



**Journal Club – Brescia, 8 ottobre 2010**

# **Caso clinico. Come la demenza incide sulla comorbidità somatica**

**Renzo ROZZINI**

# Sommario

- **Caso clinico**
- **In Pronto Soccorso**
  - Diagnosi
  - Primo intervento
  - Definizione setting (grave e vecchio)
- **In Geriatria (UCSI)**
  - La clinica
  - Problemi specifici
    - Work up diagnostico (+ assessment)
    - Delirium
    - Malnutrizione
    - Flogosi
    - Lo stato funzionale
    - Dell'età molto avanzata
- **L'evoluzione clinica, il nursing**
- **La dimissione**
  - Assessment e dimissione protetta
- **Problemi attesi**
  - Rericovero (polmoniti)
- **Conclusioni**

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# Caso Clinico

**29 settembre 2010 (h12:25)**

**Si ricovera PC, 93aa, maschio.**

**Proviene dalla propria abitazione dove vive con la figlia e un'assistente familiare (badante) nelle ore diurne in condizioni di dipendenza funzionale e decadimento cognitivo (riferito lieve!!!)**

# Caso Clinico

**Dimesso da altro nosocomio dove è stato ricoverato dal 6 al 26 settembre con diagnosi di:**

- **Polmonite bilaterale**
- **BPCO (silicosi)**
- **Insufficienza respiratoria globale**
- **Scompenso cardiaco congestizio in cardiopatia ipertensiva e valvolare (stenosi aortica)(*serrata*)**
- **Encefalopatia multiinfartuale con decadimento cognitivo**
- **Morbo di Parkinson**
- **Iperuricemia**
- **Esiti di frattura composta del femore sinistro**
- **Polineuropatia sensitivo-motoria arti inferiori anamnestica**
- **TVP progressa (2008)**
  
- **Terapia antibiotica effettuata e.v. (ceftriaxone, imipenem e amikacina)**
  
- **Evoluzione della malattia: miglioramento**

# Caso Clinico

## Terapia in atto alla dimissione:

- **Cardioaspirin:** 1 cp (ore 13)
- **Nitrodur TTS 10 mg:** 1 cerotto (8-20)
- **Lasix 25 mg:** 2 cp (ore 11)
- **Sinemet RM (200/50mg):** 1 cp per 3 (8-14-20)
- **Nurontin 300mg:** 1 cp per 2 (8-20)
- **Clexane 4000:** 1 fiala sc (ore 20)
- **Zyloric 100mg:** 1 cp (ore 12)
- **Limpidex 30mg:** 1 cp (ore 8)
- **Aerosol (Breva 10 gtt per 4 + Clenil: 1 fl per 2)**
- **Ossigeno:** 2l/min/die; 2.5l/min/notte

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# Caso Clinico

- Dalla dimissione riferito stato soporoso e tosse produttiva con dispnea senza febbre. Per questo motivo il 28 settembre viene portato in PS (PA: 90/45; Sat O2 aa: 86% TC: 36.4 FC 74 bpm)
- ECG: sinusale, fc 76/min, BAV: 1° , BBsx
- GB: 8.5, GR: 3.67, HGB: 11.4, HCT:34.1. MCV:92.9, Creatinina: 1.63, Urea: 71, Troponina I: 0.056. PCR: 5.71, PCT: 0.19, VES: 120.
- RX Torace: Discreta espansione polmonare. Non lesioni pleuro – parenchimali in attività. Stria fibrotica, in esiti, in regione sovrabasale dx. Ili vasali. Cuore nei limiti di norma. Aorta calcifica all'arco.
- EGA (aa)                      pH: 7.41, pO2: 51, PCO2: 77
- EGA (NIV)                    pH: 7.40, pO2: 56, PCO2: 75
- EGA (NIV)                    pH: 7.44, pO2: 71, PCO2: 69
- EGA (NIV)                    pH: 7.51, pO2: 68, PCO2: 55
- EGA (MV 35%)              pH: 7.47, pO2: 70, PCO2: 60
  
- Totale NIV: 17 ore

# Criteri di Gravità Clinica e Ospedalizzazione

## **CURB-65 (Confusion, BUN, FR, BP-65y)**

score

<b>Confusione</b>	<b>(demenza o delirium)</b>	<b>1</b>
<b>Azotemia</b>	<b>(&gt;45 mg/dl)</b>	<b>1</b>
<b>Freq. respiratoria</b>	<b>(<math>\geq 30</math>/min)</b>	<b>1</b>
<b>Pressione arteriosa</b>	<b>(PAS<math>\leq</math>90 o PAD<math>\leq</math>60mmHg)</b>	<b>1</b>
<b>Età</b>	<b>(65+)</b>	<b>1</b>
	<b>Totale</b>	<b>_____</b>

# Criteria di Gravità Clinica e Ospedalizzazione

<b>Gruppo</b>	<b>Mortalità</b>	<b>Score</b>	<b>Trattamento</b>
Gruppo 1	bassa (1,5%):	0-1	Domiciliare
Gruppo 2	intermedia (9,2%):	2	Hosp (LOS breve)
Gruppo 3	alta (22,0%):	3+	Hosp (se 4-5: ICU)

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# Subintensive care unit for the elderly: a new model of care for critically ill frail elderly medical patients

Anette Hylén Ranhoff<sup>1</sup>, Renzo Rozzini<sup>2,3</sup>, Tony Sabatini<sup>2,3</sup>, Angela Cassinadri<sup>2,3</sup>, Stefano Boffelli<sup>2,3</sup>, Marco Ferri<sup>2,3</sup>, Nicola Travaglini<sup>2,3</sup>, Antonella Ricci<sup>2,3</sup>, Alessandro Morandi<sup>2,3</sup>, Marco Trabucchi<sup>3</sup>

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# Caso Clinico

**Si ricovera (UCSI) con diagnosi di:**

- **BPCO riacutizzata (LRTI?)**
- **Insufficienza respiratoria ipossiémica ipercapnica acuta secondaria**
- **Recente polmonite bilaterale**

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# Caso Clinico

## All'ingresso (UCSI):

- **APACHE Score: 19 (13+6)**
- **GCS: 3-5-3**
- **Rass: -1**
- **CAM-ICU (+)**
- **Barthel 0/100 (BADL 40/60)**
- **CDR: 2-3**
- **Norton: 11 (rischio medio: 10-14)**
- **Norton Plus: 6 (rischio elevato: < 10)**

# Caso Clinico

- **Esami richiesti: Routine ematochimici; EGA, ECO cardio.**
- **Eco addome (eseguito il 15 settembre in altra sede):  
Colelitiasi**
- **Broncoaspirato (11 settembre): proteus mirabilis; E.Coli.**
- **EGA (MV 28%)      pH: 7.51, pO2: 60, PCO2: 64 SpO2: 93%**
- **→ aa**
- **Foley**
- **Decubito gluteo dx e sacrale (II), talloni e trocantere (I)**

# Caso Clinico

## Terapia :

- **Ossigeno:** MV (28%)
- **Tazocin 4.5:** 1 fiala per 3
- **Solumedrol 125:** 1 fiala ev (ore 8)
  
- **Clexane 4000:** 1 fiala sc (ore 20)
- **Cardioaspirin:** 1 cp (ore 13)
- **Nitrodur TTS 10 mg:** 1 cerotto (8-20)
- **Lasix 25 mg:** 2 cp (ore 11)
  
- **Sinemet RM (200/50mg):** 1 cp per 3 (8-14-20)
- **Nurontin 300mg:** 1 cp per 2 (8-20)
  
- **Antra 20mg:** 1 cp (ore 8)
- **Falquigut:** 10 gtt (ore 20)
  
- **Aerosol (Atem 1 fl + Broncovaleas: 5 gg 4)**

# Caso Clinico

**-ROZZINI R., Franzoni S., Trabucchi M.: At least laboratory assessment. J  
Am Geriatr Soc, 1992; 39:638.**

**At least antibiotic treatment.... Abdomen ultrasound.....**

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for prompt control of  
**senile agitation**



**THORAZINE\***

Chlorpromazine, U.S.P.

"Thorazine" can control the agitated, belligerent senile and help the patient to live a composed and useful life.

 Smith Kline & French Laboratories

\*U.S. Reg. U.S. Pat. Off.

# The confusion assessment method diagnostic algorithm (CAM)

1. **Insorgenza acuta e andamento fluttuante. Dato di solito acquisito da un familiare: c'è stato un cambiamento acuto nello stato mentale del paziente rispetto alla sua situazione di base? Il comportamento anormale varia durante la giornata, per esempio va e viene o si modifica d'intensità?**
2. **Perdita dell'attenzione. Il paziente presenta difficoltà nel concentrare la sua attenzione, ad esempio è facilmente distraibile, non riesce a mantenere il filo del discorso?**
3. **Disorganizzazione del pensiero. Il pensiero del paziente è disorganizzato e incoerente, passa da un argomento all'altro senza un filo logico, in modo imprevedibile?**
4. **Alterato livello di coscienza. Il paziente presenta iperallerta, letargia, stupor o coma?**

**La diagnosi di delirium richiede la presenza di 1) e 2) e, alternativamente 3) o 4).**

# Classificazione

- ***Delirium iperattivo (25%)***: con aumento dell'attività psicomotoria e prevalente agitazione (DD con stato ansioso generico)
- ***Delirium ipoattivo (25%)***: con diminuzione dell'attività psicomotoria (DD con depressione o apparente normalità)
- ***Delirium misto (35%)***: caratteristiche sia di iper che ipo-attività.
- **Nessuna alterazione psicomotoria (15%)**

- ***Prevalent delirium***: delirium diagnosed at admission to hospital
- ***Incident delirium***: delirium developed during hospital stay

# Critical points: risk vs precipitating factors

Severe Illness (APACHE II >16)  
Cognitive Impair. (MMSE<24)  
Vision Impairment  
↑ urea nitrogen/creatinine ratio

Use of Physical Restraints  
Malnutrition (alb <30g/L)  
>3 Medications added  
Use of bladder catheter  
Any iatrogenic event

Disability  
Cognitive Impair. (MMSE<24) Vision  
Impairment  
Malnutrition (alb <30g/L)

Severe Illness (APACHE II >16)  
Use of Physical Restraints  
>3 Medications added  
Use of bladder catheter  
Any iatrogenic event  
↑ urea nitrogen/creatinine ratio

# Cumulative delirium diagnosis in our Geriatric Ward

<b>Acute Care Elderly-Medical Unit (n=3114)</b>	<b>6.9%</b>
<b>Subacute Intensive Care Unit (n=401)</b>	<b>31.2%</b>
<b>Prevalent delirium</b>	<b>16.7%</b>
<b>Incident delirium</b>	<b>15.5%</b>

## Characteristics of 401 patients admitted to a Sub-Intensive Care Unit with no delirium and with cumulative, incident, and prevalent delirium

	No Del N=284 M±SD	Cum. Del N=117 M±SD	<i>P</i> *	Inc. Del N=55 M±SD	Prev. Del N=62 M±SD	<i>P</i> **
Length of stay	6.1±5.1	5.9±4.0	0.754	6.7±4.3	5.2±3.6	0.039
Mortality in Hosp, n (%)	14 (4.9)	36 (30.8)	0.001	10 (18.2)	26 (41.9)	0.005

*Ranhoff AH, Rozzini R et al. Aging, 2006*

# Declino funzionale

**Pazienti con delirium durante il ricovero ospedaliero risultano alla dimissione funzionalmente più compromessi:**

**Gruppo con delirium:**

**26% peggiora  
55% stazionario  
19% migliora**

**Gruppo senza delirium:**

**12% peggiora  
60% stazionario  
28% migliora**

**Delirium: predittore di peggioramento funzionale legato all'ospedalizzazione**

*(J Am Geriatr Soc, 1997)*

# Hospital diagnoses, Medicare charges, and nursing home admissions in the year when older persons become severely disabled

L. Ferrucci, J. M. Guralnik, M. Pahor, M. C. Corti and R. J. Havlik

**OBJECTIVE:** To characterize hospital diagnoses, procedures and charges, and nursing home admissions in the year when older persons become severely disabled, comparing those in whom severe disability develops rapidly with those in whom disability develops gradually.

**MAIN OUTCOME MEASURES:** Characteristics associated with development of severe disability after the fourth annual follow-up, in which the disability is classified as catastrophic disability if the individual did not report any ADL disability in the 2 interviews prior to severe disability onset or as progressive disability if the individual had previous disability in 1 or 2 ADLs.

**RESULTS:** In the year during which severe disability developed, hospitalizations were documented for 72.1% of those developing catastrophic disability and for 48.6% of those developing progressive disability. The 6 most frequent principal discharge diagnoses included stroke, hip fracture, congestive heart failure, and [pneumonia](#) in both severe disability subsets. These diagnoses occurred in 49% of those with catastrophic disability and 25% of those with progressive disability.

**CONCLUSIONS:** In the year when they become severely disabled, a large proportion of older persons are hospitalized for a small group of diseases. [Hospital-based interventions aimed at reducing the severity and functional consequences of these diseases could have a large impact on reduction of severe disability.](#)

Table 1. Characteristics of 110 Patients Admitted to an Acute Care for the Elderly Medical Unit with a Diagnosis of Pneumonia According to Change of Functional Status (Five or More Points Loss at Barthel Index) Due to the Disease

Characteristic	Without Functional Change (n = 49)	With Functional Change (n = 61)	P-value*
Age, mean $\pm$ SD	80.2 $\pm$ 6.8	82.3 $\pm$ 6.8	.11
Female, n (%)	26 (53.1)	39 (63.9)	.33
Mini-Mental State Examination score at discharge, mean $\pm$ SD	21.9 $\pm$ 7.3	18.9 $\pm$ 9.2	.06
Barthel Index, mean $\pm$ SD			
Two weeks before hospitalization	80.6 $\pm$ 24.0	72.5 $\pm$ 25.8	.09
At admission	80.7 $\pm$ 24.0	36.4 $\pm$ 29.7	.00
At discharge	79.7 $\pm$ 26.5	43.4 $\pm$ 33.9	.00
Number of Instrumental Activities of Daily Living lost 2 weeks before hospitalization, mean $\pm$ SD	3.3 $\pm$ 2.8	5.1 $\pm$ 2.5	.004
Charlson Comorbidity Index, mean $\pm$ SD	7.5 $\pm$ 2.2	5.1 $\pm$ 2.6	.005
Acute Physiology and Chronic Health Evaluation II score, mean $\pm$ SD	13.1 $\pm$ 3.2	16.7 $\pm$ 6.7	.00
Physiology score, mean $\pm$ SD	2.7 $\pm$ 2.7	5.5 $\pm$ 5.1	.00
Serum albumin, g/dL, mean $\pm$ SD	3.7 $\pm$ 0.7	3.4 $\pm$ 0.6	.009
Serum cholesterol, mg/dL, mean $\pm$ SD	183.1 $\pm$ 44.3	158.6 $\pm$ 46.7	.02
Hemoglobin, g/dL, mean $\pm$ SD	12.3 $\pm$ 2.2	11.2 $\pm$ 2.4	.06
Number of drugs, mean $\pm$ SD	3.6 $\pm$ 1.7	4.8 $\pm$ 2.5	.005
Length of stay, mean $\pm$ SD	7.6 $\pm$ 2.8	8.9 $\pm$ 4.7	.09
Six-month mortality, n (%)	5 (10.2)	22 (36.1)	.002

\*Chi-square test for comparing frequencies and Student *t* test for comparing means. SD = standard deviation.

# Caso Clinico

- **30 settembre**
- **AM: Notte riposata: questa mattina pz soporoso, ma facilmente risvegliabile (GCS: 3-5-3). PA: 110/60, fc 60/bpm, SpO2 (2l/min): 97%. Attende ECO cardiogramma al letto.**
- **PM: pz soporoso; riflesso della tosse presente. Secrezioni tracheo-bronchiali cospicue (si tracheoaspira e si invia colturale in laboratorio; durante la manovra breve periodo di arresto respiratorio). Turgore giugulare.**
- **EGA (O2 2l/min): pH: 7.45, pO2: 57, PCO2: 68**
- **Albumina: 2.77 g/dl**
- **Assistente sanitaria (eventuale dimissione protetta)**

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# **Serum albumin level and physical disability as predictors of mortality in older persons.**

**Corti MC, Guralnik JM, Salive ME, et al.  
JAMA 1994; 272:1036-1042.**

# Albumin as a Predictor of Mortality in Elderly Patients

**Rozzini R, Barbisoni P, Frisoni GB, Trabucchi M.**  
*J Clin Epidemiol 1997;50:865-867.*

# Crude and adjusted associations of serum albumin with 12-month mortality in 511 hospitalized elderly patients

		<b>A</b>		<b>B</b>	
	n/deaths	RR	95% C.I.	RR	95% C.I.
<b>Albumin (g/dl)</b>					
>3.4	343/31	1.0		1.0	
3.3-3.4	46/6	1.5	0.7-3.6	1.4	0.6-3.4
3.1-3.3	64/13	2.5	1.3-4.7	1.6	0.8-3.2
<3.1	58/16	3.4	1.9-6.3	2.5	1.2-5.1

A: crude analysis.

B: adjusted for age, gender, severity of diseases (ischemic or organic heart diseases, heart diseases other than ischemic or organic, respiratory diseases, kidney diseases, anemia, and malignancies), disability, triceps skinfold thickness, and mid-arm circumference.

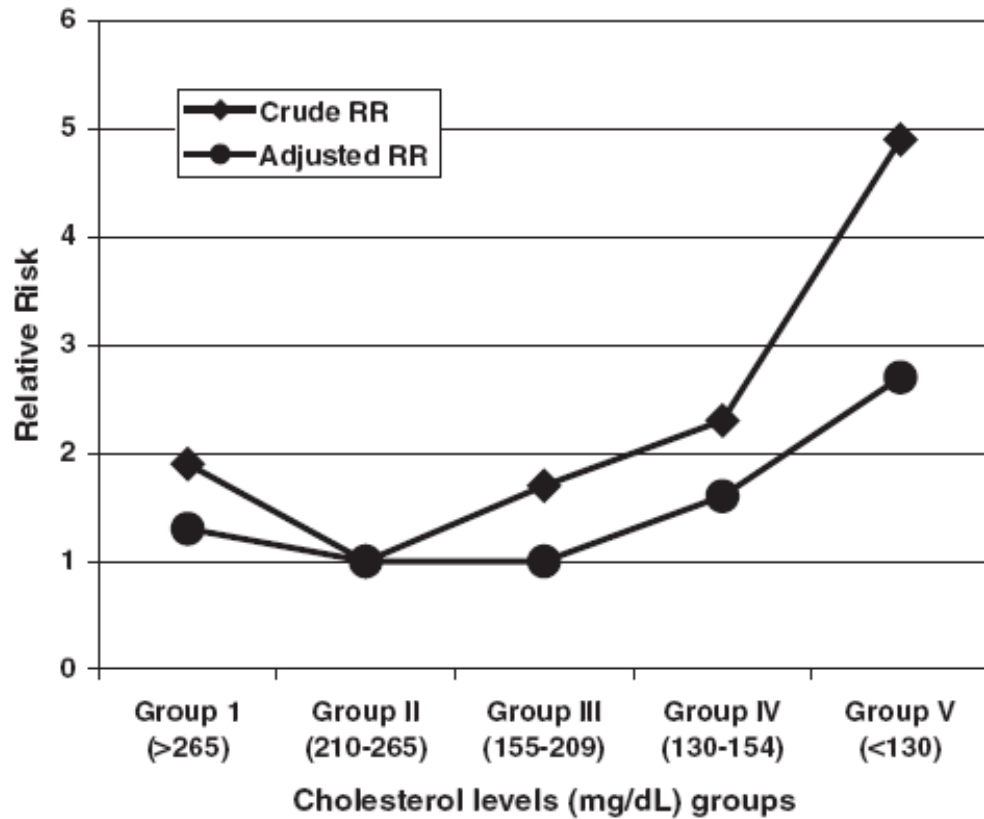


Figure 1. Crude and adjusted association between serum cholesterol and 12-month mortality in 511 hospitalized elderly patients. RR = risk ratio.

**Table 1. Association Between 12-Month Mortality and Serum Cholesterol Values in Elderly Hospitalized Patients**

Group	Cholesterol Level	Patients n	Events n	Crude Analysis	Adjusted Analysis*
				Relative Risk (95% Confidence Interval)	
I	> 265	37	6	1.9 (0.7–4.9)	1.3 (0.5–3.4)
II	210–265	157	14	1.0 (reference)	1.0 (reference)
III	155–209	243	28	1.7 (0.7–2.6)	1.0 (0.5–1.8)
IV	130–154	54	10	2.3 (1.0–5.2)	1.6 (0.7–3.7)
V	< 130	20	7	4.9 (1.9–12.2)	2.7 (1.1–7.2)

\*Adjusted for age, sex, smoking habits, symptomatic diseases (ischemic or organic heart diseases, heart diseases other than ischemic or organic, respiratory diseases, liver diseases, and malignancies), disability, and serum albumin.

**Rozzini et al. JAGS 2004**

**Combined hypoalbuminemia and hypocholesterolemia as a predictor of mortality in older patients in a short-term period.**

**Ranieri P, Rozzini R, Franzoni S, Trabucchi M**

**J Am Geriatr Soc. 1999;47:1386-7.**

# Crude and adjusted associations of combined hypo-albuminemia (<3.5g/dl) and hypocholesterolemia (<170mg/dl) with 12-month mortality in 310 in high functioning hospitalized elderly patients.

Combination	n/deaths	A		B	
		RR	95%C.I.	RR	95%C.I.
Alb+/Chol+	175/15	1.0		1.0	
Alb+/Chol-	42/5	1.4	0.5-3.9	1.0	0.3-2.6
Alb-/Chol+	48/9	2.4	1.1-5.5	1.8	0.7-4.2
Alb-/Chol-	45/9	2.7	1.2-6.1	2.5	1.1-5.7

A: crude analysis.

B: adjusted for age, gender, severity of diseases (ischemic or organic heart diseases, malignancies), disability, and dementia.

# Twelve-month mortality risk in 444 hosp elderly pts

	Events/n	Crude		Adjusted	
		RR	95% CI	RR	95% CI
Age (80+)	31/232	1.7	1.1-2.9	---	---
Gender (males)	27/133	1.4	0.9-2.3	---	---
Living alone	19/155	0.6	0.3-0.9	0.5	0.3-0.9
Disabled in BADL	49/170	3.7	2.2-6.2	2.4	1.3-4.5
Dementia	30/109	2.9	1.7-4.9	1.4	0.9-1.9
Depression	25/165	1.5	0.9-2.8	---	---
Liver diseases	9/25	3.0	1.3-7.2	---	---
Renal Failure	41/185	1.8	1.1-3.0	---	---
COPD	16/58	2.3	1.1-4.2	2.2	1.1-4.3
Malignancies	9/29	2.4	1.1-5.5	3.9	1.7-8.9
Drugs (5+)	32/141	2.5	1.1-3.1	1.8	1.1-3.3
No HF, no hypoalbuminemia	19/209	1.0	Ref	1.0	Ref
Yes HF, no hypoalbuminemia	28/139	2.4	1.3-4.3	2.1	1.0-4.4
No HF, yes hypoalbuminemia	13/53	3.1	1.5-6.2	2.7	1.1-6.5
Yes HF, yes hypoalbuminemia	16/43	4.9	2.6-9.7	3.4	1.4-8.2

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## C-Reactive Protein Levels and Post-ICU Mortality in Nonsurgical Intensive Care Patients

*Wilhelm Grandt, MD; Martin Dünser, MD; Björn Stollenwerk, PhD; Uwe Siebert, MD; Clemens Dengg, MD; Bernhard Koller, MD; Patricia Eller, MD; and Herbert Tilg, MD*

**Background:** There are no data on the association between acute inflammation during critical illness and long-term mortality in ICU patients.

**Methods:** Nonsurgical patients with an ICU length of stay > 24 h surviving until ICU discharge were included into this prospective, observational, follow-up study. Demographics, chronic diseases, admission diagnosis, the Simplified Acute Physiology Score (SAPS) II, length of ICU stay, maximum C-reactive protein (CRP) levels during the ICU stay (CRPmax), and CRP levels at ICU discharge (CRPdis) were documented. After a follow-up time of  $1.88 \pm 1.16$  years (range, 0.5-4 years), the survival status was determined.

**Results:** Seven hundred sixty-five patients were enrolled into the study protocol. One hundred fifty-eight patients (20.7%) died within  $0.62 \pm 0.88$  years after ICU discharge. Cumulative survival rates differed between patients grouped into the CRPmax and CRPdis quartiles. Patients in the first and second CRPmax quartiles had better cumulative survival rates than those in higher CRPmax quartiles (all  $P < .001$ ). Patients in the first CRPdis quartile had better cumulative survival rates than those in higher CRPdis quartiles (all  $P < .001$ ). Using adjusted Cox proportional hazards models, both CRPmax and CRPdis were independently associated with post-ICU mortality (both  $P < .001$ ). Furthermore, the number of chronic diseases ( $P < .001$ ), age ( $P < .001$ ), and the SAPS II ( $P = .03$ ) were associated with post-ICU mortality in both Cox models.

**Conclusions:** CRP levels during critical illness seem independently associated with post-ICU survival in nonsurgical ICU patients. Future research focusing on the association between acute systemic inflammation and post-ICU outcome is warranted in order to improve long-term survival of critically ill patients.

*CHEST 2010; 138(4):856-862*

**Abbreviations:** CRP = C-reactive protein; CRPdis = C-reactive protein levels at ICU discharge; CRPmax = maximum C-reactive protein levels during the ICU stay; SAPS = Simplified Acute Physiology Score

## Three-month mortality risk in 1521 elderly hospitalized patients

	Events/n	RR <sup>a</sup>	95% CI	RR <sup>b</sup>	95% CI
Age (90+)	58/269	2.5	1.8-3.4	1.3	1.0-1.7
Gender (males)	199/679	1.1	0.9-1.4	---	---
Disabled two weeks before admission	393/1076	6.3	4.4-9.0	2.0	1.2-3.2
APACHE II-APS* subscore >12	310/728	4.1	3.2-5.2	1.5	1.1-2.0
Urea/creatinine ratio >60	165/467	2.1	1.6-2.6	1.5	1.2-1.9
Delirium	152/335	2.7	2.1-3.5	1.7	1.3-2.2
Dementia	198/438	4.6	3.6-6.0	2.4	1.8-3.2
Pneumonia	116/301	1.8	1.4-2.4	1.4	0.9-2.0
Chronic Obstructive Pulmonary Disease	147/472	1.2	1.0-1.5	---	---
Renal Failure	70/447	1.7	1.2-2.2	---	---
Malnutrition	296/837	2.8	2.2-3.6	---	---
Stroke	92/205	2.3	1.7-3.2	---	---
Cancer / Metastatic cancer	73/169	2.1	1.5-2.9	2.1	1.4-3.0
Charlson index (4+)	187/488	2.0	1.6-2.5	1.3	1.0-1.7
Drugs (7+)	248/639	2.0	1.6-2.6	1.6	1.2-2.1
CRP					
1 <sup>st</sup> quartile	51/370	1.0	Ref.	1.0	Ref.
2 <sup>nd</sup> quartile	77/366	1.6	1.1-2.2	0.9	0.6-1.5
3 <sup>rd</sup> quartile	111/368	2.4	1.7-3.3	1.3	1.0-1.9
4 <sup>th</sup> quartile	159/367	3.8	2.8-5.3	1.8	1.2-2.7

# Sommario

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# Characteristics of 950 not bedridden hospitalized elderly patients and according to change in functional status

	Functional status changes		
	No change N=722 N (%) / M <sub>±</sub> SD	Minor (5-30) N=133 N (%) / M <sub>±</sub> SD	Major (35+) N=95 N (%) / M <sub>±</sub> SD
Gender (female)	489 (67.7)	99 (74.4)	70 (73.7)
Age	77.2 <sub>±</sub> 8.4	80.9 <sub>±</sub> 7.6	82.8 <sub>±</sub> 7.9
MMSE	25.0 <sub>±</sub> 5.2	21.3 <sub>±</sub> 7.1	19.1 <sub>±</sub> 8.9
GDS	4.9 <sub>±</sub> 3.6	5.8 <sub>±</sub> 3.6	5.8 <sub>±</sub> 3.8
BADL (2 wks before)	90.6 <sub>±</sub> 14.7	85.2 <sub>±</sub> 16.7	81.7 <sub>±</sub> 17.7
BADL (on admission)	90.7 <sub>±</sub> 14.7	68.3 <sub>±</sub> 20.6	31.3 <sub>±</sub> 23.2
BADL change	-0.7 <sub>±</sub> 0.8	16.9 <sub>±</sub> 9.5	50.4 <sub>±</sub> 16.0
IADL (2 wks before)	2.2 <sub>±</sub> 2.5	3.7 <sub>±</sub> 2.7	4.6 <sub>±</sub> 2.7
Charlson score	6.1 <sub>±</sub> 1.8	6.5 <sub>±</sub> 1.9	7.2 <sub>±</sub> 2.0
Drugs (n)	4.1 <sub>±</sub> 1.8	4.2 <sub>±</sub> 1.9	4.1 <sub>±</sub> 2.1
APACHE II score	6.8 <sub>±</sub> 3.2	8.6 <sub>±</sub> 4.4	10.8 <sub>±</sub> 5.9
APS (4+)	93 (13.0)	27 (20.5)	37 (38.8)
Serum albumin (< 3.5g/dl)	80 (11.1)	23 (17.3)	33 (34.7)
Length of stay	6.4 <sub>±</sub> 2.7	7.0 <sub>±</sub> 3.1	8.3 <sub>±</sub> 5.4
Six month mortality	43 (6.0)	15 (11.3)	28 (29.5)

*(Rozzini et al. J Gerontol, 2005)*

# Crude and adjusted associations of clinical variables and 6-month mortality in 950 hospitalized elderly patients.

	n/events	A RR (95% C.I.)	B* RR (95% C.I.)
Gender (male)	335/61	1.6 (1.0-2.9)	1.5 (0.9-2.6)
Age (>80)	470/78	1.5 (1.1-2.2)	1.0 (0.9-1.1)
Dementia (MMSE <18)	167/41	3.6 (2.0-6.4)	1.9 (1.1-3.8)
Depression (GDS>4)	547/71	1.4 (0.9-2.1)	-----
APS (>4)	185/57	3.6 (2.1-6.4)	2.3 (1.3-4.3)
Serum Albumin (<3.5 g/dl)	177/52	4.5 (2.6-8.0)	2.3 (1.3-4.6)
Anemia (Hb <10g/dl)	97/28	3.4 (1.7-6.6)	2.2 (0.9-5.4)
Charlson Index (8+)	199/75	2.5 (1.3-4.8)	-----
<b>Change in functional status</b>			
No change	670/58	1.0 (ref.)	1.0 (ref.)
Minor change (5-25)	130/24	1.8 (1.0-4.0)	1.3 (0.6-3.0)
Major change (30+)	148/48	6.2 (3.5-11.5)	2.8 (1.3-5.7)
Cancer	170/66	2.7 (1.8-5.5)	-----
Heart failure (ischemic/organic)	123/24	1.6 (0.8-3.9)	-----
Heart failure (extracardiac)	40/11	2.5 (0.9-7.0)	-----
Pulmonary disease	364/69	1.7 (1.0-3.2)	-----
Chronic renal failure	155/31	2.7 (0.9-8.9)	-----

(Rozzini et al. *J Gerontol*, 2005)

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## Characteristics of 434 nonagenarians hospitalized elderly patients

	Total N (%) / M <sub>±</sub> sd
Age	92.6 <sub>±</sub> 2.5
Gender (male)	131 (30.2)
Living alone	77 (17.7)
Geriatric Depression Scale-GDS*	4.6 <sub>±</sub> 3.1
Depressed (GDS 5+) (valid cases=231)	82 (35.5)
Mini Mental State Examination-MMSE	16.4 <sub>±</sub> 9.7
Dementia (MMSE <18)	185 (44.6)
Delirium	88 (20.3)
IADL functions lost (2 wks pre adm.)	5.1 <sub>±</sub> 2.6
Barthel Index (2 wks before adm.)	62.3 <sub>±</sub> 32.0
Barthel Index (2 wks before admission) < 60	298 (68.7)
Barthel Index (on admission)	40.2 <sub>±</sub> 36.3
Barthel Index (on discharge)	47.2 <sub>±</sub> 35.7
No improvement in BADL during hospitalization	310 (71.4)

(valid cases=231)

## Characteristics of 434 nonagenarians hospitalized elderly patients

	Total N (%) / M <sub>±</sub> sd
Charlson score	2.8 <sub>±</sub> 2.0
Charlson score (4+)	138 (31.8)
APACHE II score	12.7 <sub>±</sub> 6.6
Acute Physiology Score-APS	5.8 <sub>±</sub> 5.9
APS (8+)	132 (30.4)
Serum albumin	3.5 <sub>±</sub> 0.6
Serum albumin (< 3.5g/dl)	214 (49.3)
Dehydration (BUN/creatinine ratio >60)	119 (27.4)
Drugs (n)	5.6 <sub>±</sub> 2.9
Drugs (7+)	99 (22.8)

(valid cases=231)

# Characteristics of 434 nonagenarians hospitalized elderly patients

	Total N (%) / M <sub>±</sub> sd
<b>Main reason of admission</b>	
Respiratory diseases (COPD acute exacerbation=31, Pneumonia=89)	120 (27.6)
Heart failure (NYHA III-IV)	77 (18.1)
Stroke	64 (14.7)
Cancer (with or without metastasis)	34 (7.8)
Liver Cirrhosis	18 (4.2)
Diabetes mellitus ( <u>uncompensated</u> )	16 (3.7)
 <i>Preexisting Comorbidity</i>	
Hypertension	259 (59.8)
COPD	222 (51.2)
Cancer (Previous)	64 (14.7)
Stroke (Previous)	122 (28.2)
Arthritis	100 (23.1)
Diabetes mellitus	86 (19.8)
Admission from ER	407 (94)
Length of stay (days)	6.1 <sub>±</sub> 4.1
In hospital mortality	50 (11.5)
Three month mortality (total)	123 (28.3)
<i>Three month hospital readmission (1+)</i>	<i>105 (24.3)</i>

(valid cases=231)

# Clinical conditions associated to 3 month mortality in 434 nonagenarians admitted to hospitals for acute diseases

	n/events	RRA	95%CI	RRB	95% CI
Barthel Index (on adm) < 60	298/111	6.7	3.4-12.9	3.3	1.3-8.8
No improvement in BADL during hospit	310/95	1.6	1.0-2.6	2.2	1.3-3.8
Dementia (MMSE <18)	185/71	3.3	2.1-5.3	1.6	0.9-2.6
Delirium	88/40	2.6	1.6-4.3	1.9	1.1-3.2
APS (8+)	132/72	5.9	3.7-9.3	2.6	1.5-4.4
Dehydration (BUN/creatinine ratio >60)	119/45	2.3	1.4-3.7	1.7	1.0-2.7
Cancer (with or without metastasis)	34/15	2.1	1.1-4.4	3.1	1.5-6.3
Drugs (7+)	99/58	5.5	3.2-9.2	2.6	1.5-4.6
Charlson Index ( $\geq 4$ )	138/51	1.8	1.2-2.8	---	---
Serum albumin (<3.5g/dl)	214/80	3.0	1.9-4.7	---	---
COPD exacerbation, CAP	120/41	1.4	1.0-2.2	---	---
	---				
Stroke	64/26	1.9	1.1-3.4	---	---
Diabetes mellitus (uncompensated)	16/9	3.4	1.2-9.5	---	---

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# Caso Clinico

- **1 ottobre**
- **AM: risponde alle domande semplici**
- **EAB (MV 35%) pH: 7.46, pO2: 74, PCO2: 58 SpO2: 95%**
- **Ecocardiogramma: senoinsufficienza valvolare aortica (0.5 cm<sup>2</sup>); FE 58%. Dilatazione delle cavità atriali. Vdx nella norma. Non segni di aumentata pressione venosa centrale**
- **PM: stazionario (colloquio con la figlia)**

# Caso Clinico

- **2 ottobre**
- **AM: Netto miglioramento rispetto all'ingresso. Mobilizzato in poltrona. EAB (MV 35%) pH: 7.50, pO<sub>2</sub>: 64, PCO<sub>2</sub>: 59**
- **PM: stazionario: continua MV al 35%**

# Caso Clinico

- **3 ottobre**
- **Notte riposata. Al torace ronchi diffusi. PA: 120/60, fc: 70 bpm. Diuresi 24 ore 2200. Si riuove Foley. Prosegue terapia in atto.**
- **PM: EAB (MV 28%) pH: 7.52, pO<sub>2</sub>: 66, PCO<sub>2</sub>: 52 SpO<sub>2</sub>: 95%→ prosegue MV 28%.**

# Caso Clinico

**4 Ottobre**

- **AM: Stazionarietà clinica**

**Revisione diagnostica:**

- **Coma ipercapnico (delirium ipocinetico?)**
- **Insufficienza respiratoria global; BPCO (silicosi)**
- **Stenosi aortica severa**
- **Encefalopatia vascolare. Parkinsonismo**
- **Esiti di frattura composta del femore sinistro**
  
- **PM: EAB (2l/min) pH: 7.52, pO<sub>2</sub>: 58, PCO<sub>2</sub>: 58 SpO<sub>2</sub>: 92%**
- **Aspirato endotracheale: Staphylo aureo: ++++**
- **Si attendono ematochimici prima di modificare la terapia**

# Caso Clinico

- **5 ottobre**
- **AM: Hb 10.6, creatinina 1.22 (↓), urea 53 (↓), K: 2.6, PCR: 1.27 (↓), VES 50 (↓)**
- **Si supplementa potassio, si aggiunge Bactrim**
- **PM: stazionarietà**
- **6 ottobre**
- **AM: Ulteriore miglioramento clinico. Se nulla osta domani dimesso (i familiari sono informati).**
- **PM: EAB (2l/min) pH: 7.51, pO2: 58, PCO2: 58**

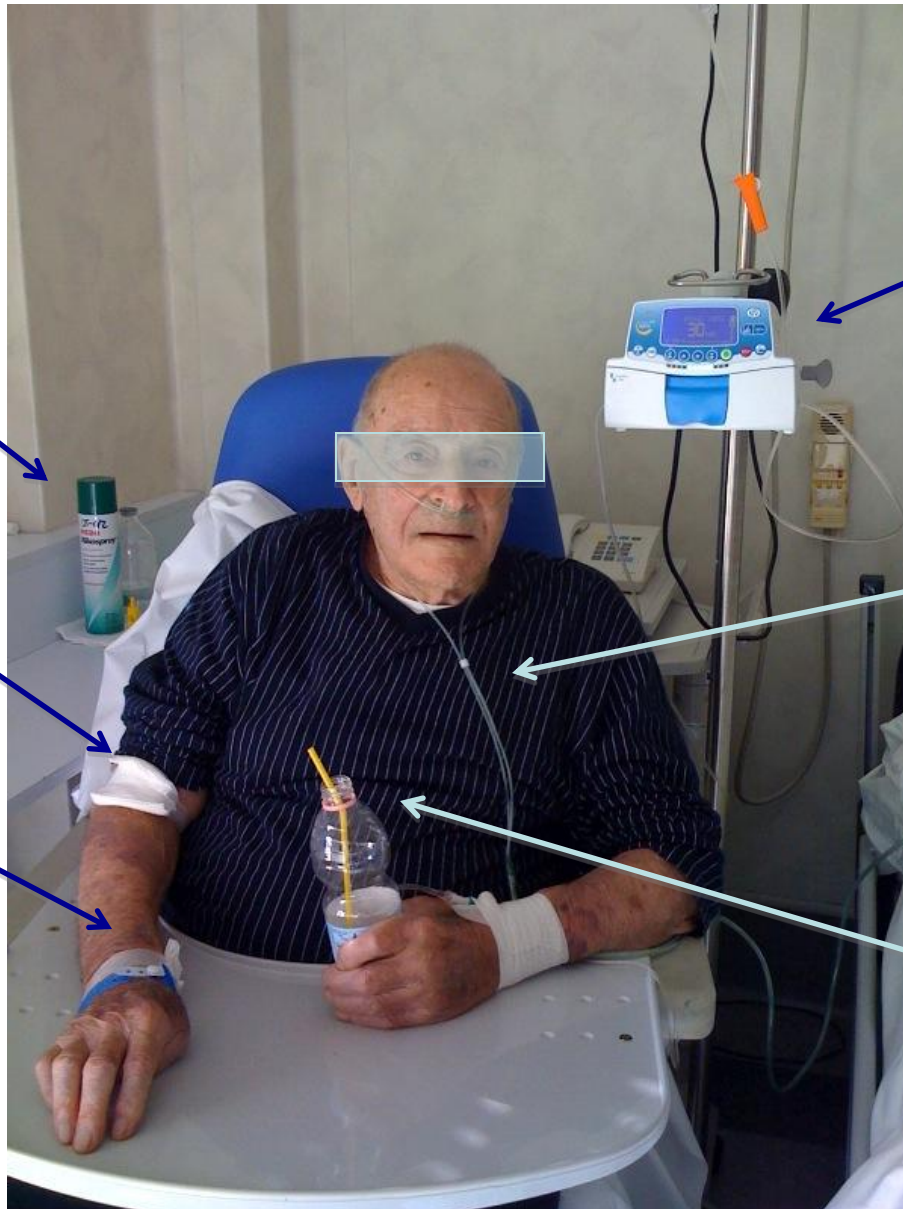
# Caso Clinico

**Stenosi aortica: Se la stenosi è asintomatica, non è severa (velocità massima del sangue attraverso la stenosi, rilevata con ecodoppler,  $<4$  m/s, gradiente medio di pressione transvalvolare  $< 40$  mmHg, area dell'orifizio aortico  $> 1$  cm<sup>2</sup>) e la frazione di eiezione è superiore al 50%, non si ha il bisogno di intervenire chirurgicamente. Si attua comunque, a scopo cautelativo, la profilassi antibiotica per evitare l'endocardite infettiva.**

**Se la stenosi è sintomatica ed è severa (velocità massima del sangue attraverso la stenosi, rilevata con ecodoppler,  $>4$  m/s, gradiente medio di pressione transvalvolare  $>40$  mmHg, area dell'orifizio aortico  $< 1$  cm<sup>2</sup>) è necessario l'intervento chirurgico.**

**Se la stenosi è asintomatica ma è severa (velocità massima del sangue attraverso la stenosi, rilevata con ecodoppler,  $<4$  m/s, gradiente medio di pressione transvalvolare  $< 40$  mmHg, area dell'orifizio aortico  $> 1$  cm<sup>2</sup>), alcuni chirurghi ritengono di porre l'indicazione all'intervento se il gradiente transvalvolare aortico medio è  $>50$  mmHg e/o l'area valvolare è  $<0,75$  cm<sup>2</sup>). Altri ritengono che il gradiente medio debba essere portato a 80-100 mmHg. Secondo le linee guida americane 2006 sul management del paziente con valvulopatie, discriminante è la frazione di eiezione. Se risulta  $<50\%$ , si ha indicazione all'intervento chirurgico anche se il paziente è asintomatico (pur avendo una stenosi severa).**

**In casi gravi è necessaria la sostituzione valvolare, la valvulotomia tramite palloncino non è efficace se non come intervento palliativo in attesa di intervento chirurgico.**



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# Caso Clinico

- **7 ottobre. Dimesso con la seguente diagnosi:**
- **BPCO riacutizzata con insufficienza respiratoria globale acuta e coma ipercapnico (eseguita NIV per circa 17 h). Candidosi del cavo orale**
- **Recente (09/10) polmonite bilaterale; silicosi polmonare**
- **Cardiopatía ipertensiva e valvolare (stenosi aortica severa). IRC**
- **Colelitiasi**
- **Encefalopatia vascolare con deterioramento cognitivo severo (CDR 3)**
- **Parkinsonismo vascolare; neuropatia sensitivo-motoria arti inferiori**
- **Sindrome da allettamento prolungato (lesioni da decubito gluteo dx e sacrale di secondo grado, talloni e trocantere sx di primo grado)**
- **Pregressa frattura composta di femore dx. Pregressa TVP femorale superficiale (2008)**
- **Durante la degenza somministrata terapia antibiotica per 10 gg con tazobactam/piperacillina. Da tre giorni trattamento con trimetropin/sulfametoxazolo secondo escreatocoltura (Staphylococcus aureus ++; Proteus mirabilis +).**

**Evoluzione della malattia: miglioramento**

# Caso Clinico

- 7 ottobre

<b>ASSESSMENT GERIATRICO</b>	<b>Prericovero</b>	<b>Ingresso</b>	<b>Dimissione</b>
Cognitività (MMSE)			11/30
Gravità della compromissione cognitiva (CDR)			3/5
Disturbo dell'umore (GDS)			n.v
Autosufficienza (BADL) (Barthel Index)	40/100	0/100	10/100
Autosufficienza (IADL) (n. funzioni perse)	5/5		
Scala Tinetti: (equilibrio)			1/16
(andatura)			0/12
(totale)			1/28

# Caso Clinico

Terapia in atto alla dimissione:

<b>Nome commerciale</b>	<b>posologia</b>	<b>Orario</b>
• Bactrim 1 gr	1 c x 3	Ore 8-14-20 (consigliato per altri 5 giorni)
• Mycostatin sciroppo	1 mis x 3	Ore 8-14-20 (consigliato per altri 5 giorni)
• Cardioaspirin 100	1 c Ore 14	
• Lasix 25	1 c Ore 8	
• Nitrodur 10	1 cerotto	Dalle ore 8 alle ore 20
• Sinemet 200/50	1 c x 3	Ore 8-14-20
<b>Aerosol:</b>		
• Broncovaleas	5 gtt x 3	Ore 8-14-20
• Atem	1 f x 3	Ore 8-14-20
• Ossigeno	2 l/min	
• Medicazione decubiti	Vedi protocollo allegato	

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# Rehospitalizations among Patients in the Medicare Fee-for-Service Program

Stephen F. Jencks, M.D., M.P.H., Mark V. Williams, M.D.,  
and Eric A. Coleman, M.D., M.P.H.

## ABSTRACT

### **BACKGROUND**

Reducing rates of rehospitalization has attracted attention from policymakers as a way to improve quality of care and reduce costs. However, we have limited information on the frequency and patterns of rehospitalization in the United States to aid in planning the necessary changes.

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## RESULTS

Almost one fifth (19.6%) of the 11,855,702 Medicare beneficiaries who had been discharged from a hospital were rehospitalized within 30 days, and 34.0% were rehospitalized within 90 days; 67.1% of patients who had been discharged with medical conditions and 51.5% of those who had been discharged after surgical procedures were rehospitalized or died within the first year after discharge. In the case of 50.2% of the patients who were rehospitalized within 30 days after a medical discharge to the community, there was no bill for a visit to a physician's office between the time of discharge and rehospitalization. Among patients who were rehospitalized within 30 days after a surgical discharge, 70.5% were rehospitalized for a medical condition. We estimate that about 10% of rehospitalizations were likely to have been planned. The average stay of rehospitalized patients was 0.6 day longer than that of patients in the same diagnosis-related group whose most recent hospitalization had been at least 6 months previously. We estimate that the cost to Medicare of unplanned rehospitalizations in 2004 was \$17.4 billion.

## CONCLUSIONS

Rehospitalizations among Medicare beneficiaries are prevalent and costly.

**Table 2.** Highest Rates of Rehospitalization and Most Frequent Reasons for Rehospitalization, According to Condition at

Condition at Index Discharge	30-Day Rehospitalization Rate	Proportion of All Rehospitalizations	percent	
			Most Frequent	2nd Most Frequent
<b>Medical</b>				
All	21.0	77.6	Heart failure (8.6)	<u>Pneumonia (7.3)</u>
Heart failure	26.9	7.6	Heart failure (37.0)	<u>Pneumonia (5.1)</u>
Pneumonia	20.1	6.3	<u>Pneumonia (29.1)</u>	Heart failure (7.4)
COPD	22.6	4.0	COPD (36.2)	<u>Pneumonia (11.4)</u>
Psychoses	24.6	3.5	Psychoses (67.3)	Drug toxicity (1.9)
GI problems	19.2	3.1	GI problems (21.1)	Nutrition-related or metabolic issues (4.9)
<b>Surgical</b>				
All	15.6	22.4	Heart failure (6.0)	<u>Pneumonia (4.5)</u>

**Table 3. Predictors of Rehospitalization within 30 Days after Discharge.\***

Variable	Hazard Ratio (95% Confidence Interval)
Hospital's ratio of observed to expected hospitalizations†	1.097 (1.096–1.098)
National rehospitalization rate for DRG‡	1.268 (1.267–1.270)
No. of rehospitalizations since October 1, 2003	
0	1.00
1	1.378 (1.374–1.383)
2	1.752 (1.746–1.759)
≥3	2.504 (2.495–2.513)
Length of stay	
>2 times that expected for DRG	1.266 (1.261–1.272)
0.5–2 times that expected for DRG	1.00
<0.5 times that expected for DRG	0.875 (0.872–0.877)
Race‡	
Black	1.057 (1.053–1.061)
Other	1.00
<u>Disability</u>	<u>1.130 (1.119–1.141)</u>
End-stage renal disease	1.417 (1.409–1.425)
<u>Receipt of Supplemental Security Income</u>	<u>1.117 (1.113–1.122)</u>
Male sex	1.056 (1.053–1.059)
Age	
<55 yr	1.00
55–64 yr	0.983 (0.978–0.988)
65–69 yr	0.999 (0.989–1.009)
70–74 yr	1.023 (1.012–1.035)
75–79 yr	1.071 (1.059–1.084)
80–84 yr	1.101 (1.089–1.113)
85–89 yr	1.123 (1.111–1.136)
>89 yr	1.118 (1.105–1.131)

**Health Status and Outcomes according to Cognitive Status in Acutely Ill Elderly Patients Admitted to a Geriatric ACE unit.**

# Factors associated to delirium (n=486) in 3500 hospitalized elderly patients.

	Events/total	RR <sup>a</sup>	95% C.I.	RR <sup>b</sup>	95% C.I.
Age >80	267/1625	1.5	1.2-1.8	--	--
Being male	217/1366	1.3	1.1-1.6	--	--
Alcoholism	33/160	1.7	1.1-2.5	1.7	1.0-2.8
BADL before	366/1619	4.2	3.4-5.2	2.5	1.8-3.5
APS>4	303/1254	3.6	2.9-4.4	2.1	1.5-2.9
Bun/Creat >60	174/954	1.7	1.4-2.1	1.4	1.1-1.8
Serum Alb<3.5mg/dl	263/1285	2.4	2.0-2.9	1.5	1.2-1.9
Charlson Index $\geq 3$	277/1614	1.7	1.4-2.0	--	--
Drugs > 5	243/1197	2.0	1.6-2.6	--	--
Stroke	43/264	1.3	0.9-1.8	--	--
COPD	149/795	1.6	1.3-2.0	--	--
Metastatic cancer	43/246	1.3	0.9-1.9	--	--
Pneumonia	90/418	1.9	1.5-2.5	--	--
No dementia	135/1809	1.0	Ref.	1.0	Ref.
MCI&MVC	121/861	2.0	1.6-2.6	1.9	1.4-2.7
AD	128/529	3.9	3.0-5.2	2.4	1.7-3.5
VD	102/336	5.4	4.0-7.2	3.3	2.3-4.8

# Factors associated to three-month mortality (n=370) in 3500 hospitalized elderly patients.

	Events/total	RR <sup>a</sup>	95% C.I.	RR <sup>b</sup>	95% C.I.
Age>80	220/1494	1.8	1.5-2.3	1.2	0.9-1.5
Being male	165/1242	1.3	1.1-1.7	--	--
Live alone	60/840	0.5	0.4-0.7	0.6	0.4-0.9
Serum Alb<3.5mg/dl	230/1131	3.7	2.9-4.6	1.7	1.3-2.3
BADL before	277/1390	4.6	3.6-5.9	1.6	1.1-2.2
APS>4	228/1034	4.1	3.3-5.1	1.7	1.3-2.2
Bun/Creat >60	128/866	1.7	1.3-2.2	--	--
Charlson Index $\geq 3$	236/1449	2.4	1.9-3.0	1.3	1.0-1.7
Drugs >5	198/1041	2.3	1.8-3.0	1.5	1.1-1.9
COPD	108/706	1.6	1.2-2.0	--	--
Pneumonia	77/365	2.4	1.8-3.2	--	--
Liver Cirrhosis	24/139	1.7	1.1-2.6	--	--
Metastatic cancer	56/199	3.4	2.5-4.8	2.2	1.6-3.0
Delirium	83/369	2.6	2.0-3.5	1.5	1.1-2.0
No dementia	108/1745	1.0	Ref.	1.0	Ref.
MCI&MVCI	86/803	1.8	1.3-2.3	1.4	1.0-1.9
AD	102/450	4.0	3.1-5.3	2.2	1.6-3.1
VD	74/289	4.7	3.5-6.3	2.3	1.5-3.4

**Characteristics of 1310 hospitalized elderly patients according to their mental status before admission: not affected by severe dementia, with severe dementia but not confined to bed, and with severe dementia and confined to bed.**

	<b>Total N=1310 M(±SD) n (%)</b>	<b>Without SevD N=1155 M(±SD) n (%)</b>	<b>SevD not Br N=71 M (±SD) n (%)</b>	<b>SevD &amp; Br N=84 M (±SD) n (%)</b>
Age (years)	79.4 (±7.8)	77.4 (±7.7)	77.0 (±6.9)	79.5 (±7.0)
Gender (male)	425 (32.4)	378 (32.7)	21 (29.9)	26 (31.0)
MMSE score	22.2 (±7.9)	24.5 (±4.6)	8.0 (±4.1)	1.8 (±3.6)
GDS score	5.2 (±3.6)	5.2(±3.6)	NA	NA
Living alone	382 (29.7)	382 (33.1)	NA	NA
Barthel Index prior	83.2 (±24.2)	88.0 (±17.8)	67.9 (±22.6)	30.3 (±31.8)
Barthel Index at	74.4 (±30.7)	80.7 (±24.8)	55.8 (±20.3)	3.3 (±5.5)
Barthel Index at discharge	76.6 (±29.6)	83.1 (±22.8)	55.3 (±21.3)	5.3 (±9.4)
No of IADLs lost prior	3.3 (±3.8)	2.8 (±3.8)	6.2 (±2.2)	7.3 (±1.3)
Charlson Index	2.6 (±2.4)	2.4 (±2.3)	3.9 (±2.5)	4.3 (±2.6)
Drugs (n)	4.3 (±1.8)	4.3 (±1.9)	4.1 (±1.8)	3.9 (±1.8)
APACHE II score	8.1 (±4.7)	7.7 (±4.3)	9.3 (±4.2)	13.2 (±7.1)
APS-APACHE II score	1.9 (±2.9)	1.7 (±2.5)	2.3 (±2.5)	5.1 (±5.2)
Serum Albumin (g/dl)	4.0 (±0.7)	4.1 (±0.6)	3.9 (±0.6)	3.3 (±0.6)
Serum Cholesterol (mg/dl)	203.5 (±32.0)	206.5 (±51.3)	194.1 (±54.2)	168.9 (±45.9)
Hemoglobin (g/dl)	12.2 (±2.1)	12.3 (±2.3)	11.8 (±2.2)	11.1 (±2.4)
LOS (days)	6.9 (±3.3)	6.9 (±3.2)	6.3 (±2.7)	6.7 (±4.6)
<b>Six month mortality</b>	<b>213 (16.3)</b>	<b>144 (12.5)</b>	<b>15 (21.1)</b>	<b>54 (64.4)</b>

# Pneumonia

## *Still the Old Man's Friend?*

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# Prevalenze MDC in pazienti 3500 ricoverati in Geriatria suddivisi per presenza/assenza di Demenza CDR 4-5

	No/CDR 0.5-3 N=3133 N (%)	Demenza (CDR 4-5) N=367 N (%)
<b>Respiratorio</b>	<b>731 (24.0)</b>	<b>93 (25.8)</b>
<b>Cuore</b>	<b>657 (21.6)</b>	<b>32 (8.9)</b>
<b>SNC</b>	<b>359 (11.8)</b>	<b>40 (11.1)</b>
<b>GE</b>	<b>322 (10.6)</b>	<b>30 (8.3)</b>
<b>Infettivo (sepsi)</b>	<b>169 (5.6)</b>	<b>81 (22.4)</b>
<b>Fegato</b>	<b>118 (3.9)</b>	<b>15 (4.2)</b>
<b>Rene</b>	<b>97 (3.2)</b>	<b>15 (4.2)</b>
<b>Altro</b>	<b>591 (18.8)</b>	<b>55 (14.9)</b>

**Table 1. Characteristics and 6-Month Mortality Rate of 1803 Inpatients Consecutively Admitted in a Geriatric Ward for Pneumonia or Other Acute Noninfectious Diseases\***

Characteristic	Pneumonia (n = 241)	Acute Noninfectious Diseases (n = 1562)	P Value
Age, y	83.3 ± 6.9	79.7 ± 7.0	.001
Male, %	24.5	19.3	.001†
MMSE score	19.7 ± 9.1	22.9 ± 7.1	.001
GDS score	5.1 ± 3.2	5.1 ± 3.6	.98
Barthel Index (15 days before admission)	72.6 ± 31.5	83.8 ± 23.2	.001
Barthel Index (on admission)	55.3 ± 37.9	74.5 ± 30.0	.001
IADL (functions lost)	3.9 ± 3.0	3.1 ± 2.8	.001
Diseases, No.	6.1 ± 2.1	5.3 ± 2.0	.001
Charlson Index	8.3 ± 2.5	7.0 ± 2.6	.001
Drugs, No.	4.5 ± 2.3	4.3 ± 1.9	.19
APACHE II score	13.3 ± 6.3	7.9 ± 4.1	.001
APS-APACHE II subscore	3.8 ± 4.2	1.9 ± 2.7	.001
Serum albumin, g/dL	3.6 ± 1.3	3.9 ± 0.6	.001
Hemoglobin, g/dL	11.7 ± 2.3	12.3 ± 2.0	.02
Serum cholesterol, mg/dL	186.2 ± 51.9	204.7 ± 51.1	.001
CRP, mg/dL	7.5 ± 5.6	2.6 ± 7.8	.001
Creatinine, mg/dL	1.2 ± 0.8	1.1 ± 0.8	.20
Length of stay, d	8.1 ± 5.1	6.4 ± 3.3	.001
6-mo mortality, %	27.4	20	.001†

Abbreviations: APACHE, Acute Physiology and Chronic Health Examination; APS, Acute Physiology Score; CRP, C-reactive protein; GDS, Geriatric Depression Scale; IADL, Instrumental Activities of Daily Living; MMSE, Mini-Mental State Examination.

SI conversion factors: To convert cholesterol to millimoles per liter, multiply by 0.0259. To convert creatinine to micromoles per liter, multiply by 88.4.

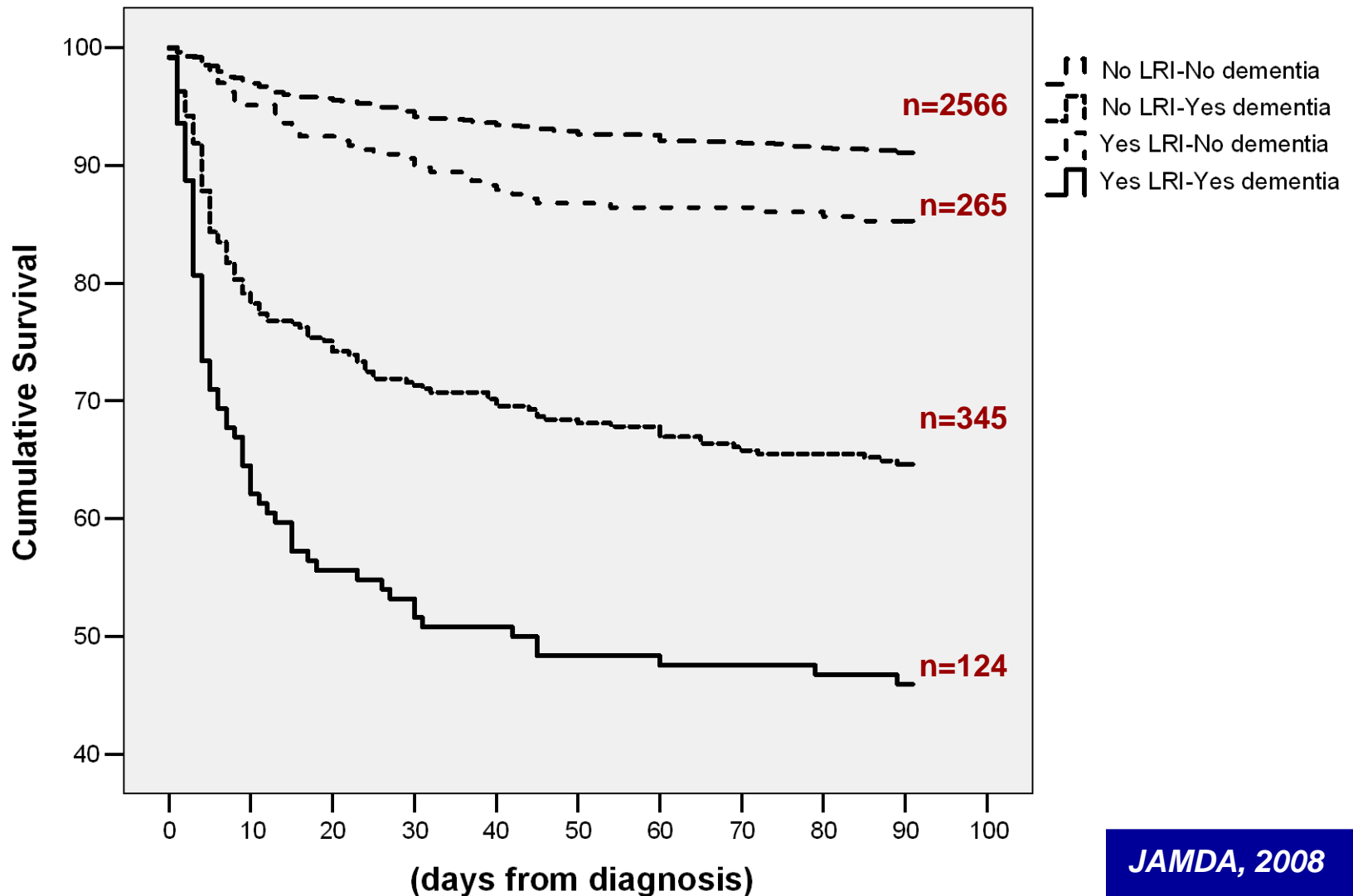
\*Data are mean ± SD value unless otherwise specified.

†P value derived from  $\chi^2$  test. Other P values were derived from the t test.

In conclusion, hospitalized CAP is associated with **many deaths outside the time frame normally considered in this otherwise acute disease**. As clinicians, we need to consider the effects of CAP on mortality far beyond hospital discharge. The observed high mortality rates are important for prognostication, patient and family counseling, and medical decision making. Improved understanding of the **poor long-term prognosis associated with CAP** is needed to modify the dismal outcome of this common disease in elderly patients.

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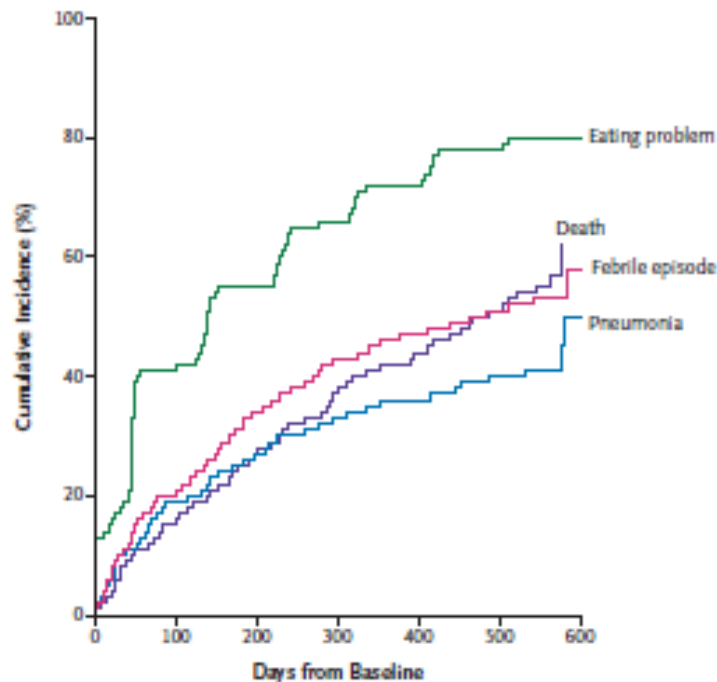
## Three months survival of elderly patients according to lower respiratory tract infection (LRI) and dementia



### The Clinical Course of Advanced Dementia

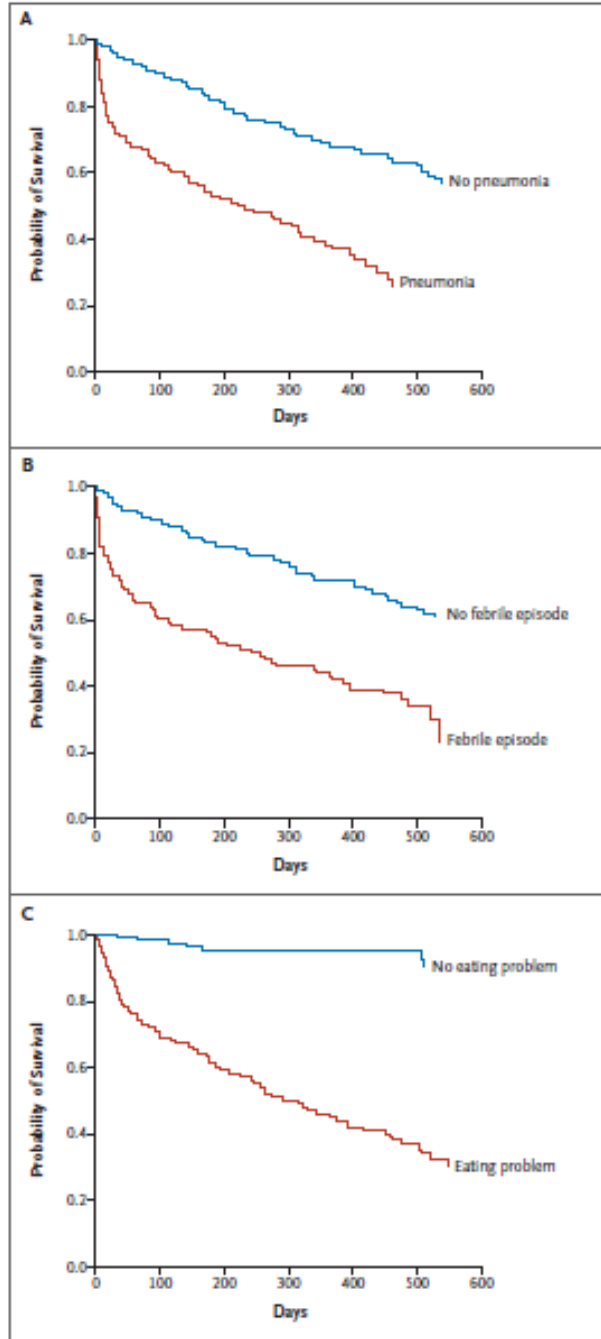
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#### ABSTRACT



**Figure 1.** Overall Mortality and the Cumulative Incidences of Pneumonia, Febrile Episodes, and Eating Problems among Nursing Home Residents with Advanced Dementia.

Overall mortality for the nursing home residents during the 18-month course of the study is shown. The residents' median age was 86 years, and the median duration of dementia was 6 years; 85.4% of residents were women.



# Sommario

- **Caso clinico**
- **In Pronto Soccorso**
  - Diagnosi
  - Primo intervento
  - Definizione setting (grave e vecchio)
- **In Geriatria (UCSI)**
  - La clinica
  - Problemi specifici
    - Work up diagnostico (+ assessment)
    - Delirium
    - Malnutrizione
    - Flogosi
    - Lo stato funzionale
    - Dell'età molto avanzata
- **L'evoluzione clinica, il nursing**
- **La dimissione**
  - Assessment e dimissione protetta
- **Problemi attesi**
  - Rericovero (polmoniti)
- **Conclusioni**

