



SOCIETÀ ITALIANA  
DI GERONTOLOGIA  
E GERIATRIA

22 novembre 2012

# Ortogeriatria: un modello assistenziale centrato sul paziente: l'esperienza della Lombardia

Giuseppe Bellelli

Clinica Geriatrica, Università Milano-Bicocca  
Gruppo di Ricerca Geriatrica Brescia

CONGRESSO NAZIONALE  
SOCIETÀ ITALIANA DI GERONTOLOGIA E GERIATRIA

UNIVERSITÀ DEGLI STUDI  
DI MILANO  
BICOCCA

# Ortogeriatriche in regione Lombardia: situazione attuale



# **Ortogeriatrie Sondrio, Mantova e Brescia**



<b>Indicatore</b>	<b>Pre-ortogeriatría (n=32)*</b>	<b>Ortogeriatría (n= 127)#</b>
Età media aa	84.5 (73-93)	85 (67-100)
Degenza totale gg	58 (17-103)	39.3 (4-99)
Tempo di attesa intervento gg	4 (2-10)	2.44 (0-8)
Non operati	3.8%	0.9%
Complicanze	93.7%	64.2%

\* Periodo 1-1-2010/18-10-2010

# Periodo 18-10-2010 / 30-4-2012



Dipartimento medico U.O.C. Medicina-Geriatria  
Poma, Mantova (Prof. P.P. Vescovi)  
U.O.S. Ortogeriatrics (Dott.ssa L. Brindani)

<b>Indicatore</b>	<b>n= 130</b>
Età media, anni (range)	84 (75-99)
> 90 anni, n (%)	30 (23)
Sesso femminile, n (%)	93 (71.5)
Ricoveri “fuori protocollo”, n (%)	44 (33.8)
Tempo di attesa intervento, media giorni	5.2
Interventi chirurgici non effettuati, n (%)	9 (7)
Delirium	44 (36.3)
Complicanze post-operatorie, n (%)	50 (38.8)
Degenza media, gg	16.6
Decessi, n (%)	6 (4.6)

Periodo di osservazione 2008-2012



# Istituto Clinico S. Anna, Brescia

Ortogeriatria – Responsabile: Dr A. Bianchetti  
OTR 2° - Responsabile: Dr Giovanni Bonaspetti



ISTITUTO CLINICO S. ANNA

**Gennaio - ottobre 2012: 98 pazienti sottoposti ad intervento per frattura di femore (53% endoprotesi, 47% osteosintesi con chiodo PFNA.).**

	media $\pm$ DS/%
Età	83,2 $\pm$ 6,4
Femmine	80%
MMSE	18,8 $\pm$ 7,8
Charlson Index	2,8 $\pm$ 2,7
Barthel Index (BI) premorbo	86,4 $\pm$ 19,1
Bathel Index alla dimissione	48,7 $\pm$ 22,6
Tempo medio ricovero/intervento	2,9 $\pm$ 1,9
Intervento entro 48 ore	51,1%
Degenza media in OTR	8,1 $\pm$ 5,1
Degenza media in riabilitazione ortogeriatrica	21,0 $\pm$ 10,5
Pazienti con BI premorbo > 90	66,7%
Pazienti con BI alla dimissione > 60	46,0%
Pazienti con MMSE < 24	70,0%

# **Ortogeriatria Rozzano (Mi)**

Studio prospettico osservazionale

335 (età media  $83 \pm 7$  anni),  
consecutivamente ricoverati tra agosto 09 ed  
ottobre 11, operati per frattura di femore  
prossimale

Obiettivo: studiare le cause (determinanti)  
cliniche del ritardo chirurgico in pazienti  
anziani con frattura prossimale di femore



# Profilo pre-frattura

INDICATORI E MISURE	Time to Surgery			P Value	Totale n=335
	0-2 giorni n=138	3-4 giorni n=126	≥5 giorni n=71		
<b>Caratteristiche pre-frattura</b>					
Età ≥85 anni	56 (40.6%)	44 (34.9%)	34 (47.9%)	0.20	134 (40%)
Sesso Femminile	102 (73.9%)	98 (77.8%)	52 (73.2%)	0.69	252 (75.2%)
Insufficienza severa di uno o più sistemi/organi	9 (6.5%)	5 (3.4%)	10 (14.1%)	0.03	24 (7.2%)
Insufficienza severa cardiaca e/o respiratoria	7 (5.1%)	4 (3.2%)	9 (12.7%)	0.009	20 (6%)
Demenza severa	26 (18.8%)	31 (24.6%)	2 (28.2%)	0.27	77 (23%)
Comorbidità croniche	99 (71.7%)	97 (77.0%)	54 (76.1%)	0.59	250 (74.6%)
Malattia oncologica attiva	11 (8%)	8 (6.3%)	7 (9.9%)	0.67	26 (7.8%)
Indice di Barthel (media±DS)	81.2 ± 22	79.5 ± 23.8	76.0 ± 24.2	0.18	79.5 ± 23.2
Dipendenza al Rankin (≥3)	55 (39.9%)	54 (42.9%)	37 (52.1%)	0.23	146 (43.6%)
Fragilità sociale	18 (13.2%)	21 (16.7%)	12 (17.5%)	0.769	51 (15.4%)

# Profilo all' ammissione

INDICATORI E MISURE	Time to Surgery			P Value	Totale n=335
	0-2 giorni n=138	3-4 giorni n=126	≥5 giorni n=71		
<b>Caratteristiche all'ammissione</b>					
Frattura di femore pertrocanterica	82 (59.4%)	69 (54.8%)	38 (55.1%)	0.71	189 (56.8%)
Infezione	6 (4.3%)	8 (6.3%)	10 (14.9%)	0.03	24 (7.2%)
Delirium (iper- e ipo-cinetico)	23 (16.7%)	19 (15.1%)	11 (15.5%)	0.93	53 (15.8%)
Instabilità medica	8 (5.8%)	7 (5.6%)	18 (25.4%)	0.000	33 (9.8%)
MMSE (media±DS) (n=298)	22.4 ± 8.1	22.2 ± 8.6	19.8 ± 8.6	0.29	21.8 ± 8.4
Indice di Barthel (media±DS)	19.8 ± 9	20.5 ± 10.3	17.4 ± 7.5	0.14	19.5 ± 9.3

Issue date: June 2012

# Hip fracture

## The management of hip fracture in adults

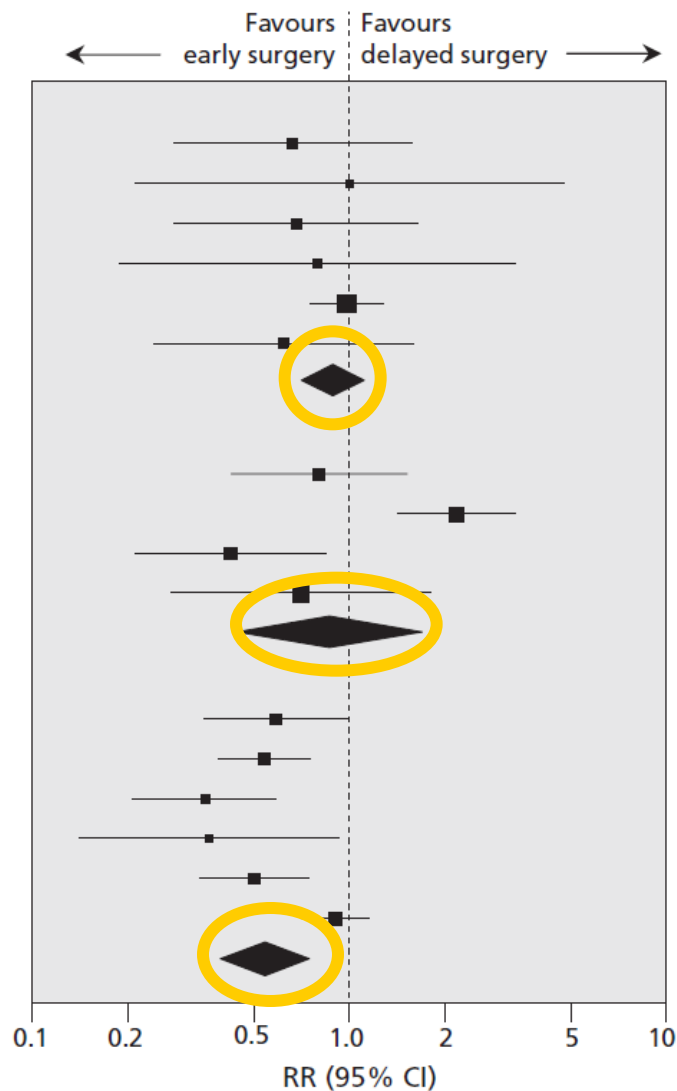
- Perform surgery on the day of, or the day after, admission.
- Identify and treat correctable comorbidities immediately so that surgery is not delayed by: anemia, anticoagulation, volume depletion, electrolyte imbalance, uncontrolled diabetes, uncontrolled heart failure, correctable cardiac arrhythmia or ischaemia, acute chest infection, exacerbation of chronic chest conditions

NICE clinical guideline 124

Developed by the National Clinical Guideline Centre

# Preoperative timing and risk of death

Timeframe and study	Early surgery, Delayed surgery,		RR (95% CI)
	N	N	
<b>Short-term</b>			
Davie et al. <sup>28</sup>	105	95	0.66 (0.28–1.56)
Harries et al. <sup>30</sup>	40	40	1.00 (0.21–4.71)
Parker et al. <sup>25*</sup>	290	178	0.68 (0.28–1.65)
Smektala et al. <sup>22</sup>	139	22	0.79 (0.19–3.33)
Moran et al. <sup>31*</sup>	982	1372	0.98 (0.75–1.28)
Rae et al. <sup>32*</sup>	137	85	0.62 (0.24–1.59)
Overall	1693	1792	0.90 (0.71–1.13)
<b>Medium-term</b>			
Davis et al. <sup>29*</sup>	45	185	0.80 (0.43–1.50)
Mullen et al. <sup>23+</sup>	8	52	2.17 (1.42–3.31)
Dorotka et al. <sup>12</sup>	158	24	0.42 (0.21–0.84)
Orosz et al. <sup>8</sup>	398	780	0.70 (0.50–0.97)
Overall	609	1041	0.87 (0.44–1.72)
<b>Long-term</b>			
Zuckerman et al. <sup>34‡</sup>	267	100	0.58 (0.35–0.99)
Beringer et al. <sup>27</sup>	133	70	0.54 (0.39–0.75)
Elliott et al. <sup>15</sup>	169	1611	0.35 (0.21–0.59)
Doruk et al. <sup>26§</sup>	38	27	0.36 (0.14–0.92)
Siegmeth et al. <sup>24*</sup>	3454	174	0.50 (0.34–0.74)
Smektala et al. <sup>33</sup>	609	1629	0.90 (0.71–1.15)
Overall	4670	3673	0.55 (0.40–0.75)



# Ortogeriatria Monza (Milano- Bicocca)

# The Combined Effect of ADL Impairment and Delay in Time from Fracture to Surgery on 12-Month Mortality: An Observational Study in Orthogeriatric Patients

Giuseppe Bellelli MD<sup>a,b,\*</sup>, Paolo Mazzola MD<sup>a</sup>, Maurizio Corsi MD<sup>a</sup>, Antonella Zambon PhD<sup>c</sup>, Giovanni Corrao PhD<sup>c</sup>, Giuseppe Castoldi MD<sup>d</sup>, Giovanni Zatti MD<sup>d</sup>, Giorgio Annoni MD<sup>a</sup>



Clinical and Functional Characteristics of 390 Patients Consecutively Discharged Alive from an Orthogeriatric Unit, According to Mortality at 1-year Follow-up



	Alive (n = 281)	Dead (n = 109)	P
Age, years	83.1 ± 6.1	85.4 ± 7.1	.0018
Sex, female, n (%)	237 (84.3)	82 (74.3)	.0364
Pre-fracture residence in nursing home	33 (11.7)	10 (9.2)	.4672
Type of fracture, n (%)			
Femoral neck	129 (49.8)	51 (52.0)	.8439
Pertrochanteric	101 (39.0)	35 (35.7)	
Subtrochanteric	29 (11.2)	12 (12.2)	
Late surgery (≥48 hours), n (%)	142 (50.5)	75 (68.8)	.0011
Pre-fracture health status			
Dependent in ≥2 ADL, n (%)	152 (54.1)	94 (86.2)	<.0001
Charlson Comorbidity Index	2.9 ± 2.0	4.2 ± 2.5	<.0001
Number of drugs on admission	4.6 ± 2.8	5.2 ± 3.0	.0464
Pre-fracture cognitive impairment, n (%)	145 (51.6)	76 (69.7)	.0012
On-admission health status			
Albumin, g/dL	3.2 ± 1.3	3.1 ± 1.3	.7075
Hemoglobin, g/dL	11.5 ± 2.8	11.5 ± 2.2	.8038
ASA score	2.7 ± 0.5	2.9 ± 0.5	.0007
Postoperative complications, n (%)			
Stroke	1 (0.4)	1 (0.9)	.4860
Cardiac	23 (8.2)	10 (9.2)	.7528
Pulmonary	8 (2.9)	7 (6.4)	.0995
Urinary tract infection	61 (21.7)	16 (14.7)	.1176
Surgical site infection	3 (1.1)	4 (3.7)	.0824
Delirium	89 (31.7)	59 (54.1)	<.0001
Length of stay (days)	14.1 ± 5.1	16.0 ± 7.4	.0153

# The Combined Effect of ADL Impairment and Delay in Time from Fracture to Surgery on 12-Month Mortality: An Observational Study in Orthogeriatric Patients

Giuseppe Bellelli MD<sup>a,b,\*</sup>, Paolo Mazzola MD<sup>a</sup>, Maurizio Corsi MD<sup>a</sup>, Antonella Zambon PhD<sup>c</sup>, Giovanni Corrao PhD<sup>c</sup>, Giuseppe Castoldi MD<sup>d</sup>, Giovanni Zatti MD<sup>d</sup>, Giorgio Annoni MD<sup>a</sup>

JAMDA 13 (2012) 664.e9–664.e14

## Results of Multivariate Proportional Hazards Analysis of 1-Year Mortality

Variable	HR	95% CI	<i>P</i>
Age, years	1.04	1.01–1.08	.0155
Male/female	1.93	1.23–3.03	.0044
Charlson Comorbidity Index	1.16	1.05–1.28	.0024
Drugs	0.97	0.89–1.05	.3955
Delirium (present/absent)	1.59	1.03–2.46	.0385
ASA	1.06	0.69–1.62	.7994
Dementia (present/absent)	0.61	0.36–1.02	.0615
Delay-no ADL impairment	1.74	0.59–5.20	.3169
No delay-ADL impairment 	3.98	1.41–11.27	.0092
Delay-ADL impairment 	5.80	2.11–15.92	.0007

ADL, Activities of Daily Living; ASA, American Society of Anesthetists.

Black solid line = no delay - no ADL impairment; black dotted line = delay - no ADL impairment; grey solid line = no delay - ADL impairment; grey dotted line = delay - ADL impairment.

# Riflessione

- Il fenomeno che osserviamo è l' espressione della fragilità del paziente fratturato che porta a morte indipendentemente dai tempi di intervento?

o forse

- dovremmo anticipare l' intervento chirurgico soprattutto nei soggetti disabili?



**La durata del delirium ed il  
rischio additivo di mortalità**

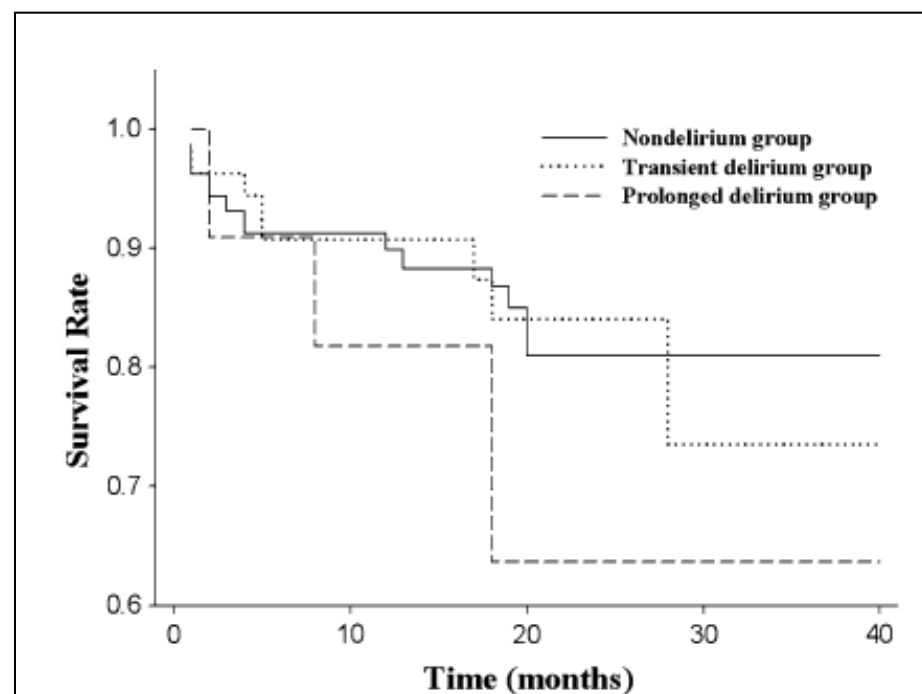
# Delirium is frequent among HF patients

Table 2. Outcomes in the Geriatric Fracture Center (GFC) and Usual Care

Outcome	Unadjusted			Adjusted <sup>a</sup>	
	GFC (n=193)	Usual Care (n=121)	P Value	Coefficient <sup>b</sup> (95% Confidence Interval)	P Value
Time to surgery, mean (SD), h	24.1 (17.0)	37.4 (63.8)	.007	-12.93 (-2.19 to -23.68)	.02
Restraint use, %	0	14.1	<.001	... <sup>c</sup>	... <sup>c</sup>
Length of stay, mean (SD), d	4.6 (3.3)	8.3 (6.3)	<.001	-3.74 (-2.56 to -4.91)	<.001
In-hospital mortality, %	1.6	2.5	.68	0.17 (0.02 to 1.14)	.07
30-d Readmission rate, %	9.8	13.2	.35	0.52 (0.23 to 1.18)	.12
Complications overall, %	30.6	46.3	.005	0.26 (0.14 to 0.47)	<.001
Delirium, %	24.4	32.2	.13	0.27 (0.13 to 0.53)	<.001
Postoperative infection, % <sup>d</sup>	2.3	19.8	<.01	0.04 (0.01 to 0.13)	<.001
Renal insufficiency, %	6.2	7.4	.67	0.70 (0.25 to 1.97)	.50
Bleeding, % <sup>d</sup>	0	3.3	.02	... <sup>c</sup>	... <sup>c</sup>
Cardiac, % <sup>d</sup>	1.0	7.4	.004	0.15 (0.03 to 0.83)	.03
Hypoxia, %	6.7	14.1	.03	0.22 (0.09 to 0.55)	.001
Thromboembolism, %	0.5	5.0	.01	0.07 (0.01 to 0.77)	.03
Stroke, %	0.5	0	>.99	... <sup>c</sup>	... <sup>c</sup>

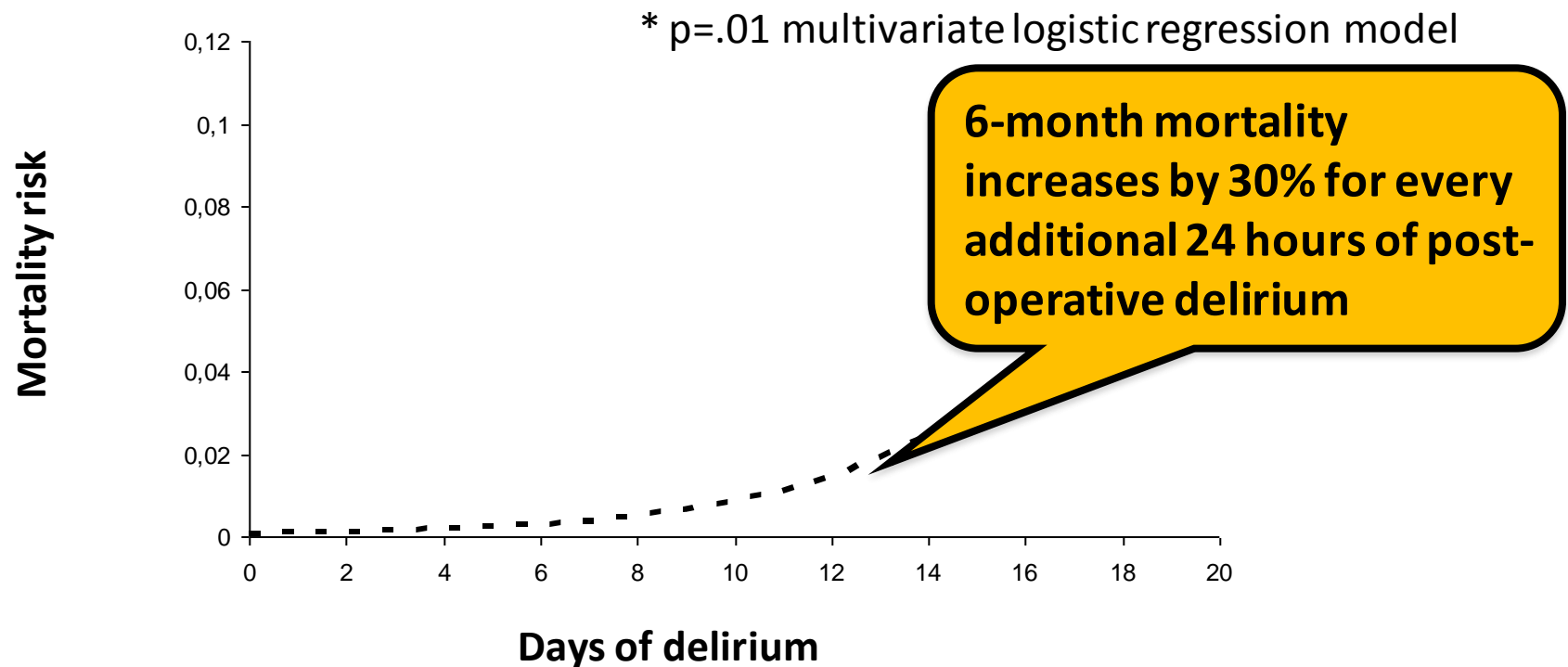
## Frequency, Risk Factors, and Prognosis of Prolonged Delirium in Elderly Patients After Hip Fracture Surgery

Kyung-Hag Lee MD, Yong-Chan Ha MD,  
Young-Kyun Lee MD, Hyun Kang MD,  
Kyung-Hoi Koo MD



**Fig. 2** Kaplan-Meier survival curves show the survival rates at 40 months were 81.0%, 73.5%, and 63.6% for the nondelirium, transient delirium, and prolonged delirium groups, respectively.

# Duration of delirium is associated with an increased risk of 6-month death



Data are shown for 120 patients with hip fracture

\* Significance of a logistic regression model adjusted for age, comorbidity, ASA score, ADL pre-fracture, BMI

*Bellelli G, Mazzola P, Zambon A, Annoni G et al, unpublished data*

# Conclusioni

- L' ortogeriatrics in Lombardia è una realtà ancora in divenire, ....ma già attiva;
- Due ortogeriatriche (Mantova e Sondrio) si sono per ora maggiormente interessate agli aspetti descrittivi delle proprie esperienze mentre le altre tre (Brescia, Rozzano e Monza) hanno focalizzato l'interesse su aspetti clinici e di gestione;
- I dati elaborati consentono di approfondire sul piano culturale e scientifico alcuni *hot topics* della letteratura ortogeriatrica e sul piano clinico alcuni aspetti della pratica quotidiana.