GERIATRIC ASSESSMENT NOW AND THEN

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Disclaimer

Please don't tell my mother I am a political consultant in Washington D.C!

She believes I play the piano in a whorehouse in 14th Street

GERIATRIC ASSESSMENT

The questions then

- Is the patient going to die with cancer or of cancer?
- Will the patient live long enough to suffer the complications of cancer
- Is the patient able to tolerate the treatment?

The questions now

- Is the patient going to die with cancer or of cancer?
- Will the patient live long enough to suffer the complications of cancer
- Is the patient able to tolerate the treatment?
- Is the patient frail?
- What are the patient's values?
- What are the short and long term complications of the treatment?
- Who is the caregiver? Is he/she able to provide assistance to the patient?

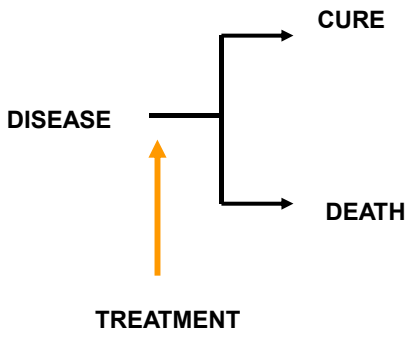
What has changed since?

- The model of disease
- The goals of treatment
- The definition of frailty
- Comorbidity and cancer: a dynamic interaction
- New insights into aging
- New insights into the caregiver

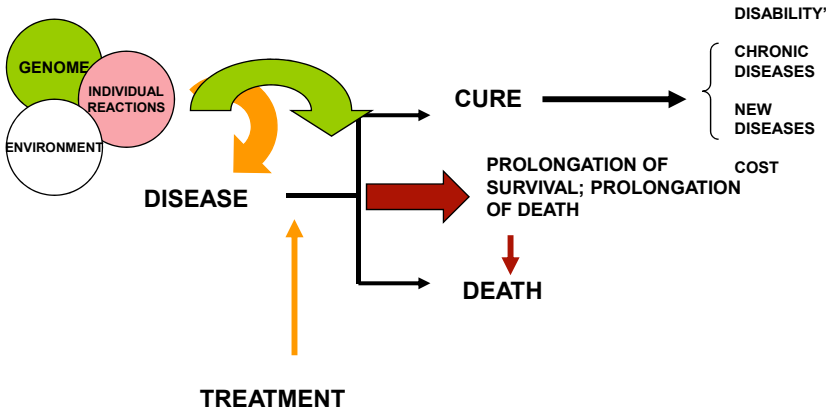
What has changed since?

- The model of disease

THE OSLERAIN MODEL



MODIFICATION OF THE OSLERIAN MODEL



What has changed since?

- The goals of treatment

GOALS OF TREATMENT

- **Increased survival**
- **Increased active life expectancy**
- **Symptom management**
- **Preservation of existential meaning**

New symptoms

- Fatigue
- Cognitive Decline
- Functional impairments
- Existential suffering

Causes of fatigue

- Cytokines
- Hypogonadism
- Anemia
- Depression
- Deconditioning
- Sarcopenia

Impairment, disability Handicap

Impairment = weakness

Disability = paraplegia

Handicap = lack of access to a wheel chair

Existential suffering

- An euphemism for desperation?
- Terminal sedation: an euphemism for euthanasia?

What has changed since?

- The definition of frailty

The definition of frailty

Frailty = end of life

- > 85
- Dependence in one or more ADLs and/or one or more geriatric syndromes
- Three or more comorbidities

Frailty = risk to lose independent living

- Loss of $\geq$ 10 lbs in one year
- Decreased grip strength
- Decreased walk speed
- Decreased energy level
- Decreased ability to initiate a movement

New questions

- Do cancer and its treatment unmask frailty
- Do cancer and its treatment cause frailty?

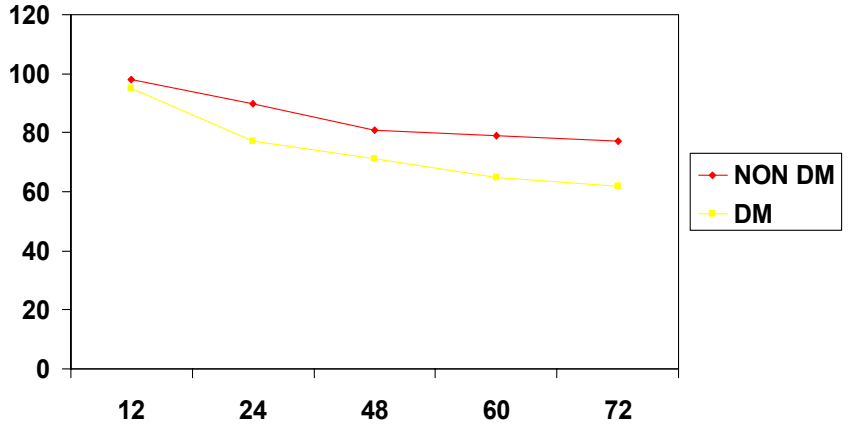
What has changed since?

- Comorbidity and cancer: a dynamic interaction
- Is anemia a form of comorbidity, an expression of comorbidity or a geriatric syndrome?

Comorbidity

- Reduced survival
- Reduced tolerance of treatment
- Comorbidity and cancer growth
- Comorbidity and polypharmacy

Comorbidity and prognosis



Sopravvivenza del cancro del colon in persone con diabete e senza
Meyerhardt et al, JCO, 2004

Colon cancer and adiponectin SNP rs266729

Table 4. Combined Analysis Under Dominant Model

SNP	Genotype	No. of Cases/ No. of Controls	Crude OR (95% CI)	*P* Value	Adjusted OR (95% CI)[a]	*P* Value
			ADIPOQ			
rs266729	CC	321/443	1 [Reference]		1 [Reference]	
	GG/CG	308/412	0.64 (0.49-0.83)	.001	0.73 (0.53-0.99)	.04
rs822395	CC	230/287	1 [Reference]		1 [Reference]	
	AA/AC	394/563	0.90 (0.72-1.11)	.32	0.79 (0.61-1.02)	.07
rs822396	GG	120/166	1 [Reference]		1 [Reference]	
	AA/GA	505/677	1.04 (0.80-1.35)	.77	1.11 (0.81-1.52)	.51
rs2241766	TT	292/336	1 [Reference]		1 [Reference]	
	GG/TG	347/507	0.77 (0.62-0.94)	.01	0.83 (0.66-1.05)	.12
rs1501299	TT	195/310	1 [Reference]		1 [Reference]	
	GG/TG	436/522	1.29 (1.04-1.61)	.02	1.16 (0.91-1.48)	.24
			ADIPOR1			
rs2232853	GG	255/338	1 [Reference]		1 [Reference]	
	AA/GA	364/508	0.98 (0.80-1.21)	.86	0.94 (0.74-1.17)	.56
rs12733285	TT	240/361	1 [Reference]		1 [Reference]	
	CC/TC	392/483	1.21 (0.98-1.49)	.07	1.16 (0.91-1.48)	.23
rs1342387	TT	131/211	1 [Reference]		1 [Reference]	
	CC/TC	494/628	1.02 (0.82-1.25)	.89	0.88 (0.67-1.15)	.35
rs7539542	GG	235/304	1 [Reference]		1 [Reference]	
	CC/GC	394/539	0.95 (0.76-1.17)	.61	0.94 (0.73-1.20)	.61
rs10920531	CC	293/374	1 [Reference]		1 [Reference]	
	AA/CA	330/468	0.92 (0.75-1.12)	.40	0.93 (0.73-1.18)	.54

Abbreviations: CI, confidence interval; OR, odds ratio; SNP, single nucleotide polymorphism.
[a]Values adjusted for age, sex, race, and SNPs from the same gene.

Kaklamani, V. G. et al. JAMA 2008;300:1523-1531.

JAMA

Comorbidity, its treatment and cancer

- Epo and cancer of the head and neck
- Epo and breast cancer
- Insulin and stimulation of cancer growth (ILGFR)

What has changed since?

- New insights into aging

Disease susceptibility

Stress tolerance

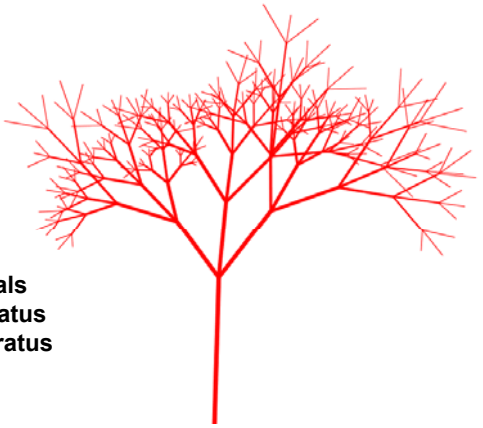
Entropy

Fractality'

Functional dependence

Geriatric syndromes

Fractality



Human body fractals
•Circulatory apparatus
•Respiratory apparatus
• Nervous system
•Cellular renewals

Assessment of aging

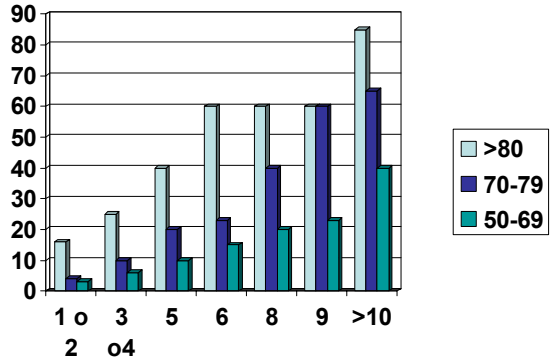
Old ways

- Comprehensive Geriatric Assessment

New ways

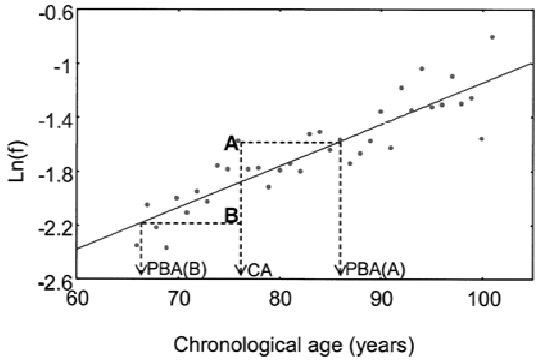
- Levels of inflammatory markers
- Proliferative senescence of the stromal cells
- Genome of circulating lymphocytes
- Indirect measurement of entropy

CGA AND FOUR YEARS MORTALITY RATE



LEE ET AL, JAMA, 2006

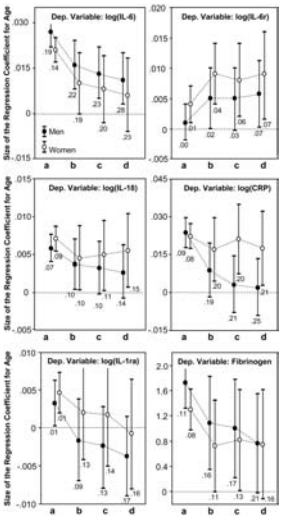
FRAILTY INDEX AND CHRONOLOGIC AGE



Mitzinski et al, 2004, J Gerontol Med Sci

blood
JOURNAL OF THE AMERICAN SOCIETY OF HEMATOLOGY

Figure 2. Age regression coefficients and their 95% CIs estimated from linear models predicting level of inflammatory markers



Ferrucci, L. et al. Blood 2005;105:2294-2299

What has changed since?

- New insights into the caregiver

Problems of the caregiver

- Diseases
- Family dissolution
- Cost

Social implications of aging

Increased prevalence of chronic diseases +
Increased prevalence of disability =
Increased $

Direct cost
Indirect cost medical related
Indirect cost non medical related
Intangible cost

Social implications of aging: response to increased cost

- Shifting of cost from entertainment to medical care
- Cut unnecessary cost (increased use of living will, elimination of “me too” drugs, elimination of unnecessary diagnostic tests, reduce regulatory burden, change the process of drugs approval)
- Rationing
- Discrimination

Ethic implications of aging

Kantian ethics:

- Rationing yes
- Discrimination no

Utilitarian ethics:

- Discrimination based on economic power

Not a solution

"The American economy is healthy and strong" G.W. Bush