inverse relationship between socio-economic status and health (Osler et al., 2009). This relationship is related to various health measures, including mortality, chronic conditions, number of comorbidities,

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disability, frailty and self-rated health (Cattan et al., 2005). These characteristics are also associated with a greater perception of social isolation (Alvarado et al., 2008). Rieker and Bird (2005) showed that women are at a greater risk for social isolation. Due to an increase in the number of older persons, knowledge on age-related factors, such as psychological and functional impacts related to social isolation are necessary (Howat et al., 2004). For this reason, the World Health Organization has recognized that the prevention of social isolation is considered a necessary measure for maintaining good health in older persons (WHO, 2002). In particular, social engagement has been considered a protective effect on mortality through positive impacts on behavioral, psychological, or physiological actions (Sampson et al., 2009). The role of social support in the elderly is well-documented finding (Tomaka et al., 2006; Blozik et al., 2009). A beneficial effect of social support has been shown to provide individuals, especially in community dwelling women, with positive experiences leading to a more stable and satisfactory self-perception, which in turn represents the most significant segment of the social support network (Rodriguez-Laso et al., 2007). A protective effect of social relationships on the mortality rates of the elderly population has also been shown (Lyyra and Heikkinen, 2006).

Nevertheless, the literature on the risk of social isolation in older persons on diverse outcomes, including mortality and re-hospitalization is limited. As mentioned, the prevalence and risk for social isolation associated with older age have not been completely identified.

The risk for social isolation may be linked to the outcomes of the multidisciplinary assessment. In particular, social isolation has been linked to many domains of aging, such as frailty and physical, functional, and environmental factors (WHO, 2002; Lubben et al., 2006). Fig. 1 summarizes the interactive relationships between the different factors related to social isolation.

The CGA may offer an advantage on identifying the relationships among functional status, psychological and social parameters (Fletcher et al., 2004). The aim of this paper is examine the predictive value of psychological and functional status parameters using the CGA on social isolation (in terms of social networks and informal social support) in a large sample of elderly hospitalized adults to social networks and informal social support. We also tested the whether social isolation could predict mortality and re-hospitalization rates over a 36-month follow-up period.

2. Subjects and methods

The study design and methods have been previously reported (Postacchini et al., 2009). All hospitalized patients aged $\geq$70 yrs had been routinely evaluated according to the CGA of INRCA. This instrument was used since 2005. In particular, a total of 648 patients admitted with acute conditions had data from the CGA from 2005 to 2007 from the Geriatrics Operative Unit of INRCA in Fermo, Italy. We selected 580 patients from this population who had complete data on CGA. We excluded 47 patients with a terminal illness, severe prognosis and inability to stand or walk independently. The Italian National Institute of Research and Care of Aging Institutional Review Board approved the study protocol. All patients underwent clinical and biochemical evaluations, along with a comprehensive assessment evaluation performed by trained geriatricians, nurses, and clinical psychologists. This assessment was carried out during the hospitalization. The cognitive status was assessed during the last day of hospitalization. The CGA included the assessment of the following multidisciplinary tests.

2.1. Basic characteristics

Consistent with the aim of this study, a number of variables were analyzed and included the following factors: basic characteristics (education and income); living status, housing conditions, marital status, family and social networks (number of children, size and composition of household). The analysis of the composition of household included multiple-choice answers.

2.2. Social isolation

Social networks and informal social support were measured using the Lubben Social Network Scale (LSNS) (Lubben, 1988) which was specifically developed for use in older adult populations in both a research and clinical setting. The scale assesses the extent of social contact with family and friends. The test been associated with many health indicators (Lubben et al., 2006) and low scores on the LSNS have been correlated with an increased mortality (Ceria et al., 2001). The obtained scores were categorized as follows: 0–19 social isolation (poor social support); 20–25 moderate social support; 26–39 good social support; >40 excellent social support.

2.3. Comorbidity

The Cumulative Illness Rating Scale (CIRS) (Mistry et al., 2004) was used to measure comorbidity status. It measures chronic medical illness burden while taking into account the severity of chronic diseases. It is made up of 14 categories, with a 0–4 grading scale of impairment in each organ system. The obtained total score represents the sum of each of the 14 individual system scores with total scores varying from 0 to 56. The Severity Index is the mean scores of the first 13 categories, excluding psychiatric tests. The Comorbidity index (CM Index) was calculated as the number of

Potential risk factors for social isolation	Protective factors for social isolation	Consequences of social isolation
Age Gender (women) Widowhood Living alone Poor economic status	Social engagement Social support Good quality of life	Worse Health Mortality Increase in Comorbidities Disability, Functional Limitations & Frailty Poor self-perceived health status Malnutrition Cognitive Decline Hospitalisation & Rehospitalisation Depression Anxiety Poorer Quality Of Life

Fig. 1. Interactive relationship between factors.