

Research Article

The Biomedical and Clinical Factors as Moderator Variable in Functional Y Cognitive Recovery of Older Adults Hospitalized

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Abstract

Introduction: Increased life expectancy produces more dependency and deterioration in the population; in many cases more years of life are not accompanied by a good quality of life. One of the most frequent causes reduced quality of life in the elderly is the same hospitalization for acute suffering some pathology. In this context, one especially significant phenomenon in gerontology research is the loss of functionality, characterized as the loss of independence and increased cognitive decline, sometimes associated with increasing number of drugs, comorbidity complications during the hospital stay or some of the chronic diseases that have the elderly person as cardiac arrhythmias or artery hypertension.

Objective: Specifically, the main objective of this study is to analyze to what extent biomedical and clinical factors (complications, morbidity and polypharmacy and chronic diseases) is a moderating variable in the functional y cognitive recovery of older adults hospitalized. The starting hypothesis is that there will be a significant association between this factors clínicos and cognitive recovery both at the time of hospital release as well as in the medium term (3 months after). Method and instruments: The participants were 259 elderly people, 78.4% women and 21.6% men, admitted to the Hospital Neurotraumatológico in Jaén (Spain), evaluated at different moments in time with instruments that measure daily life activities (the Barthel Index and the Lawton Index) cognitive impairment (the phototest), review of the primary care giver and biomedical and clinical data variables, such as chronic diseases of patients diagnosed and complications during hospitalization.

Results and Conclusions: Results show that in predictive models obtained to see the functional gain predictor is the biomedical pressure ulcers and assessment of the care giver through IQCODE. IADL predictor model is COPD together with IQCODE, biomedical variable it is appearing more predictability and in cognitive impairment it is cardiac arrhythmias and functional impairment.

INTRODUCTION

Social and healthcare advances extend our lifespan [1-3], thus in turn bringing about new social and healthcare challenges. Increased life expectancy leads to higher dependency and deterioration in population; in many cases a longer life does not necessarily mean good quality of life.

One of the most frequent causes of reduced quality of life in the elderly is the hospitalization for acutely suffering some pathology, such as bone fractures [4]. This condition accounts for one-fourth of hospitalizations, varying the length of hospital stay

as a function of several variables [5].

In this context, a specially significant phenomenon in gerontology research is the loss of functionality, i.e. the loss of independence and increased cognitive decline, sometimes associated with the lack of mobility caused by a bone fracture, whether the hip [6] or another part of the anatomy [7,8], an increasing number of drugs, comorbidity complications during the hospital stay or some of the chronic diseases typical of the elderly population, such as cardiac arrhythmias or artery hypertension (HTA) [9].

This circumstance is not only costly in family and monetary terms, but it may also be associated with worsening conditions such as increased dependency, functional decline, cognitive decline, and depression. Some studies actually indicate that the most vulnerable patients, and those more susceptible to cognitive decline associated with greater functional dependency, are patients aged over 65 that were admitted for fractures of different etiologies [10]. Thus, studies have shown a real trend toward chronicity and disability in the hospitalized older patients, regardless of the cause of hospitalization. In fact, in 1974, the World Health Organization included the period immediately following hospital discharge as an important risk factor for disability and dependency [11].

With this scenario as a reference, one of the current challenges in the sphere of gerontology nursing is undoubtedly to promote autonomy, i.e. functional independence, in hospitalized older patients. This is one of the most important goals for health personnel to meet both during hospitalization and in the period immediately following discharge [12]. Toward this end, analyzing the variables involved in the patient recovery or decline constitutes a very relevant research objective.

In the studies that have analyzed variables related to cognitive and functional decline associated with hospitalization and recovery thereafter, several authors have found higher functional loss associated with variables such as age [13,14], prolonged rest [15], decubitus [16], pain produced by the surgery [17], presence of other illnesses, [18] and the number of hospitalization days prior to the surgery [19]. Other authors associate functional loss with prior deterioration [20,21] and a low level of social activity [22].

Other studies described the psychosocial state in relation to functional recovery, specifically the self-efficacy and outcome expectations related to exercise, mood, fear of falling, pain, and health status of older people [23,24]. However, the results do not link the different diseases that older people chronically suffer from before being hospitalized to the deterioration during hospitalization and the recovery during the 3-month period following discharge. Some studies analyze the biomedical profile of patients aged over 90, which show a higher dependence for instrumental activities and a higher level of cognitive impairment in patients with cardiovascular diseases [25,26]. However, few studies analyze the influence of these variables and the most frequent complications during hospitalization, such as pressure ulcers or delirium, in the elderly functional and cognitive gain during the 3-month period after discharge.

The main objective of this study is specifically to analyze to what extent biomedical and clinical factors (complications, morbidity and polypharmacy and chronic diseases) are moderating variables in the functional and cognitive recovery of hospitalized older adults. The starting hypothesis is that there will be a significant association between these clinical factors and cognitive recovery at the time of hospital discharge as well as in the medium term (3 months after).

METHOD

Participants

The sample included 259 elderly people, 78.4% women and

21.6% men, admitted to the *Hospital Neurotraumatológico* in Jaén, Spain. Ages ranged between 65 and 105 ($=80.37$, $SD=8.352$). The inclusion criteria were: age 65 or over, length of hospital stay more than 5 days, and not suffering from an acute disabling disease or a terminal condition.

Instruments

Socio demographic data was obtained through an ad-hoc, semi-structured interview.

Biomedical and clinical data variables, such as chronic diseases of diagnosed patients and complications during hospitalization, were obtained from the clinical history of participants, with the approval of the center and after approval of the Ethics Committee of the Hospital.

The Barthel Index [6,28] was used to measure level of dependency. Scores can range from 1 (completely dependent) to 100 (fully independent). Lawton and Brody's Scale [29] assessed Instrumental Activities of Daily Living (IADL). The score is 1-8 points. The maximum IADL dependency is marked by getting 0 points, while a total of 8 points expresses total independence.

Cognitive assessment was carried out with Photo test [30]. This tool has the advantages of being brief and not conditioned by educational level, making it applicable to illiterates. It assesses memory, verbal fluency and naming. The Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) was also applied in order to collect the opinion of primary caregiver about changes in the cognitive symptoms assessed [31]. The use of this instrument is supported by studies that have demonstrated discriminant validity among healthy elderly, with dementia and/or MCI (Mild Cognitive Impairment), when used in 2-year intervals [32] or in an single diagnostic assessment [33,34] and its concurrent validity with the MMSE (Mini-Mental State Test) [35]. The score ranges from 1 (the person has improved a lot) to 5 (the person has become much worse). This information could not be obtained in 4 patients (1.54% of the sample) that had no primary caregiver.

Design and Procedure

The design was a case-series longitudinal study with repeated follow-up assessment. The dependent variables were the measurements obtained with the instruments described. The Barthel Index (BI), Lawton and Brody's Scale and Photo test were administered at hospital admission and at home (between 60 and 90 days after discharge). The IQCODE was applied to the primary caregiver at hospital discharge so he/she could consider any variation in patient cognitive status on the days prior to admission. From these measures, three dependent variables were used: *functional gain*, calculated as the difference between the BI obtained at home and the BI at hospital admission [36]; *IADL gain*, calculated as the difference between scores of the Lawton and Brody's Scale at home and hospital admission; and *cognitive gain*, calculated as the difference between the Photo test obtained at home and the Photo test at hospital admission.

Once approved by the Hospital Ethics Committee, we explained the aim of the study to the patients, as well as what was expected from their participation, giving them. Written information and requesting their informed consent (Declaration of Helsinki, 2004) as a requirement to be included in the study.

Once the participant consent was given, the first interview took place within 24 hours from hospital admission, provided that the patient physical condition allowed it. Finally, a check-up was performed at home between 60 and 90 days after discharge. This time period was established based on the study of Batzán et al. (2004) that shows a peak of functional gain in the eighth week. Thus, we considered the maximum functional recovery occurs between the eighth and twelfth weeks. It was not advisable to extend this time beyond 90 days, since another pathology or aggravation could appear and interfere with the results.

Statistical analysis

We calculated non-parametric correlations between the different variables considered and lineal regression analysis, using as dependent variables functional gain, IADL gain and cognitive gain in order to check which variables are good predictors of these measures. The analyses were performed using the SPSS statistical software package (v. 19), and statistical decisions were taken at a level of significance of .05 or lower.

RESULTS

The descriptive statistics for the quantitative variables are

shown in Table 1 and the percentages of presence/absence of nominal variables in Table 2

As a preliminary step to regression analysis, a exploratory correlation analysis was performed between all variables. The results indicate that the functional gain was negatively associated with cardiac arrhythmias ($r = -.167, p = .05$), a number of complications ($r = -.289, p = .01$), confusional syndrome ($r = -.138, p = .05$), pressure ulcers ($r = -.173, p = .05$), IQCODE ($r = -.425, p = .01$), and exitus ($r = -.168, p = .05$). The IADL gain was negatively associated with cardiac arrhythmias ($r = -.145, p = .05$), chronic obstructive pulmonary disease (COPD) ($r = -.184, p = .01$), and confusional syndrome ($r = -.133, p = .05$) and IQCODE ($r = -.365, p = .01$). Finally, the cognitive gain was negatively associated with arterial hypertension (AH) ($r = -.203, p = .01$), cardiac arrhythmias ($r = -.243, p = .01$), a number of chronic pathologies ($r = -.151, p = .05$), a number of medicines ($r = -.194, p = .01$), confusional syndrome ($r = -.135, p = .05$), IQCODE ($r = -.422, p = .01$), and exitus ($r = -.332, p = .01$).

The correlations obtained between biomedical predictors are show in Table 3. Three linear multiple regression analyses were conducted by the method of successive steps, one for each criterion variable considered. In each one, those who had a

Table 1: Means and standard deviations for the quantitative variables.

VARIABLE	Nº PATHOLOGIES	Nº MEDICINES	Nº COMPLICATIONS	BARTHEL ADMISSION	BARTHEL AT HOME	IADL ADMISSION	IADL AT HOME	PHOTOTEST ADMISSION	PHOTOTEST AT HOME	IQCODE
M	2.07	4.52	0.42	80.03	67.97	4.52	3.39	27.28	28.75	3.62
SD	1.21	2.82	0.67	23.13	26.12	2.99	3.00	8.61	9.50	0.91

Table 2: Percentage distribution for the nominal variables.

VARIABLE	DEPRESSION	DIABETES	HTA	CARDIAC ARRHYTHMIAS	HIPERLIPEMIAS	COPD	CONFUSIONAL SYNDROME	PRESSURE ULCERS	HIPOXIA	EXITUS
ABSENCE	82.6%	78.4%	51.7%	66.8%	86.5%	87.3%	89.6%	93.4%	90.3%	85.6%
PRESENCE	17.4%	21.6%	48.3%	33.2%	13.5%	12.7%	10.4%	6.6%	9.7%	14.4%

Table 3: Correlation coefficients between the variables used as clinical predictors.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. DEPRESSION													
2. DIABETES	,031												
3. HTA	-,198**	,056											
4. CARDIAC ARRHYTHMIAS	-,020	-,072	-,025										
5. HIPERLIPPEMIAS	-,002	,094	,025	-,063									
6. COPD	-,022	-,060	,048	,099	-,083								
7. Nº PATHOLOGIES	,222**	,375**	,284**	,293**	,250**	,232**							
8. NºMEDICINES	,098	,150**	,189**	,221**	,171**	,174**	,497**						
9. Nº COMPLICATIONS	,156**	,073	,021	,114	-,014	,141*	,136*	,090					
10. CONFUSIONALSINDROME	,154*	,079	,098	,018	,133*	-,007	,130*	,130*	,473**				
11. PRESSUREULCERS	-,066	-,047	,085	,099	-,092	,097	,072	,025	,357**	-,031			
12. HIPOXIA	,103	,032	-,056	,313**	-,043	,197**	,133*	,073	,471**	,110	,132*		
13. IQCODE	,148*	-,098	-,018	,243**	-,045	,163**	,135*	,120*	,349**	,317**	,093	,212**	
14. EXITUS	,074	,002	-,108	,038	-,001	,141*	,104	,144**	,157**	,122	,081	,137*	,406**

* p<.05 ** p<.001

Table 4: Summary of the regression model for variables functional gain and cognitive gain.

	Model	R squared adjusted	SEB	beta	t	p
FUNCTIONAL GAIN	IQCODE	.176	1.36	-.424	-6.86	.000
	IQCODE/ PRESSURE ULCERS	.203	1.34 5.02	-.422 -.176	-6.92 -2.88	.000 .004
IADL GAIN	IQCODE	.129	.12	-.365	-5.78	.000
	IQCODE/ COPD	.143	.12 .33	-.340 -.135	-5.34 -2.12	.000 .035
COGNITIVE GAIN	EXITUS	.106	1.25	-.332	-5.09	.000
	EXITUS/ CARDIAC ARRHYTHMIAS	.157	1.21 .69	-.325 -.233	-5.13 -3.68	.000 .000
	EXITUS/ CARDIAC ARRHYTHMIAS/ HTA	.206	1.18 .67 .61	-.339 -.240 -.229	-5.49 -3.89 -3.71	.000 .000 .000

significant relationship with the criterion variable were used as predictors.

Regarding the functional gain, the analysis showed that the best model is the one considered as predictors, the IQCODE and pressure ulcers, which explained 20.30% of variance, in the sense that the absence of UPP and less deterioration measured by IQCODE predicts greater functional gain. The rest of the variables (cardiac arrhythmias, number of complications, delirium and exitus) were excluded from the model (Table 4). The variables that best predict the gain in IADL were IQCODE score and COPD. They together explain a 14.30% of the variance, in the sense that the absence of worsening COPD and a low score in IQCODE predicts a higher gain in IADL (Table 4). The cardiac arrhythmias and confusional syndrome variables were excluded. Finally, in the case of cognitive gain, the best model included exitus, cardiac arrhythmias and hypertension as predictor variables. This model explains 20.60% of the variance, excluding the same number of pathologies, a number of medicines and confusional syndrome, in the sense that the absence of COPD and hypertension predicted higher cognitive gain (Table 4).

DISCUSSION

We designed a study to analyze to what extent biomedical and clinical factors (complications, morbidity and polypharmacy and chronic diseases) are moderating variables in the functional and cognitive recovery of hospitalized older adults.

Our results allow us to draw the following conclusions. Firstly, patients with lower functional gain after 3 months are those diagnosed with cardiac arrhythmias. This result is comparable to the results of the study of D. Clark (2012) on functional gain in patients with congestive heart failure. On the other hand, we observe that those with more complications during hospitalization and particularly with delirium and pressure ulcers have a lower functional gain and therefore worse recovery. As for the recovery of the IADL, the gain is also lower in patients with cardiac arrhythmias, COPD and delirium.

In predictive models obtained to see the functional gain, the predictor is the biomedical pressure ulcers and assessment of the caregiver through IQCODE, model that does not agree with the adjustment model proposed by Daniel O. Clark [26] for increasing

functional dependence. The best fitting, simple model consisted of ages and a number of hospitalizations in the past 2 years, plus diagnoses of diabetes, chronic lung disease, congestive heart failure, stroke, and arthritis.

However, the model best predicting gain in IADL consists of two biomedical variables: having COPD and IQCODE score. In cognitive impairment, cardiac arrhythmias and functional impairment are the predictors. This result coincides with Garcia Pedraja's study [27] (2015), which states that the degree of impairment (functional and cognitive) found can be explained by the average age, in addition to the permanent state of cerebral hypo perfusion given by heart failure .

We also note that among patients with less functional, instrumental and cognitive gain in the group exitus it occurs more within the 3 months after admission, so it had to be considered whether these variables are possible predictors of exitus.

Its importance in clinical practice is great. It allows us to take preventive measures when hospitalization of elderly diagnosed with cardiac arrhythmias, hypertension, COPD occurs in order to prevent further deterioration and achieve greater functional recovery in the first 3 months after discharge. Preventive measures are also taken to avoid the two complications we have seen, delirium and pressure ulcers, which act as predictors of a worse recovery, trying to detect early onset.

As for limitations of this study, we could say that although the effect size models predict medium-high in all cases, they can only explain about a 20% of the variation in the dependent variables. This opens up a future line of research since other variables used for prediction could be included in these models. The study was performed in a single hospital in the south of Spain, so the results should be replicated at other hospitals with other samples. In this regard, one characteristic of older adults in this geographic area is their low level of education, and this may be a moderating variable of interest.

REFERENCES

1. Davies K, Collerton JC, Jagger C, Bond J, Barker SA, Edwards J, et al. Engaging the oldest old in research: lessons from the Newcastle 85+ study. *BMC Geriatr.* 2010; 10: 64.
2. Gwozdz W, Sousa-Poza A. Ageing, Health and Life Satisfaction of the

- Oldest Old: An Analysis for Germany. *Soc Indic Res.* 2010; 97: 397-417.
3. Singer T, Lindenberger U, Baltes PB. Plasticity of memory for new learning in very old age: a story of major loss? *Psychol Aging.* 2003; 18: 306-317.
 4. Beaupre LA, Cinats JG, Jones CA, Scharfenberger AV, William C Johnston D, Senthilselvan A, et al. Does functional recovery in elderly hip fracture patients differ between patients admitted from long-term care and the community? *J Gerontol A Biol Sci Med Sci.* 2007; 62: 1127-1133.
 5. Castro C, García MT. Cuidados en el paciente traumatológico, En Guillen Llera F, Perez del Molino Martin J, Petidier Torregrossa R. *Síndromes y cuidados en el paciente geriátrico.* 385-396. Barcelona: Elsevier Masson 2008.
 6. Granger CV, Dewis LS, Peters NC, Sherwood CC, Barrett JE. Stroke rehabilitation: analysis of repeated Barthel index measures. *Arch Phys Med Rehabil.* 1979; 60: 14-17.
 7. Abizanda P, Navarro JL, Romero L, León M, Sánchez-Jurado PM, Domínguez L. Upper extremity function, an independent predictor of adverse events in hospitalized elderly. *Gerontology.* 2007; 53: 267-273.
 8. Abizanda P, Navarro JL, Romero L, León M, Sánchez-Jurado PM, Domínguez L. Upper extremity function, an independent predictor of adverse events in hospitalized elderly. *Gerontology.* 2007; 53: 267-273.
 9. Cares L V, Domínguez C C, Fernández M J, Fariás C R, Win-Tin Chang G, Fasce G, et al. [Evolution of functional capacity of older people during hospital stay]. *Rev Med Chil.* 2013; 141: 419-427.
 10. McGuire LC, Ford ES, Ajani UA. The impact of cognitive functioning on mortality and the development of functional disability in older adults with diabetes: the second longitudinal study on aging. *BMC Geriatr.* 2006; 6: 8.
 11. Canga A, Narvaiza M. Nursing intervention to reduce complications derived hospitalization in the elderly. *Gerokomos.* 2006; 17: 24-31.
 12. Jacelon CS. Older adults and autonomy in acute care: increasing patients' independence and control during hospitalization. *J Gerontol Nurs.* 2004; 30: 29-36.
 13. Covinsky KE, Palmer RM, Fortinsky RH, Counsell SR, Stewart AL, Kresevic D, et al. Loss of independence in activities of daily living in older adults hospitalized with medical illnesses: increased vulnerability with age. *J Am Geriatr Soc.* 2003; 51: 451-458.
 14. Varela L, Chavez H, Herrera A, Ortiz P, Chigne O. comprehensive geriatric assessment in elderly hospitalized nacional. *Diagnóstico level.* 2004; 43: 57-63.
 15. Gutiérrez Rodríguez J, Domínguez Rojas V, Solano Jaurrieta JJ. [Functional deterioration secondary to hospitalization for an acute disease in the elderly. An analysis of its incidence and the associated risk factors]. *Rev Clin Esp.* 1999; 199: 418-423.
 16. Delgado-Parada E, Suárez-Garcá F, Miniana-Climient J, Medina-García A, Gutiérrez-Vara S. Variables associated with functional impairment at discharge and three months in elderly patients hospitalized for heart failure. *Revi Esp of Geriatrics and Gerontology.* 2009; 2: 66-72.
 17. Feldt KS, Finch M. Older adults with hip fractures. Treatment of pain following hospitalization. *J Gerontol Nurs.* 2002; 28: 27-35.
 18. Macias-Montero MC, Guerrero-Díaz MT, Hernández-Jiménez V. Valoración Mental. In F - Llera Guillen , J Perez del Molino Martin & R Petidier Torregrossa , *Syndromes and patient care nursing home.* Barcelona : Elsevier - Masson. 2008.
 19. Calero-García MJ, Ortega AR, Navarro E, Jimenez C, Calero MD. Impact of admissions for bone fractures on the dependency ratio of adults over 65 years of age in Southern Spain. *Arch Gerontol Geriatr.* 2012; 55: 305-309.
 20. Sands LP, Yaffe K, Covinsky K, Chren MM, Counsell S, Palmer R, et al. Cognitive screening predicts magnitude of functional recovery from admission to 3 months after discharge in hospitalized elders. *J Gerontol A Biol Sci Med Sci.* 2003; 58: 37-45.
 21. Pedone C, Ercolani S, Catani M, Maggio D, Ruggiero C, Quartesan R, et al. Elderly patients with cognitive impairment have a high risk for functional decline during hospitalization: The GIFA Study. *J Gerontol A Biol Sci Med Sci.* 2005; 60: 1576-1580.
 22. Inouye SK. The dilemma of delirium: clinical and research controversies regarding diagnosis and evaluation of delirium in hospitalized elderly medical patients. *Am J Med.* 1994; 97: 278-288.
 23. Resnick B, Orwig D, Hawkes W, Shardell M, Golden J, Werner M, et al. The relationship Between Psychosocial state and Exercise Behavior of Older women 2 months after hip fracture. *Rehabil Nurs.* 2007; 32: 139-149.
 24. Gruber-Baldini AL, Zimmerman S, Morrison RS, Grattan LM, Hebel JR, Dolan MM, et al. Cognitive impairment in hip fracture patients: timing of detection and longitudinal follow-up. *J Am Geriatr Soc.* 2003; 51: 1227-1236.
 25. Resnick B, Orwig D, Inguito P, Xi BB. The Baltimore Hip Studies Projects: Prevention of Fracture Through Intervention. Symposium. Gerontological Society of America. *The Gerontologist.* 2007; 47: 203.
 26. Clark DO, Stump TE, Tu W, Miller DK. A Comparison and Cross-Validation of Models to Predict Basic Activity of Daily Living Dependency in Older Adults. *Medical Care.* 2012; 50: 534-539.
 27. Pedraja-García E, Mederos-González EA, Rosalezjimenez- A, Ibarezcastro A, Herrera-González M. Functional assessment, cognitive and biomedical elderly 90 years and másActa . *Medical Center.* 2015; 9: 1-11.
 28. Cid-Ruzafa J, Damián-Moreno J. [Disability evaluation: Barthel's index]. *Rev Esp Salud Publica.* 1997; 71: 127-137.
 29. Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. *Gerontologist.* 1969; 9: 179-186.
 30. Carnero-Pardo C, Montoro-Ríos MT. [The photo test]. *Rev Neurol.* 2004; 39: 801-806.
 31. Morales JM, Gonzalez-Montalvo JL, Delsler T, Bermejo F. [Validation study of the S IQCODE: The Spanish version of the Informant questionnaire on cognitive decline in elderly]. *Archi Neurobiol.* 1992; 55: 262 266.
 32. Ehrensperger MM, Berres M, Taylor KI, Monsch AU. Screening properties of the German IQCODE with a two-year time frame in MCI and early Alzheimer's disease. *Int Psychogeriatr.* 2010; 22: 91-100.
 33. Cruz-Orduña I, Bellón JM, Torrero P, Aparicio E, Sanz A, Mula N, et al. Detecting MCI and dementia in primary care: effectiveness of the MMS, the FAQ and the IQCODE [corrected]. *Fam Pract.* 2012; 29: 401-406.
 34. Sikkes SAM, van den Berg MT, Knol DL, de Lange-de Klerk ESM, Scheltens Ph, Bernard MJ, et al. How Useful Is the IQCODE for Discriminating between Alzheimer's Disease, Mild Cognitive Impairment and Subjective Memory Complaints? *Dement Geriatr Cogn Disord.* 2010; 30: 411-416.
 35. Isella V, Villa ML, Frattola L, Appollonio I. Screening cognitive decline in dementia: preliminary data on the Italian version of the IQCODE. *Neurol Sci.* 2002; 23 Suppl 2: S79-80.

36. Baztán JJ, Fernández-Alonso M, Aguado R, Socorro A. [Outcome at year after rehabilitation of proximal femur fracture in older than 84 years]. *An Med Interna*. 2004; 21: 433-440.
37. Sierra-Camargo A, Mora-Chaparro B, Durán-Flores E, Ibañez-Palacios M. Influence of psychosocial factors on the clinical status of chronic heart failure patients managed in a multidisciplinary unit. *Revista Salud Bosque*. 2015; 1: 9-16.

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