

# “O Doente Idoso com fractura”

Como lidar com as comorbidades?

A perspectiva do Anestesista...



## ...the geriatric trauma patient

- termo “elderly” > 65 anos
- “young old” entre 65-80 anos
- “oldest-old” > 80 anos

***Anesthesiology Clin 25 (2007) 75-90***

*“Elderly patient with hip fracture have a mortality at 1 year of about 25%, with the highest mortality being found in the first 6 months after injury”*

***Risk-adjusted mortality rates of elderly veterans with hip fractures. Ann Epidemiol 2007;17(7):514–9***

## ...the geriatric trauma patient

*...” Risk factors associated with increased mortality after hip fracture include advanced age, male sex, poorly controlled systemic disease, psychiatric illness, low albumin, institutional residence, operative management before stabilization of coexisting medical conditions, poor baseline functional status, and postoperative complications”...*

***Clin Geriatr Med 26 (2010) 311–329***

## ...the geriatric trauma patient

*It is estimated that elderly people require surgery four times more often than the rest of the population.*

*The impact of age on 6-month survival in patients with cardiovascular risk factors undergoing elective non-cardiac surgery. Int J Clin Pract 2007;61:768–776.*

**Table 3** Change in numbers of discharges for surgical procedures by age for the time periods 1994/95 and 2004/05 as reported from the 2005 US National Hospital Discharge Survey (non-federal short-stay hospitals)<sup>15</sup>

Age (years)	Number of procedures (in thousands)		% change
	1994/95	2004/05	
18–44	7311	7326	+2.1
45–64	4111	5210	+26.7
65–74	3069	3036	–1.1
75 and over	3479	4317	+24.1
18 and over	17 969	19 889	+10.7

# PREVALÊNCIA

Comorbidity	%
Cardiovascular disease	60
Arthritis	51
Diabetes	20
Thyroid problems	15
Ulcers	13
Chronic obstructive Pulmonary or emphysema	11
asthma	10

***Anesthesiology Clin 27 (2009) 377 -389***

*...”In the oldest patients (>75 years), the prevalence of cardiovascular disease increased to 70%”...*

# ALTERAÇÕES FISIOLÓGICAS

## Cardiovasculares

Arterio e arteriolesclerose  
Relaxamento mais lento do miocárdio e Hipertrofia Ventricular  
Redução do volume de reserva vascular  
Redução dos reflexos barorreceptores  
Diminuição da frequência cardíaca máxima

## Respiratórias

Alterações do parênquima – diminuição da compliance  
Alterações dos volumes: aumento vol. Residual; diminuição vol. Vital  
Desequilíbrio progressivo entre ventilação e perfusão  
Alterações da parede torácica  
Diminuição dos reflexos protectores das vias aéreas

## Sistema Nervoso Central

Perda progressiva de neurónios e diminuição actividade dos neurotransmissores

## Renal

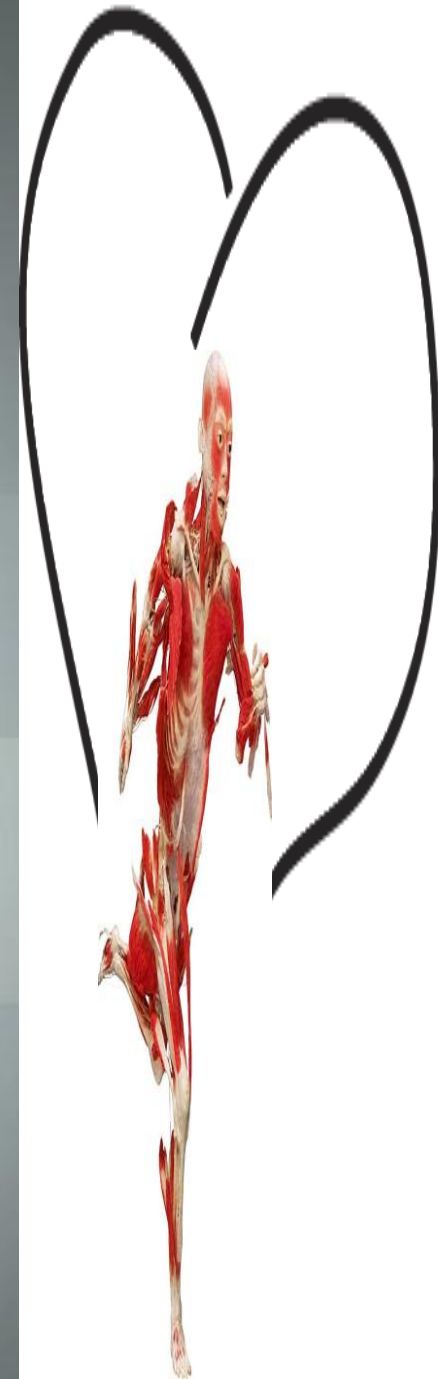
Nível de creatinina permanece estável  
Diminuição do fluxo renal e da taxa de filtração glomerular: diminuição excreção

## Hepático

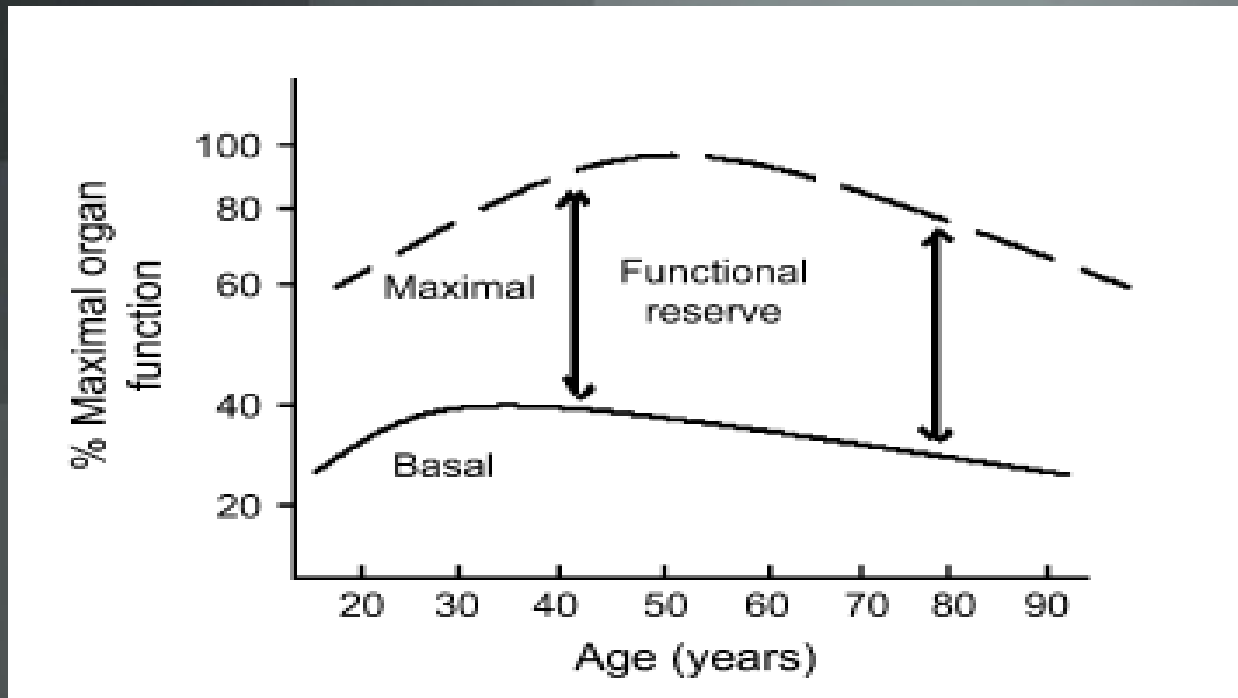
Diminuição parênquima hepático e fluxo veia porta: diminuição P-450 e das reacções Fase 1 (oxidação/redução) e Fase2 (conjugação)

## Composição Corporal e termorregulação

Diminuição da massa muscular e da água corporal total



# ALTERAÇÕES FISIOLÓGICAS



*Geriatric Trauma: Special Considerations in the Anesthetic Management of the Injured Elderly Patient : Anesthesiology Clin 25 (2007) 75–90*

# Período Perioperatório

PRÉ-OPERATÓRIO

INTRA-OPERATÓRIO

PÓS-OPERATÓRIO



PRÉ-OPERATÓRIO

INTRA-OPERATÓRIO

PÓS-OPERATÓRIO

# AVALIAÇÃO PRÉ - OPERATÓRIA

Pre-operative evaluation requires an integrated multidisciplinary approach from anaesthesiologists, cardiologists, internists, pulmonologists, geriatricians, and surgeons.

Anaesthesiologists, who are experts on the specific demands of the proposed surgical procedure, usually coordinate the process.



European Heart Journal (2009) **30**, 2769–2812  
doi:10.1093/eurheartj/ehp337

**ESC GUIDELINES**

---

**Guidelines for pre-operative cardiac risk assessment and perioperative cardiac management in non-cardiac surgery**

# AVALIAÇÃO PRÉ - OPERATÓRIA

- cuidados pré-hospitalares
  - ...Curso Trauma
  - ...Advanced Trauma Life Support (ATLS)
  - ...Prehospital Trauma Life Support (PHTLS)
  - ... **INEM**

**Vmer** – Viatura médica de emergência e reanimação  
**Helitransporte**



The financial and social benefits of reducing premature death and minimizing disability from injury are potentially enormous, and these benefits may play a major part in promoting a nation's economic and human development. © World Health Organization 2005 - Prehospital trauma care systems

# AVALIAÇÃO PRÉ - OPERATÓRIA

PLANO OPERATÓRIO



CONSULTA



AVALIAÇÃO  
PRÉ-ANESTÉSICA

OPÇÃO ANESTÉSICA

ELECTIVA/ URGENTE



# PLANO OPERATÓRIO

CONSULTA

## Objetivos

Determinar o estado clínico do doente



*Pre-operative evaluation requires an integrated multidisciplinary approach from anaesthesiologists, cardiologists, internists, pulmonologists, geriatricians, and surgeons. **European Heart Journal** (2009) 30, 2769–2812*

# PLANO OPERATÓRIO

CONSULTA

Determinar o estado clínico do doente

## Classificação Estado Físico: ASA

<b>ASA 1</b>	Doente saudável
<b>ASA 2</b>	Dça sistémica ligeira, sem limitação funcional
<b>ASA 3</b>	Dça sistémica moderada a grave, com alguma limitação funcional
<b>ASA 4</b>	Dça sistémica que ameaça a vida, funcionalmente incapacitante
<b>ASA 5</b>	Dte moribundo c/ poucas hipóteses de sobreviver 24 h com ou sem cirurgia
<b>ASA 6</b>	Doente em morte cerebral, dador de órgãos
<b>E</b>	Emergente

# PLANO OPERATÓRIO

CONSULTA

## Objectivos

Determinar o estado clínico do doente

Estabelecer um Plano Anestésico

Obter consentimento informado



# PLANO OPERATÓRIO

AVALIAÇÃO  
PRÉ-OPERATÓRIA

## Objectivos

Optimizar estado clínico do doente

Diminuir Morbilidade/Mortalidade perioperatória

Diminuir custos



# ESTRATIFICAÇÃO DO RISCO



EUROPEAN  
SOCIETY OF  
CARDIOLOGY®

European Heart Journal (2009) 30, 2769–2812  
doi:10.1093/eurheartj/ehp337

ESC GUIDELINES



## Guidelines for pre-operative cardiac risk assessment and perioperative cardiac management in non-cardiac surgery

The Task Force for Preoperative Cardiac Risk Assessment and Perioperative Cardiac Management in Non-cardiac Surgery of the European Society of Cardiology (ESC) and endorsed by the European Society of Anaesthesiology (ESA)



# **RISCO CARDIOVASCULAR PERIOPERATÓRIO**

## **1. DOENTE**

### **PATOLOGIA CARDIOVASCULAR**

## **2. CAPACIDADE FUNCIONAL (Equivalentes Metabólicos)**

## **3. CIRURGIA**

# AVALIAÇÃO CARDIOVASCULAR PERIOPERATÓRIA PARA CIRURGIA NÃO CARDÍACA

## Major

Unstable coronary syndromes

- Acute or recent MI\* with evidence of important ischemic risk by clinical symptoms or noninvasive study
- Unstable or severe† angina (Canadian class III or IV)‡

Decompensated heart failure

Significant arrhythmias

- High-grade atrioventricular block
- Symptomatic ventricular arrhythmias in the presence of underlying heart disease
- Supraventricular arrhythmias with uncontrolled ventricular rate

Severe valvular disease

---

## Intermediate

Mild angina pectoris (Canadian class I or II)

Previous MI by history or pathologic Q waves

Compensated or prior heart failure

Diabetes mellitus (particularly insulin-dependent)

Renal insufficiency

---

## Minor

Advanced age

Abnormal ECG (left ventricular hypertrophy, left bundle-branch block, ST-T abnormalities)

Rhythm other than sinus (e.g., atrial fibrillation)

Low functional capacity (e.g., inability to climb one flight of stairs with a bag of groceries)

History of stroke

Uncontrolled systemic hypertension





**2. CAPACIDADE FUNCIONAL  
(Equivalentes Metabólicos)**

# AVALIAÇÃO CARDIOVASCULAR PERIOPERATÓRIA PARA CIRURGIA NÃO CARDÍACA

## Functional Capacity

1 MET

Can you...

Take care of yourself?  
Eat, dress, or use the toilet?

Walk indoors around  
the house?

Walk 100 m on level ground  
at 3 to 5 km per h?

4 METs

Can you...

Climb two flights of stairs or walk uphill?  
Run a short distance?

Do heavy work around the house like scrubbing  
floors or lifting or moving heavy furniture?

Participate in strenuous sports like swimming,  
singles tennis, football, basketball, or skiing?

4 METs

Greater than 10 METs



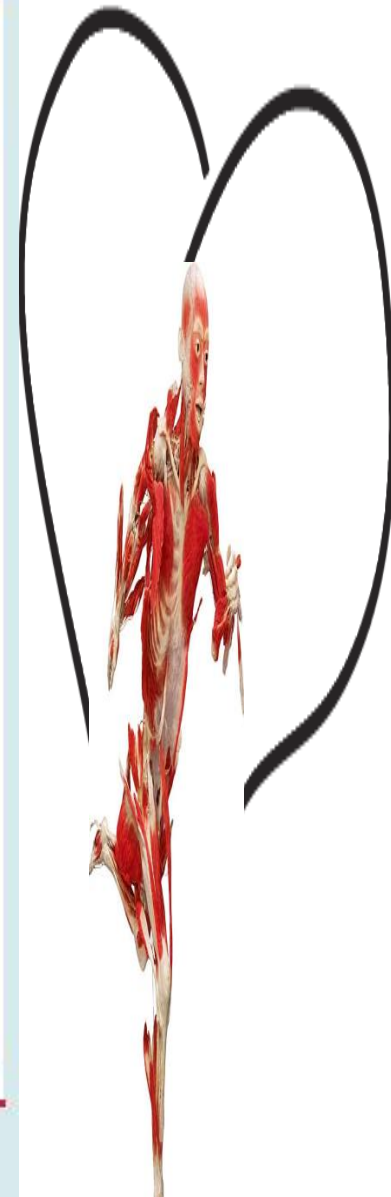
# AVALIAÇÃO CARDIOVASCULAR PERIOPERATÓRIA PARA CIRURGIA NÃO CARDÍACA

## 3. CIRURGIA

A photograph of a surgeon in a blue operating room, illuminated by large overhead lights. The surgeon is wearing a blue cap and mask, and is focused on the patient. The text '3. CIRURGIA' is overlaid in the center of the image.

# AVALIAÇÃO CARDIOVASCULAR PERIOPERATÓRIA PARA CIRURGIA NÃO CARDÍACA

Low-risk < 1%	Intermediate-risk 1–5%	High-risk > 5%
<ul style="list-style-type: none"><li>▪ Breast</li><li>▪ Dental</li><li>▪ Endocrine</li><li>▪ Eye</li><li>▪ Gynaecology</li><li>▪ Reconstructive</li><li>▪ Orthopaedic—minor (knee surgery)</li><li>▪ Urologic—minor</li></ul>	<ul style="list-style-type: none"><li>▪ Abdominal</li><li>▪ Carotid</li><li>▪ Peripheral arterial angioplasty</li><li>▪ Endovascular aneurysm repair</li><li>▪ Head and neck surgery</li><li>▪ Neurological/orthopaedic—major (hip and spine surgery)</li><li>▪ Pulmonary renal/liver transplant</li><li>▪ Urologic—major</li></ul>	<ul style="list-style-type: none"><li>▪ Aortic and major vascular surgery</li><li>▪ Peripheral vascular surgery</li></ul>



<sup>a</sup>Risk of MI and cardiac death within 30 days after surgery.

**AVALIAÇÃO CARDIOVASCULAR PERIOPERATÓRIA PARA CIRURGIA NÃO CARDÍACA**

***DECISÃO !!!***



# AVALIAÇÃO DO RISCO CARDIOVASCULAR

		DOENTE - RISCO		
		ALTO	MODERADO	BAIXO
RISCO CX	ALTO			< 4 MET
	MODERADO		> 4 MET	
	BAIXO			

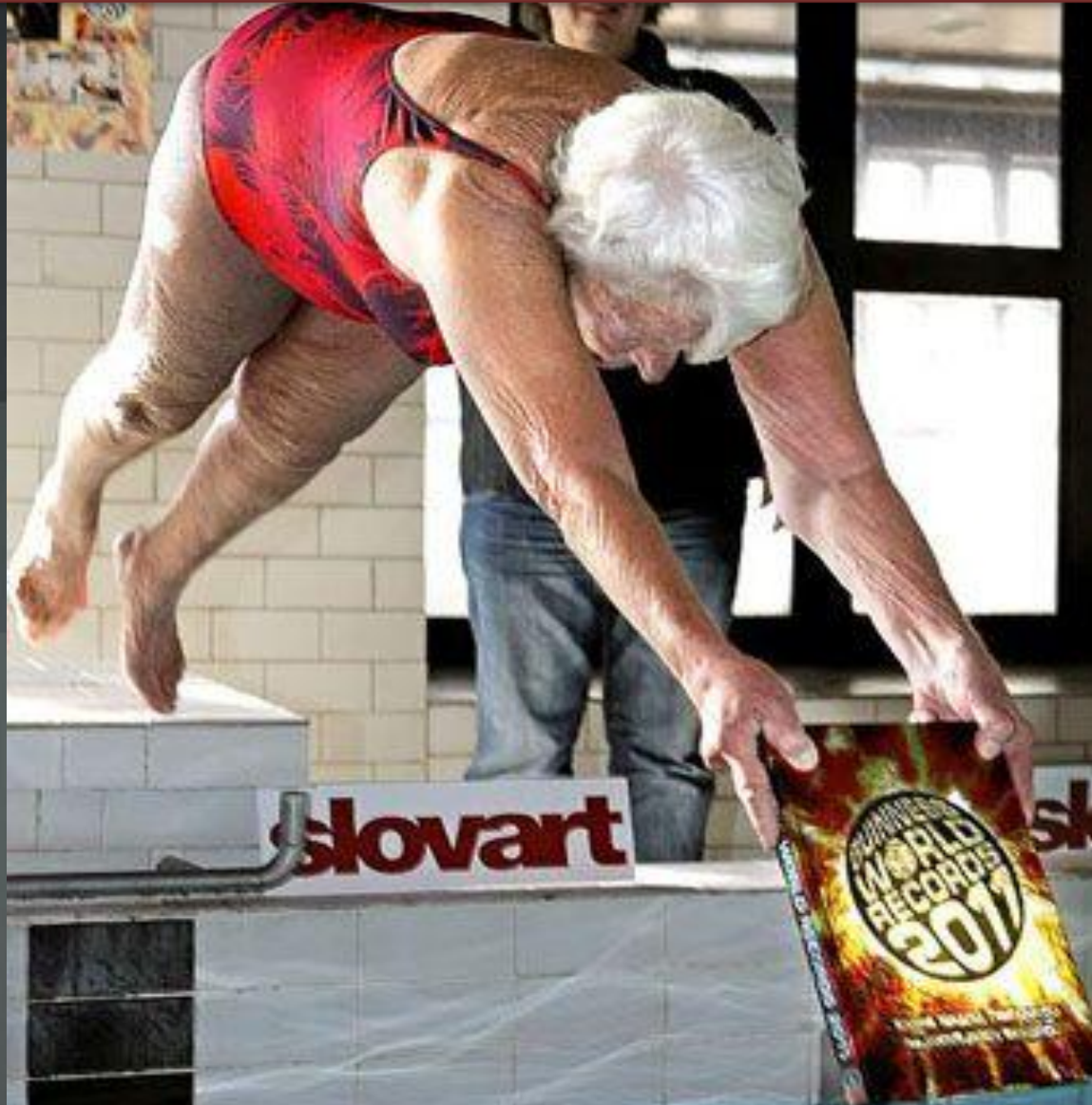
OPÇÃO ANESTÉSICA

+

REFERENCIAÇÃO



INTERVENÇÃO



Muito Obrigado