



Historia de los Cartwright en *La Ponderosa*

Kakkar VV et al. Prevention of fatal postoperative pulmonary embolism by low dose of heparin: an International Multicentre Trial. *Lancet* 1975; 2:45.



Hoss Cartwright (†1972)



Dan Blocker

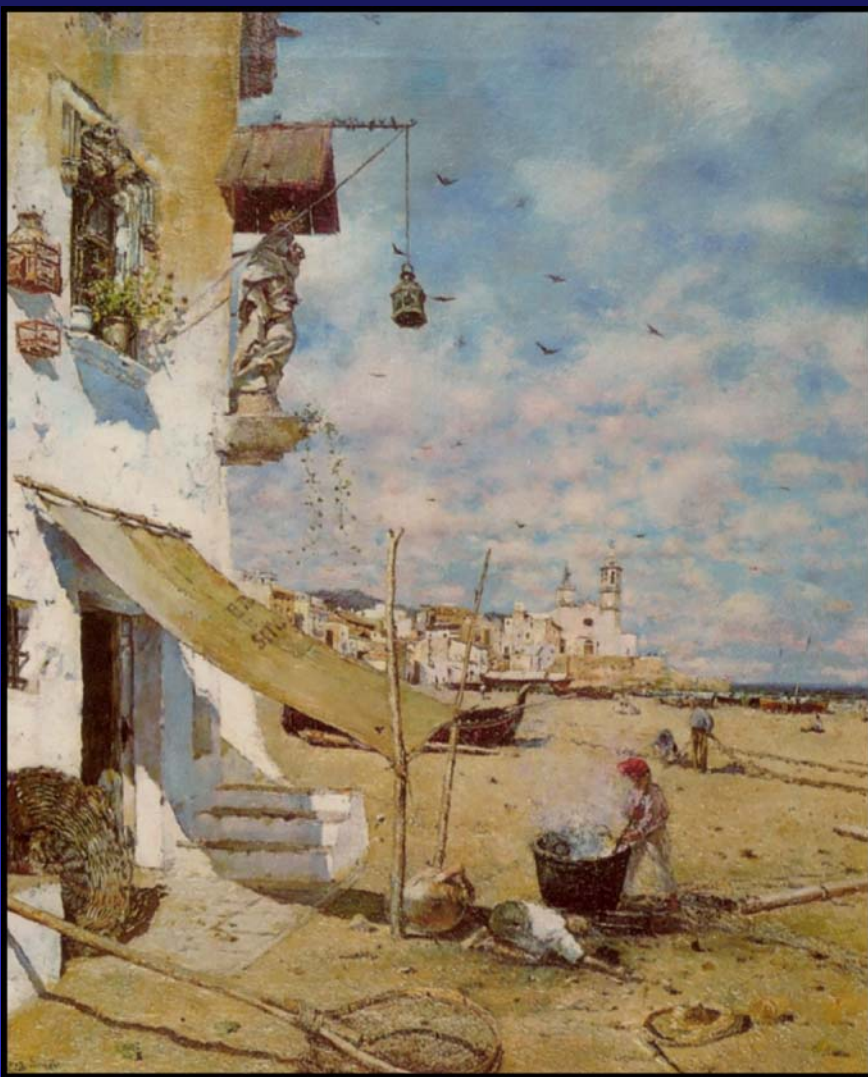
†TEP tras colecistectomía (43 años)

1973: Tras 14 años, cancelación de Bonanza

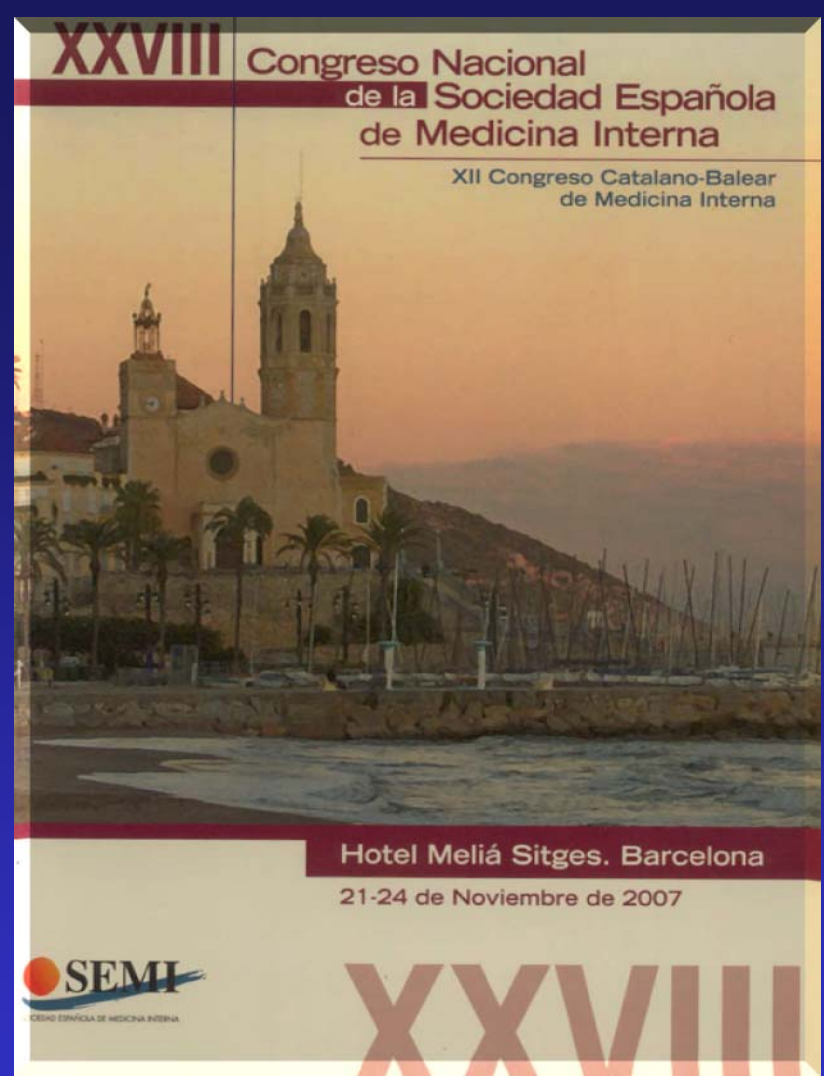
Ian Anderson (*JETHRO TULL*)
TVP/EP (2002)



Ozzy Osbourne (*Ex-BLACK SABBAT*)
TVP (julio-2007)



Sitges, 1885
Joan Roig i Soler



ETV y Epidemiología

J Montes Santiago

Complejo Hospitalario Universitario-Meixoeiro. VIGO

Epidemiología de la ETV

1. Magnitud global.

2. Situación en España.

3. Factores de riesgo.

4. Necesidad de la profilaxis.

ETV: Magnitud

La **ETV** mata cada año a más *europeos y americanos* que:

Cáncer de próstata
Cáncer de mama
Accidentes de tráfico
SIDA

juntos

España: 30000 ingresos/año
2500† oficiales/año
3ª causa† hospital

ETV

Eventos

EP no fatal

TVP sintomática

Muertes

Costes (millones €)

EEUU

909753

230758

376365

296370*

6228

UE-25§

1118742

434723

684019

543454*

3000

España

55000

22000

33000

2500**

76

§Estimado a partir del estudio VITAE en 6 países EU. *25-34% como muerte súbita. **Certificados defunción

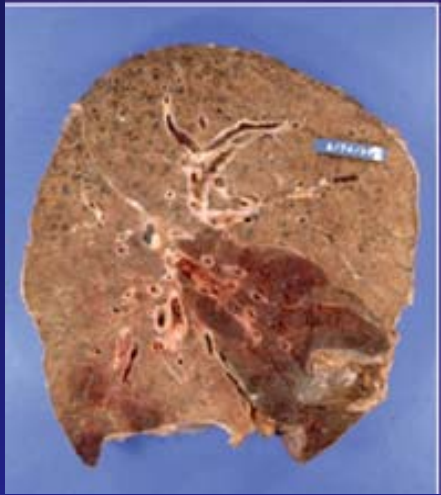
¹Heit JA et al. 47th ASM Meeting. Atlanta, 10-13/12/2005. ²Cohen A et al. *Estudio VITAE*. En: Bruttomesso G, Miglino N. Talking about. J Thromb Haemost 2005; 3:2602-04. Report of independent experts working group on the prevention of thromboembolism in hospitalized patients. UK, marzo 2007. Cohen AT et al. Thromb Haemost 2007; 98:756-764.

Pacientes hospitalizados en riesgo para ETV (2003-04)

Pacientes en riesgo de ETV	USA ¹	EU-6 ²	España ²
Quirúrgicos	4,348734	9,860705	1,262169
Médicos	7,742419	5,574539	713398
Total	12,091153	15,435244	1,975567
Global		27,526397	

¹Anderson FA et al. *Am J Hematol* 2007; 82:777-82. ²Cohen AT et al. *Thromb Haemost* 2007; 98:756-764.

COMPLICACIONES DE LA ETV



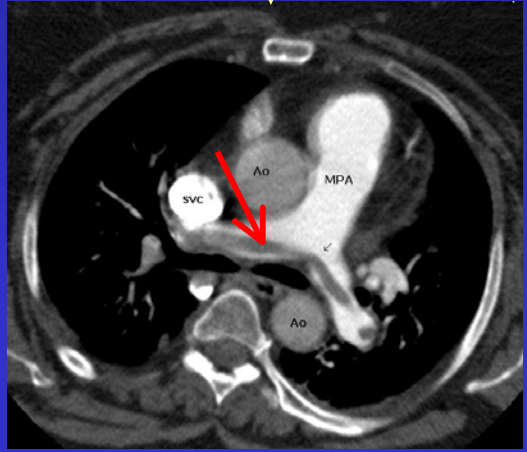
Mortalidad EP: 12-30% (1 mes)



SPF: 30% (10 años)
5-10% grave



Recurrencia: 20-25% (5 años)



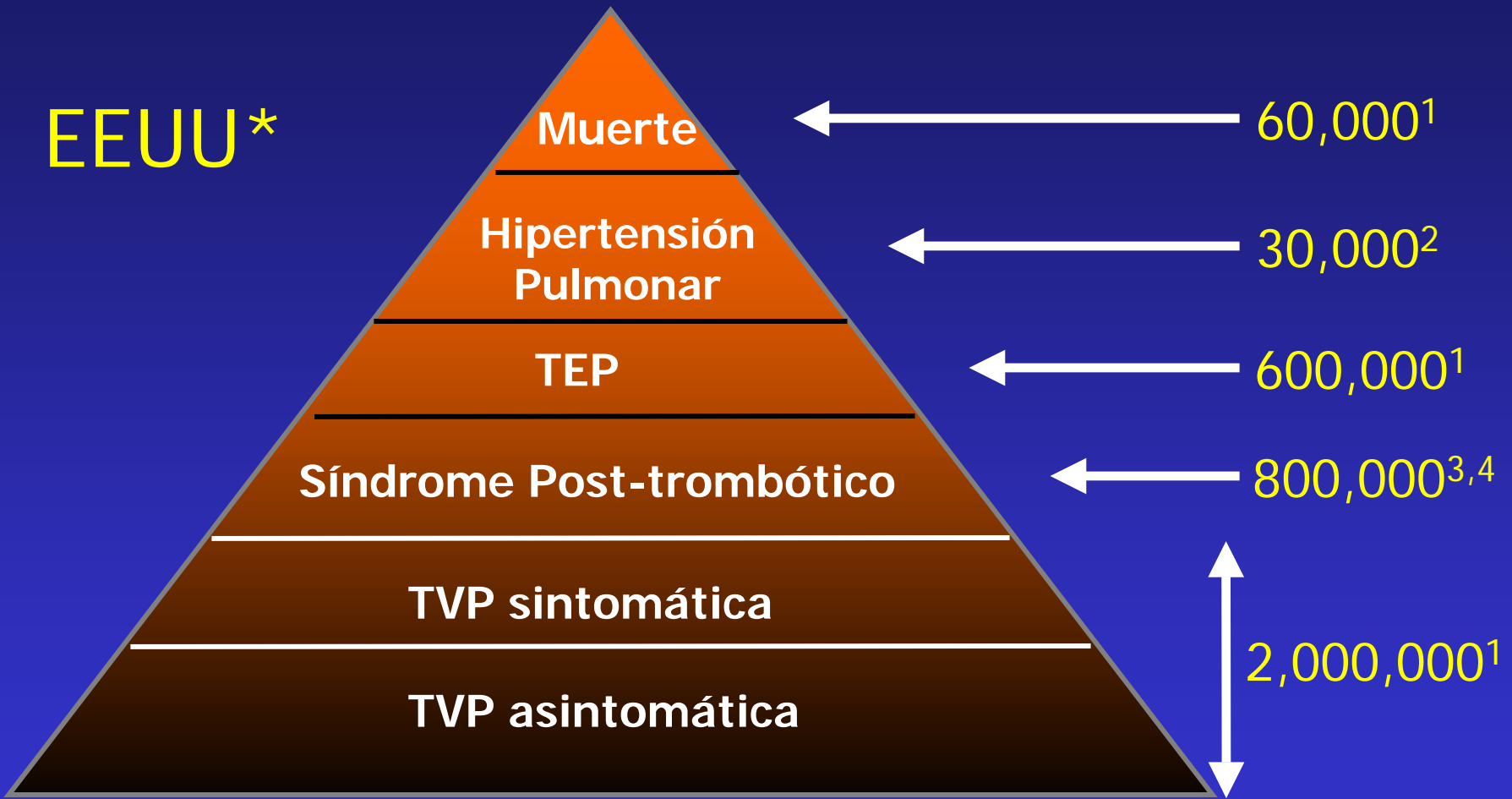
HT Pulmonar: 3,8% (2 años)



Úlceras crónicas: 4% (20 años)

ETV: magnitud de las complicaciones

EEUU*



*Según: Samama MM. VTE Experts, Brussels 2004.

¹Hirsh J & Hoak J. *Circulation* 1996;93:2212-45 ²Pengo V et al. *N Engl J Med* 2004;350:2257-64. ³Brandjes DP et al. *Lancet* 1997;349:759-62. ⁴Kahn SR et al. *J Gen Intern Med* 2000;26:425-9.

• The overall incidence of cardiomyopathy is 1.13 cases per 100 000 in children younger than age 18.

• In children under 1 year of age, the incidence is 8.34 and in children ages 1–18 it's 0.70 per 100 000.

• The annual incidence is lower in white than in black children; higher in boys than in girls; and higher in New England (1.44 per 100 000) than in the Central South-west (0.98 per 100 000).

• Studies show that 36% of young athletes who die suddenly have probable or definite hypertrophic cardiomyopathy.²⁹²

Rheumatic Fever/Rheumatic Heart Disease (ICD-9 390–398) (ICD-10 I00–I09). See Table 8A.

Incidence

• Many operations on heart valves are related to rheumatic heart disease (RHD).

Venous Thromboembolism

• Venous thromboembolism (VTE) occurs for the first time in about 100 persons per 100 000 each year in the United States. About one-third of patients with symptomatic VTE manifest pulmonary embolism (PE), whereas two-thirds manifest deep vein thrombosis (DVT) alone.²⁹³

• Caucasians and African Americans have a significantly higher incidence than Hispanics and Asians or Pacific Islanders.²⁹³

• In studies conducted in Worcester, Mass., and Olmsted County, Minn., the incidence of VTE was about 1 in 1000. In both studies, VTE was more common in men; for each 10-year increase in age, the incidence doubled. By extrapolation, it's estimated that more than 250 000 patients are hospitalized annually with VTE.²⁹⁴

Circulation 2006; 113:85–151

Heart Disease and Stroke Statistics—2006 Update *e117*

• The crude incidence in the ARIC study, 2-cohort. Half of the VTE were women.
• Over 200 000 new cases die within 30 days to PE, and about 30% die within 30 days. Independent of increasing age, obesity, and smoking.²⁹⁵

The Epidemiology of Venous Thromboembolism

Richard H. White, MD

Abstract—Venous thromboembolism (VTE) occurs for the first time in ~100 persons per 100,000 each year in the United States, and rises exponentially from <5 cases per 100,000 persons <15 years old to ~500 cases (0.5%) per 100,000 persons at age 80 years. Approximately one third of patients with symptomatic VTE manifest pulmonary embolism (PE), whereas two thirds manifest deep vein thrombosis (DVT) alone. Despite anticoagulant therapy, VTE recurs frequently in the first few months after the initial event, with a recurrence rate of ~7% at 6 months. Death occurs in ~6% of DVT cases and 12% of PE cases within 1 month of diagnosis. The time of year may affect the occurrence of VTE, with a higher incidence in the winter than in the summer. One major risk factor for VTE is ethnicity, with a significantly higher incidence among Caucasians and African Americans than among Hispanic persons and Asian-Pacific Islanders. Overall, ~25% to 50% of patient with first-time VTE have an idiopathic condition, without a readily identifiable risk factor. Early mortality after VTE is strongly associated with presentation as PE, advanced age, cancer, and underlying cardiovascular disease. (*Circulation*. 2003;107:1-4-1-8.)

Key Words: venous thromboembolism ■ pulmonary embolism ■ epidemiology ■ prognosis ■ thrombosis ■ veins

Incidence of VTE a cross-sectional sample of men in Göteborg, Sweden, born in

White Epidemiology of VTE

Summary of the Epidemiology of First-Time VTE

Variable	Finding
Incidence in Total Population (Assuming >95% Caucasian)	~70–113 cases/100,000/year ^{1,2,11–14}
Age	Exponential increase in VTE with age, particularly after age 40 years ^{1,2,4,7}
25–35 years old	~30 cases/100,000 persons
70–79 years old	~300–500 cases/100,000 persons
Gender	No convincing difference between men and women ^{1,2}
Race/Ethnicity	2.5–4-fold lower risk of VTE in Asian-Pacific Islanders and Hispanics ⁹
Relative Incidence of PE vs DVT	Absent autopsy diagnosis: ~33% PE; 66% DVT ^{1,10} With autopsy: ~55% PE, 45% DVT ^{2,6}
Seasonal Variation	Possibly more common in winter and less common in summer ^{24–26}
Risk Factors	~25% to 50% “idiopathic” depending on exact definition ~15%–25% associated with cancer; ~20% following surgery (3 mo.) ^{2,5,27}
Recurrent VTE	6-month incidence: ~7%; higher rate in patients with cancer ^{5,28–30} Recurrent PE more likely after PE than after DVT ^{4,10,31}
Death After Treated VTE	30 day incidence ~6% after incident DVT, ^{2,5,10} 30 day incidence ~12% after PE ^{1,32,33} Death strongly associated with cancer, age, and cardiovascular disease

in Göteborg, Sweden, born in 1910–1919. All patients with VTE were included.⁷ Using linked (1990 to 1999) to census residents with a population who were California (~95% of these studies, race/ethnicity of the hospital administrative data is included and linked to a death certificate, who died out of the hospital. Only Caucasian population with symptomatic VTE diagnosed in the United States per 100,000 population by Silverstein et al. PE detected at autopsy by race/ethnicity rate should not be confused with the incidence of VTE. The major risk factor affecting the incidence of PE is reliance on



ESTUDIO SOBRE LA
Enfermedad Tromboembólica Venosa en España

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Enfermedad Tromboembólica Venosa en España

Grupo Multidisciplinar para el Estudio de la Enfermedad Tromboembólica en España

Proyecto multidisciplinar con el apoyo de:

FUENTE
Fundación para el Estudio de la Enfermedad Tromboembólica en España

GRUPO DE TROMBOEMBOLISMO

Grupo Multidisciplinario para el Estudio de la Enfermedad Tromboembólica en España

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Alfredo del Campo

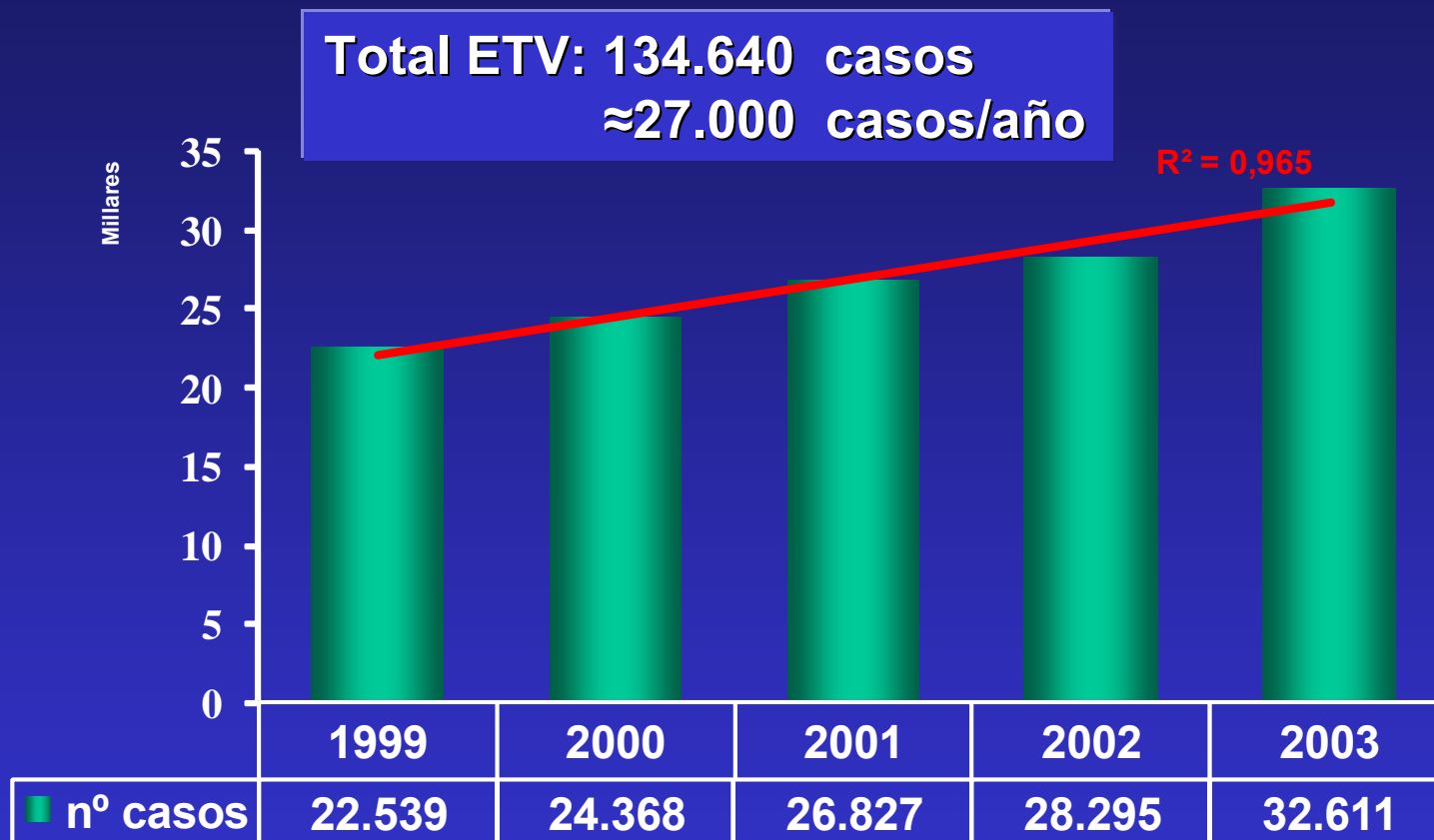
Empresa S&H

Beca GSK

Sanofi-Aventis



Altas totales con un diagnóstico de ETV



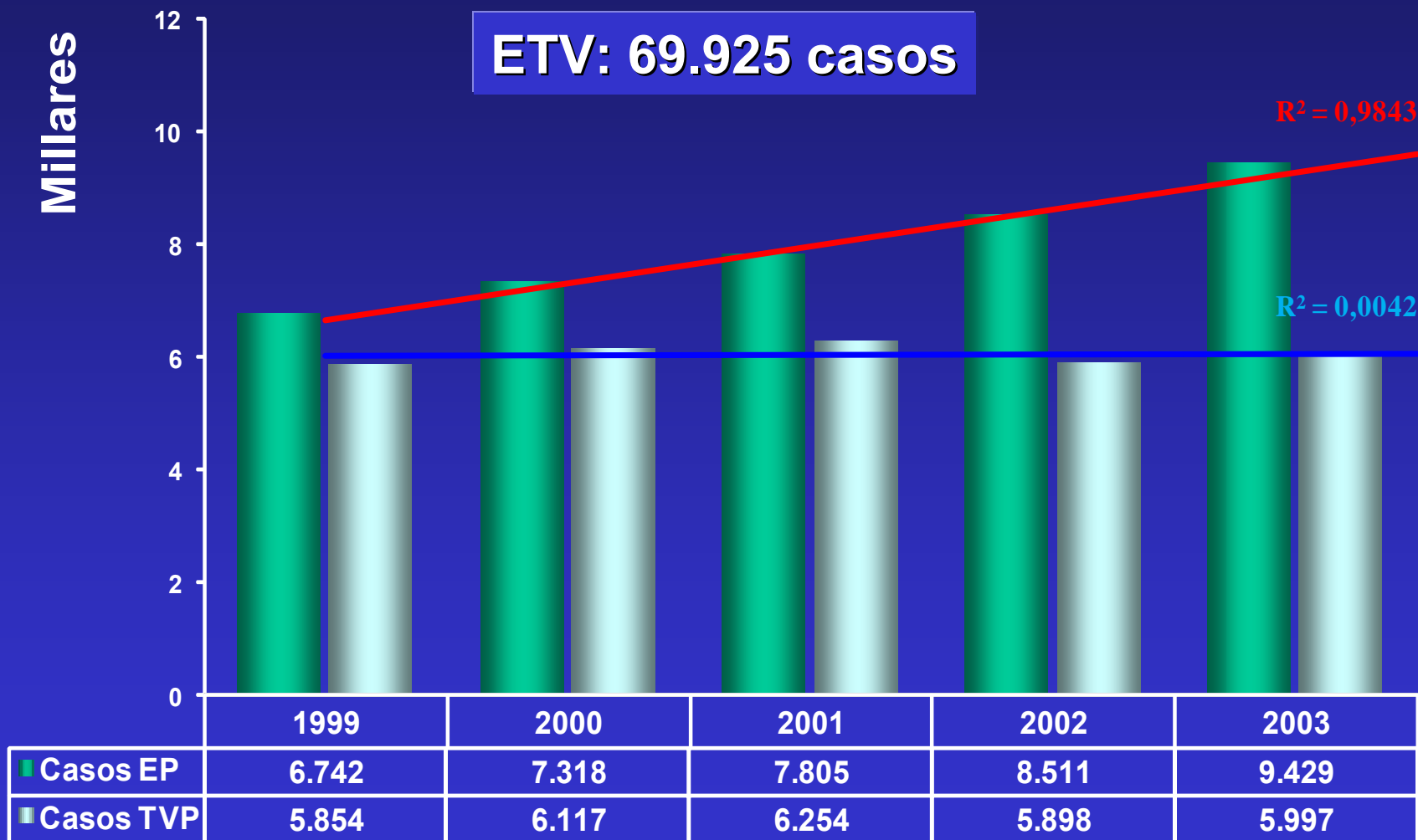
Nº Ingresos por Embolismo Pulmonar (EP): 39.805 (29,6%)

Nº Ingresos por Trombosis Venosa (TVP): 30.120 (22,4%)

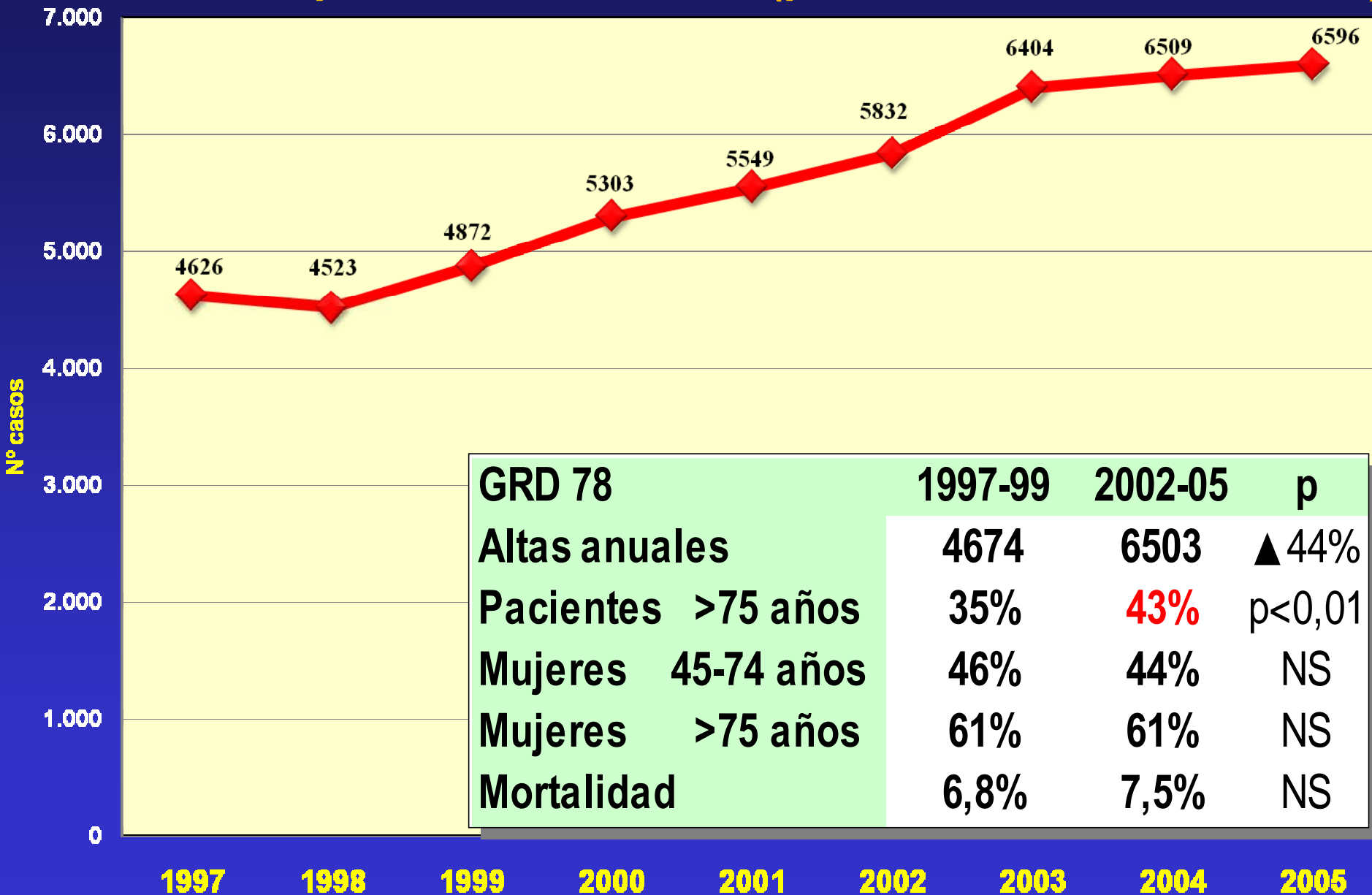
Nº ETV como diagnóstico secundario: 64.715 (48,1%)

Total altas hospitalarias codificadas (1999–2003): 17.254.391

Tendencia en altas cuya causa de ingreso fue la ETV



Embolismo pulmonar en el SNS (pacientes médicos, GDR 78)

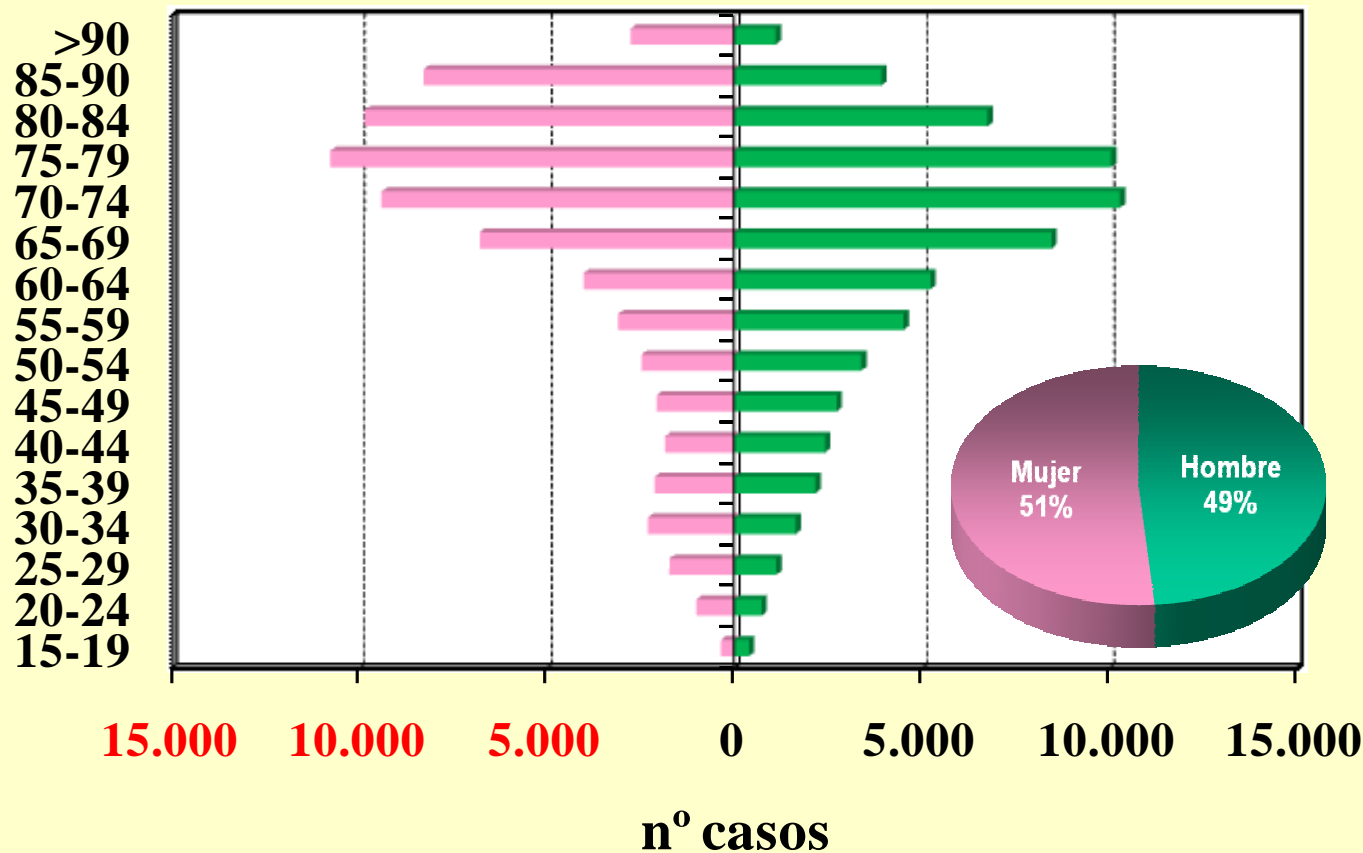


Total casos ETV 99-03: Pirámide de edad

(1)

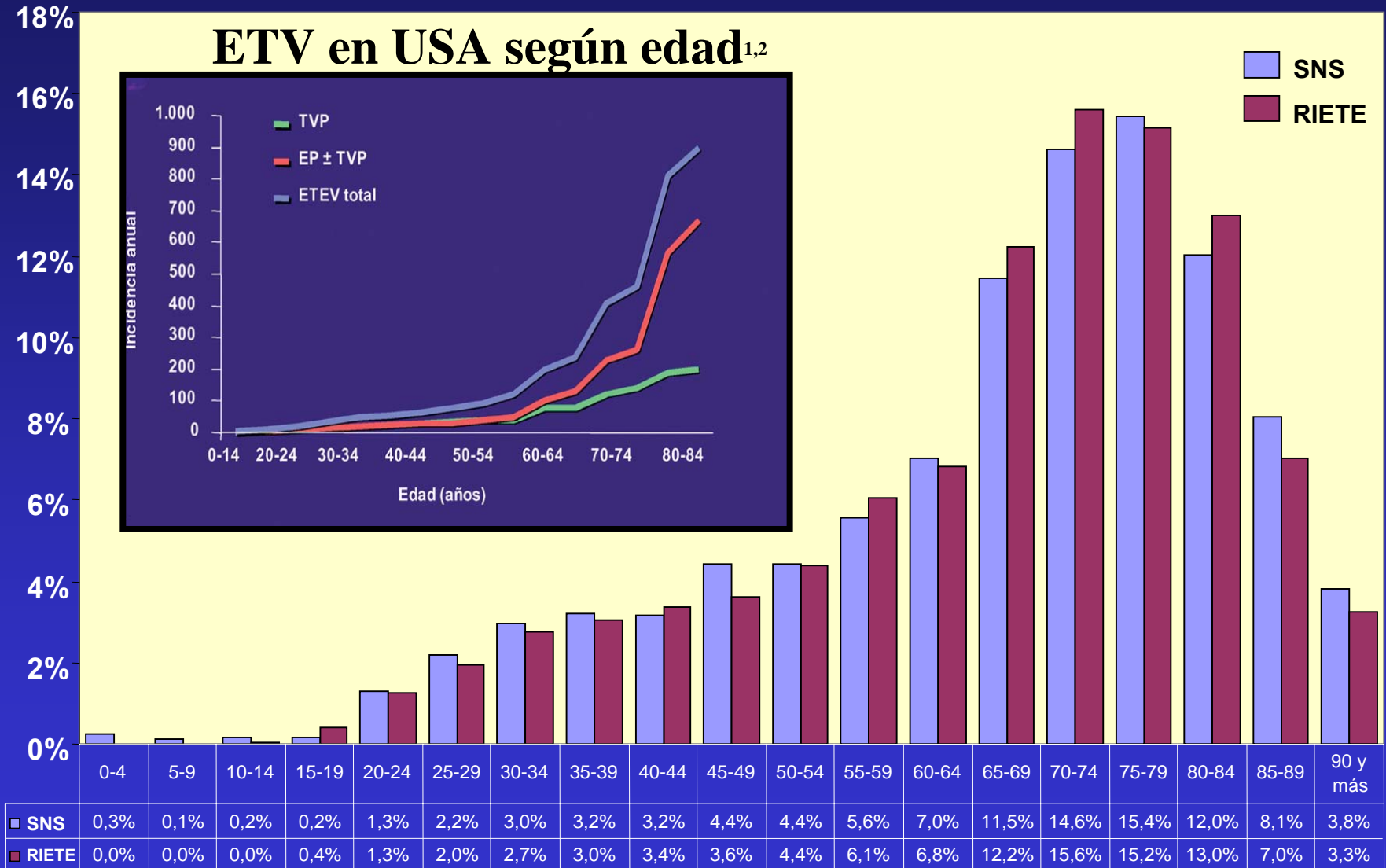
■ Edad media hombres: 65 años

■ Edad media mujeres: 68 años



(1) $p < 0,0001$

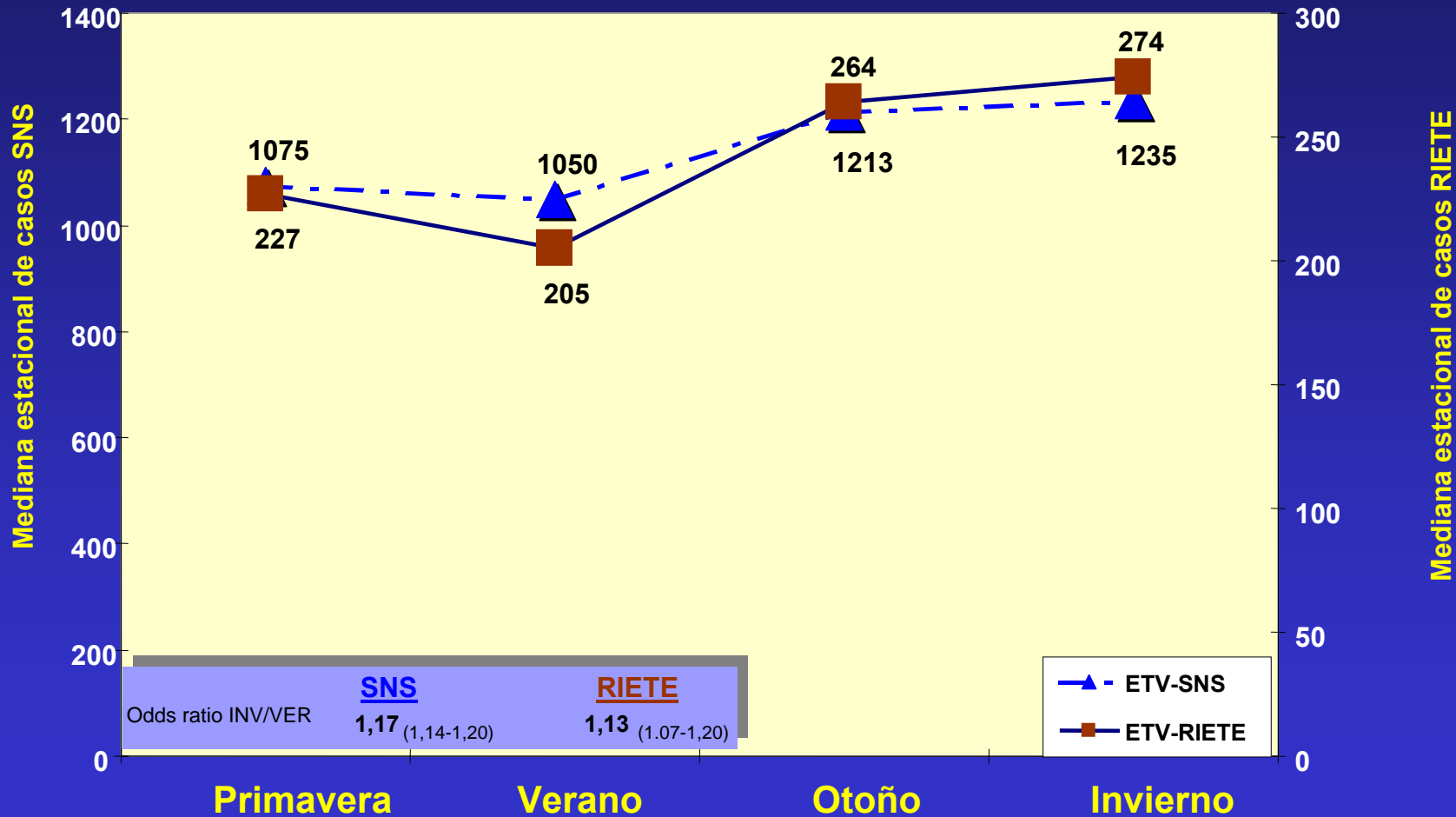
Histograma de edades en ETV (SNS y RIETE)



¹Heit JA. *Hemostasis & Thrombosis (5th ed)*. Colman RW et al., eds. Lippincott: Philadelphia, 2006; p. 1227-33. ²Stein PD et al. *Arch Intern Med* 2004; 164:2260-5.

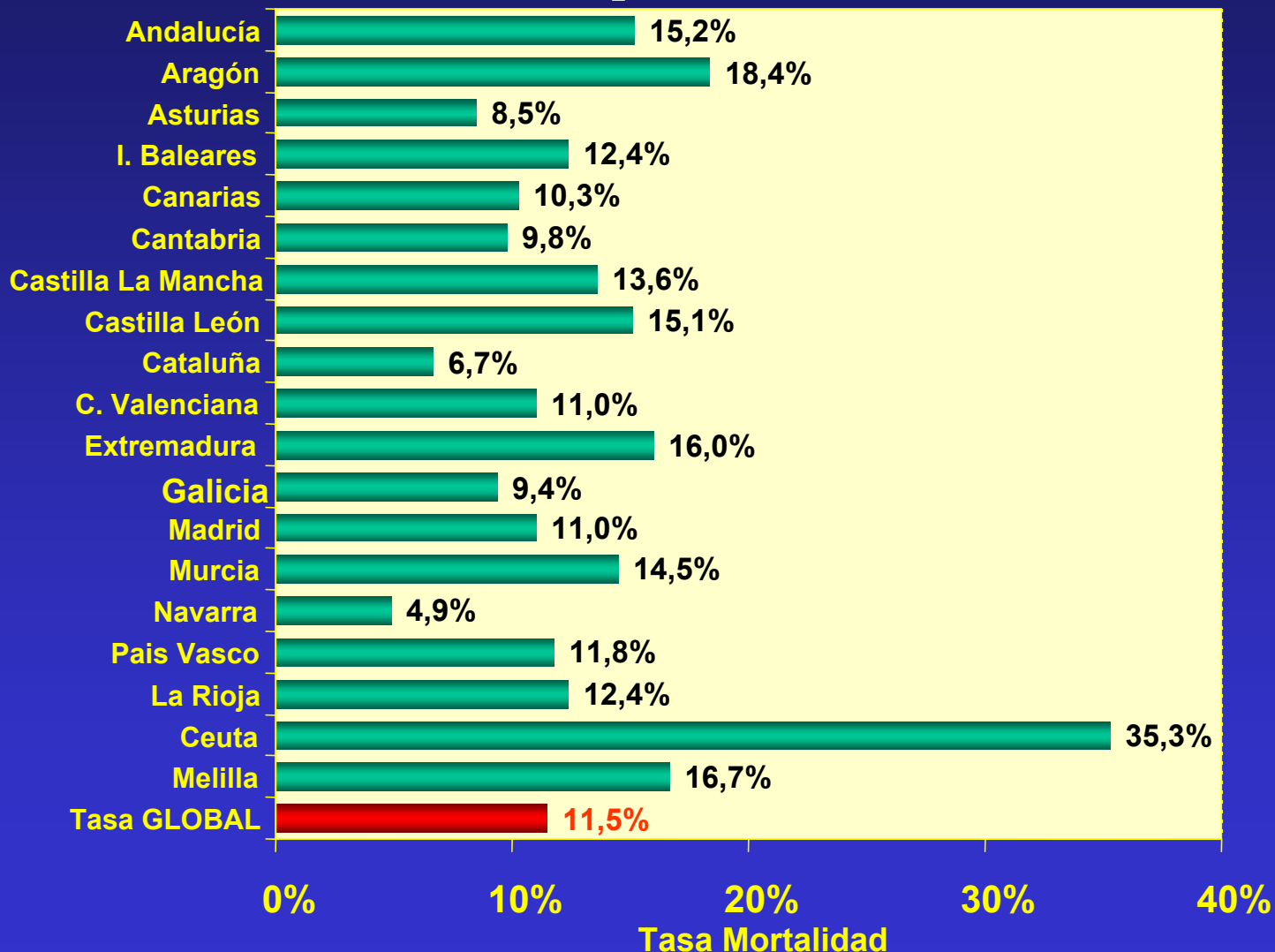


Variación estacional de la ETV

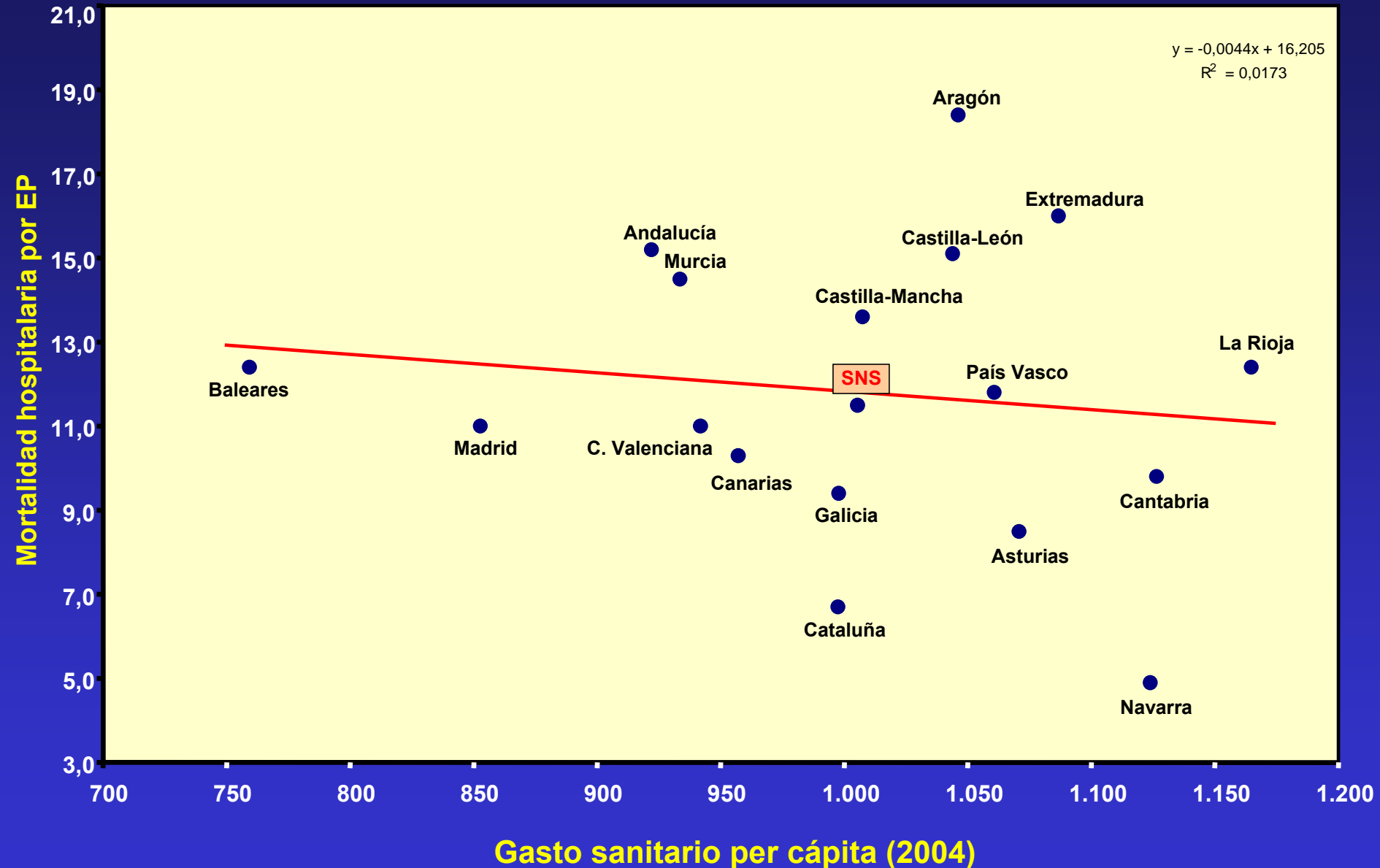


Ingresos por EP: mortalidad intrahospitalaria por CCAA

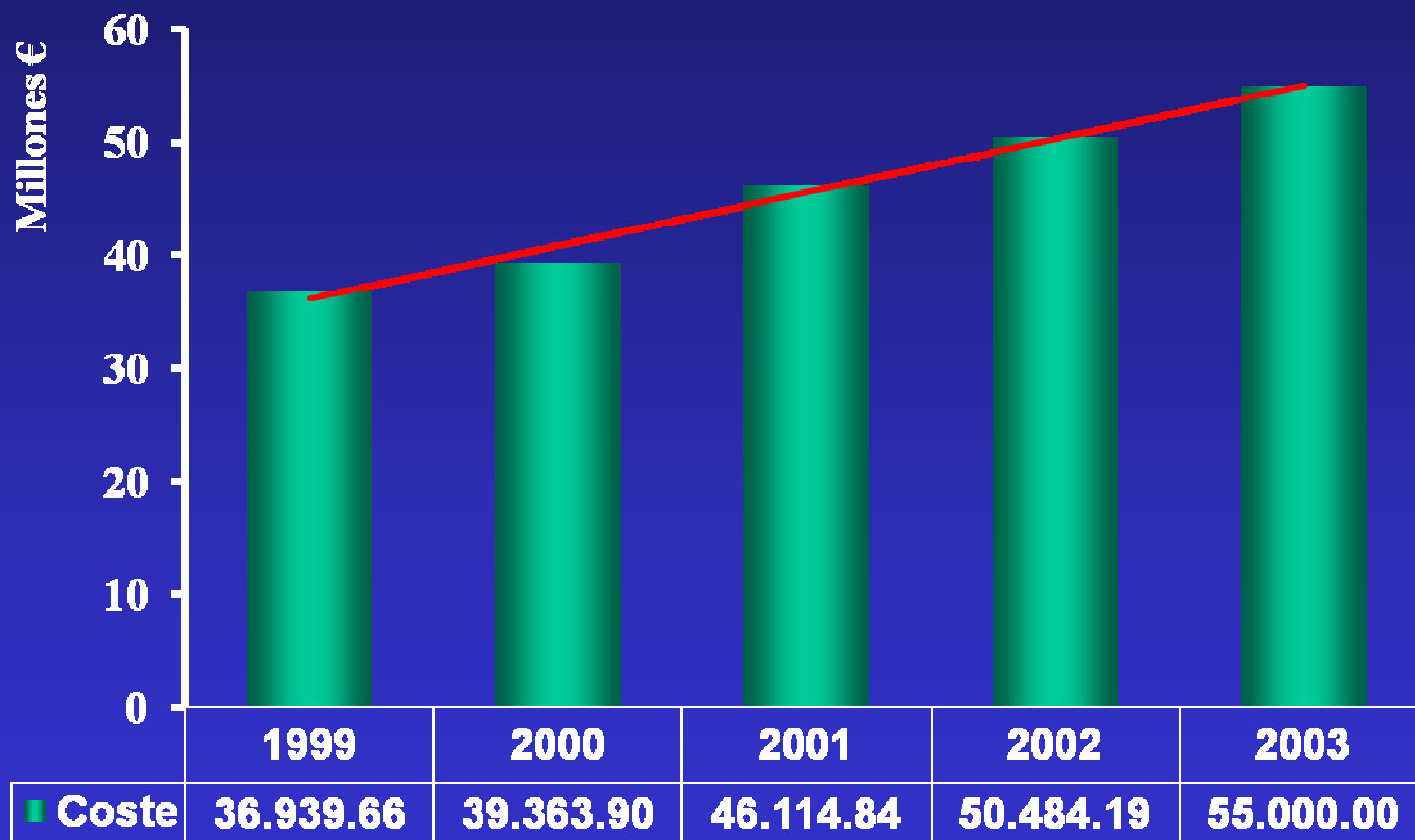
Mortalidad Hospitalaria Media: 11,5%



Relación entre mortalidad hospitalaria por EP y gasto autonómico sanitario



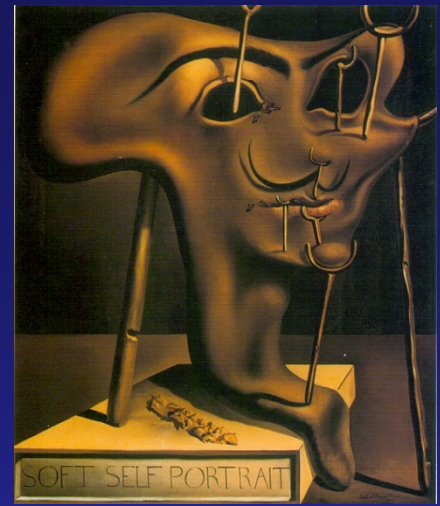
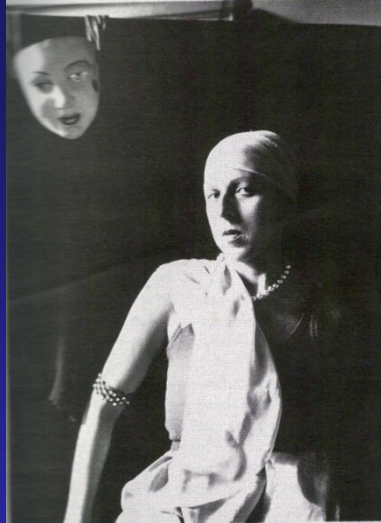
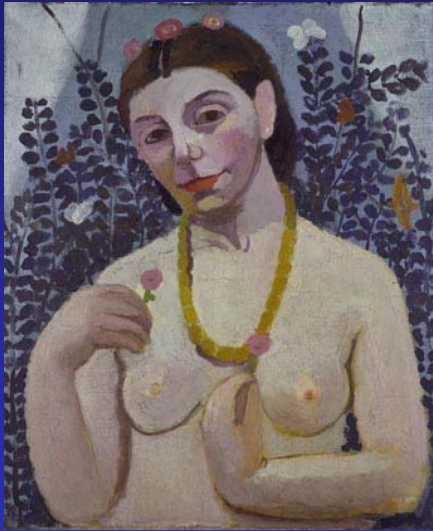
Estimación del coste anual de hospitalizaciones cuya causa de ingreso fue la ETV



(1) Estimado por tendencia lineal en el punto

Cálculo aplicando costes por GDR calculados anualmente por el MSyC

ETV: una pincelada trágica



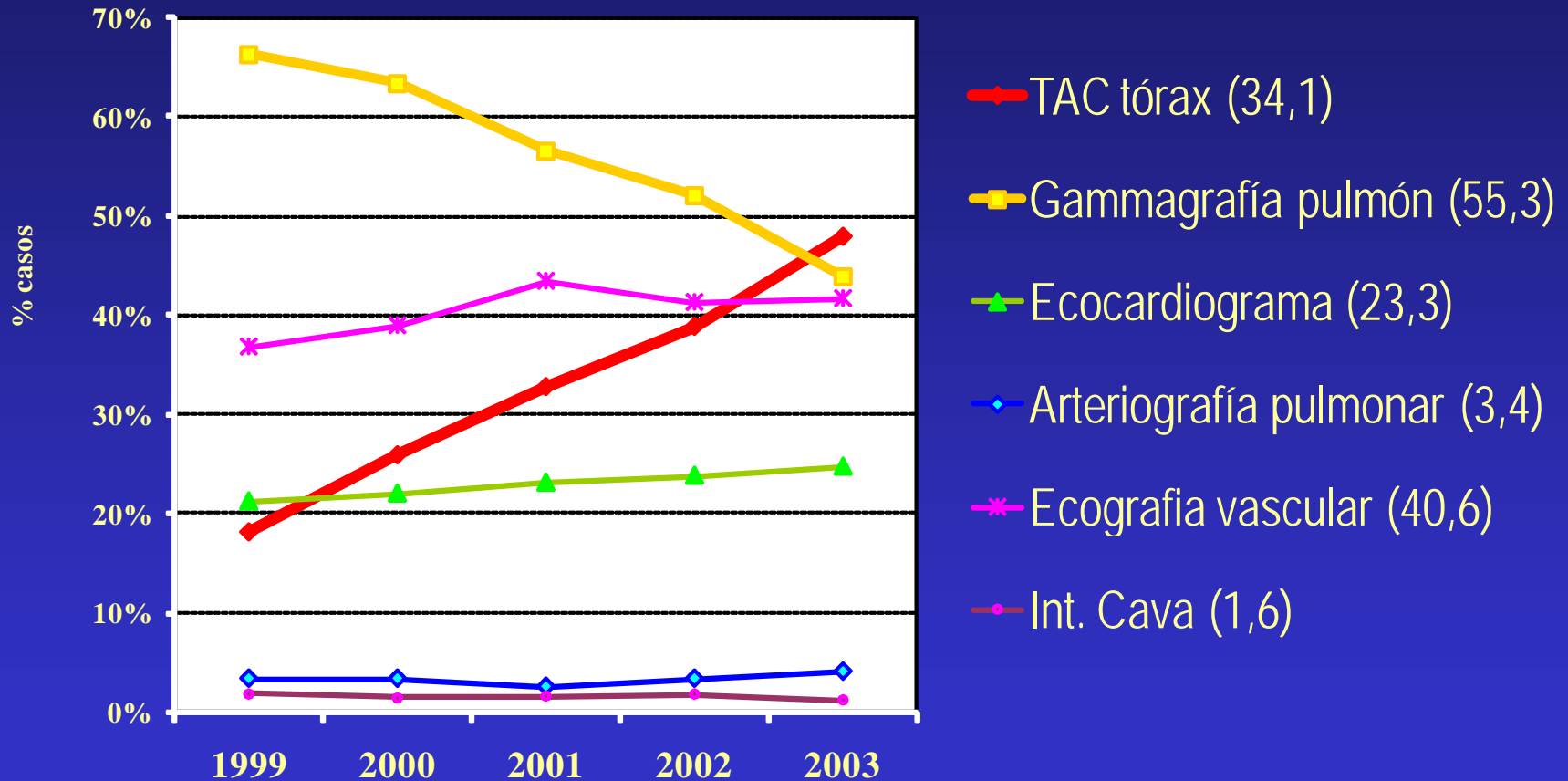
Paula Modehrson-Becker
(36 años, †1907)

Claude Cahun
(60 años, †1954)

Henri Matisse
(84 años, †1954)

Salvador Dalí
(84 años, †1989)

Pruebas diagnósticas en EP: tendencias 1999-2003¹

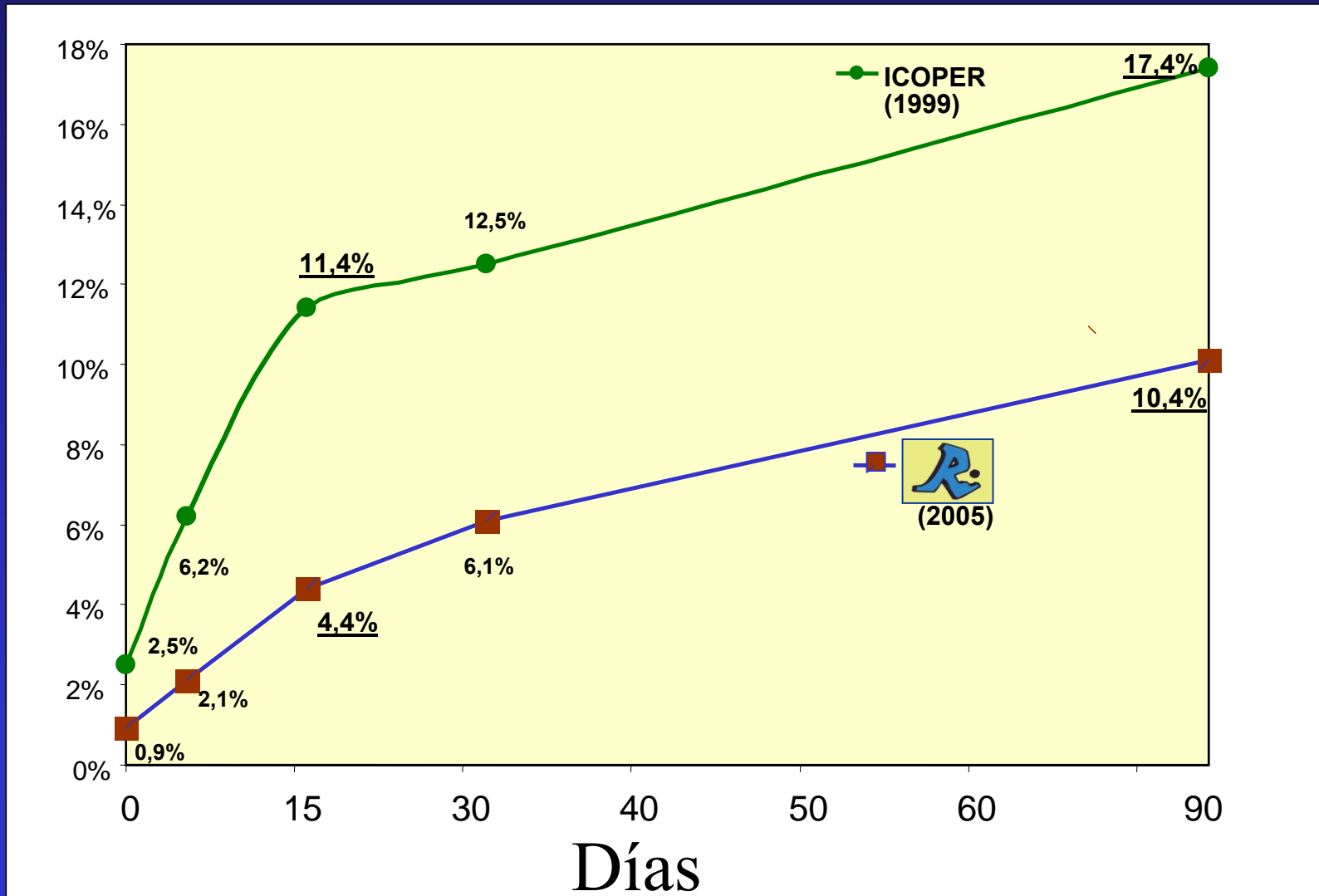


PROCEDIMIENTO (% medio)

(1) Sólo casos con algún procedimiento codificado

Comparación ICOPER-RIETE (EP)

Mortalidad



Flujo sanguíneo anormal

Trombosis venosa

Infecciones

Alteraciones de la pared vascular

S. Postflebítico

Trombosis arterial

Box 1 | Risk factors for deep vein thrombosis (adapted from Geerts et al⁴)

Stasis

- Surgery, trauma, immobility, paresis
- Increasing age
- Pregnancy and postpartum
- Heart or respiratory failure
- Obesity

Vessel injury

- Previous deep vein thrombosis
- Smoking
- Varicose veins
- Central venous catheterisation

Hypercoagulability

- Increasing age
- Malignancy or cancer therapy
- Oestrogen therapy (contraception or hormone replacement)
- Acute medical illness
- Inflammatory bowel disease
- Nephrotic syndrome
- Myeloproliferative disorders
- Paroxysmal nocturnal haemoglobinuria
- Inherited or acquired thrombophilia

Cayley WE, jr. *BMJ* 2007; 335:147-151.

TROMBO

TVP/EP

MUERTE

Anormalidades sanguíneas

S. antifosfolípido?



Frida Kahlo & Virchow

† hace 50 años

Homocysteine-Lowering Therapy and Risk for Venous Thromboembolism

A Randomized Trial

Joel G. Ray, MD, MSc; Clive Kearon, MD, PhD; Qilong Yi, PhD; Patrick Sheridan, MSc; and Eva Lonn, MD, MSc, for the Heart Outcomes Prevention Evaluation 2 (HOPE-2) Investigators*

Background: Elevated total homocysteine levels are associated with a higher risk for venous thromboembolism. Whether decreasing homocysteine levels with vitamin therapy reduces the risk for venous thromboembolism is not known.

Objective: To determine whether decreasing homocysteine levels alters the risk for symptomatic venous thromboembolism.

Design: Secondary analysis of data from the randomized, placebo-controlled Heart Outcomes Prevention Evaluation 2 (HOPE-2).

Setting: 145 clinical centers in 13 countries.

Participants: 5522 persons 55 years of age or older with known cardiovascular disease or diabetes mellitus and at least 1 other risk factor for vascular disease.

Intervention: A daily supplement of 2.5 mg of folic acid, 50 mg of vitamin B₆, and 1 mg of vitamin B₁₂ or matching placebo for 5 years.

Measurement: Prospectively diagnosed and confirmed symptomatic deep venous thrombosis or pulmonary embolism.

Results: The geometric mean homocysteine level decreased by 2.2 $\mu\text{mol/L}$ in the vitamin therapy group and increased by 0.80 $\mu\text{mol/L}$

in the placebo group. Venous thromboembolism occurred in 88 participants during a mean follow-up of 5 years. The incidence rate of venous thromboembolism was the same in the vitamin therapy group and the placebo group (0.35 per 100 person-years; hazard ratio, 1.01 [95% CI, 0.66 to 1.53]). Vitamin therapy did not reduce the risk for deep venous thrombosis (hazard ratio, 1.04 [CI, 0.63 to 1.72]), pulmonary embolism (hazard ratio, 1.14 [CI, 0.57 to 2.28]), or unprovoked venous thromboembolism (hazard ratio, 1.21 [CI, 0.66 to 2.23]).

Limitations: The proportion of patients with a previous episode of venous thromboembolism at enrollment was not known, and venous thromboembolism events were not centrally adjudicated.

Conclusion: Decreasing homocysteine levels with folic acid and vitamins B₆ and B₁₂ did not reduce the risk for symptomatic venous thromboembolism.

Ann Intern Med. 2007;146:761-767.

www.annals.org

For author affiliations, see end of text.

*For a list of the HOPE-2 Investigators, see the Appendix (available at www.annals.org).

ClinicalTrials.gov registration number: NCT00106886.

Current Controlled Trials registration number: ISRCTN14017017.

Dan Quayle

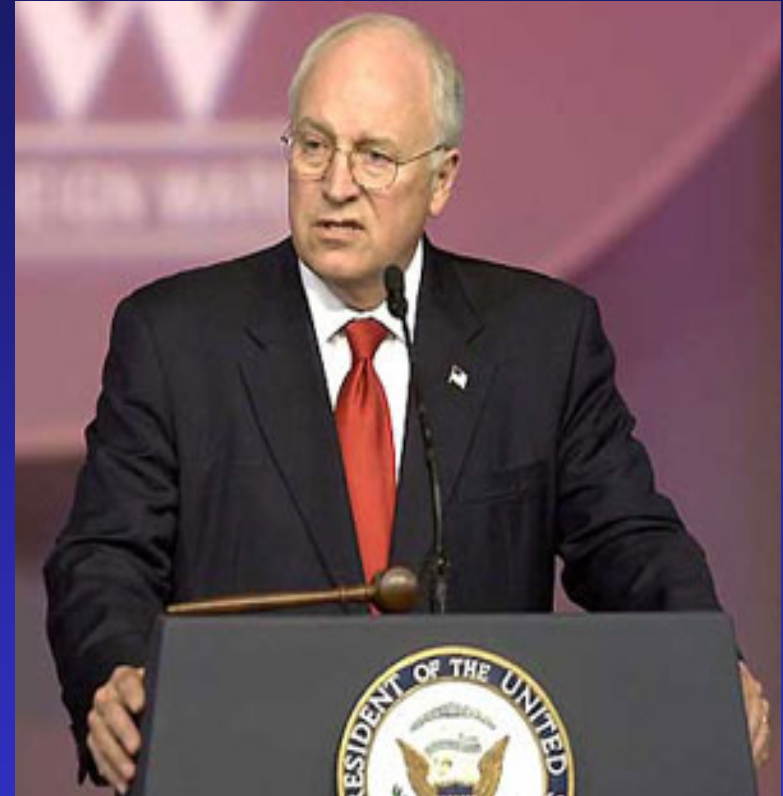
Vicepresidente con G. Bush, padre (1988-92)



Desarrolló *TVP-EP* tras un viaje (1994). Quizá ello motivó su inhibición como candidato presidencial frente a Clinton-Gore (1996).

Dick Cheney

Vicepresidente actual con G. Bush, hijo



Desarrolló *TVP* (marzo-07) tras visitar a tropas de Afganistán. El tratamiento precoz le permitió actividad normal con amplia cobertura mediática.

ETV como diagnóstico 2º

Los 10 GDR más frecuentes

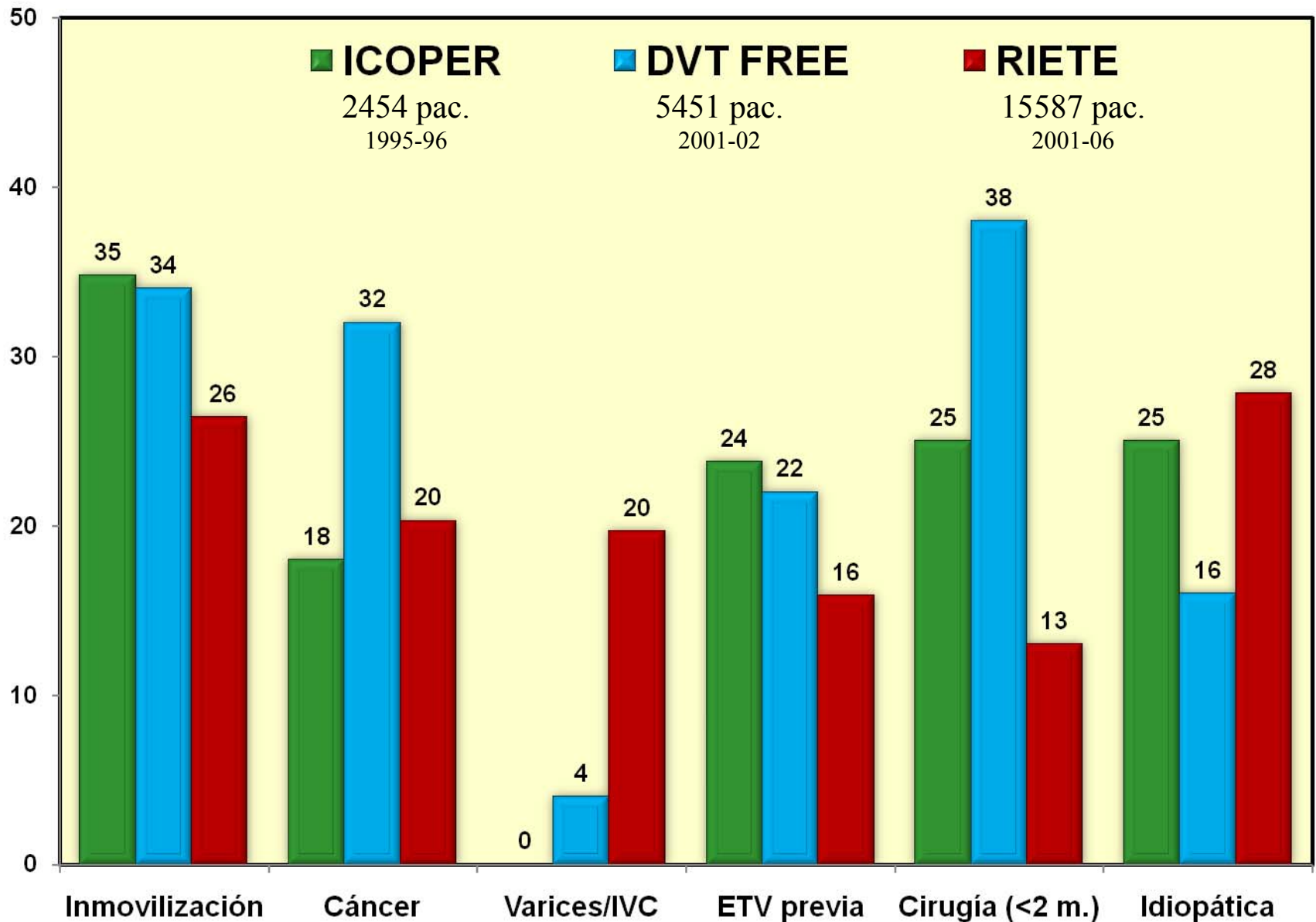
GDR	Patología	N	%
127; 544	Insuficiencia Cardíaca	2591	5,5
14;15;16;17	Patología Cerebrovascular	871	1,8
121; 122; 123	Infarto Agudo de Miocardio	808	1,7
10; 11; 64; 82; 172; 173; 203; 239; 274; 318; 347; 366; 367; 403; 404; 410; 414; 576; 577; 578; 780; 783	Neoplasias (GDR médicos)	2657	5,6
199; 257; 258; 259; 260; 338; 344; 354; 355; 357; 400; 401; 402; 406; 408; 579; 786	Neoplasias (GDR quirúrgicos)	459	1,0
87; 88; 90; 92; 96; 99; 101; 475; 540; 541; 542	Enf. Pulmonares y Neumonía	7229	15,2
20; 21; 44; 68; 69; 70; 79; 80; 126; 238; 277; 278; 279; 320; 321; 322; 368; 416; 417; 418; 421; 422; 423; 561; 580; 584; 707; 708; 709; 710; 711; 712; 713; 714; 715; 716; 800; ; 581; 798	Infecciones (exc. neumonía)	2723	5,7

Factores de riesgo en pacientes médicos

	Odds Ratio
Enfermedad pulmonar obstructiva crónica	2.9
Infarto de miocardio	3.3
Insuficiencia cardiaca aguda (NYHA III/IV)	3.0
Edema pulmonar	3.4
Ictus isquémico sin parálisis	2.9
Ictus isquémico con parálisis	5.0
Cáncer que requiere tratamiento	4.2
Septicemia, infecciones severas	3.9

NYHA = New York Heart Association

Factores de riesgo para ETV en recientes Registros



ETV en España: características (1)

(SNS+RIETE)¹⁻³



- ETV: $\approx 0,92\%$ de todas las altas hospitalarias (en $\uparrow\uparrow$)
- España: $\approx 116-124$ casos/100.000 h./año (55000 casos)
- ETV como causa de ingreso en 52%: (57% EP, 43% TVP)
- La ETV supone un importante coste económico.

ETV en España: características (2)

(SNS+RIETE)¹⁻³



	Sexo (M)	Edad	Días	Época	†Hospital	†3 meses
TVP	52%	64	8	>invierno	1,8%	7,5%
EP	54%	70	12	>invierno	11,0%	10,4%

ETV en España: características (3)

(SNS+RIETE)¹⁻³



Poscirugía	15%	Ortop., abdom., oncológ., G-Urinaria
Enfermedad pulmonar	13%	
Insuficiencia cardiaca	8%	
Cáncer	20%	45% metástasis Colorrectal, mama, próstata, pulmón
Tratamiento hormonal	3%	
Viajes largos	2%	
Embarazo-puerperio	1%	

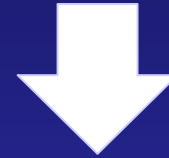
Profilaxis de la ETV

Pacientes quirúrgicos
(en riesgo: 1.262.169)



67% con profilaxis

Pacientes médicos
(en riesgo: 713.398)



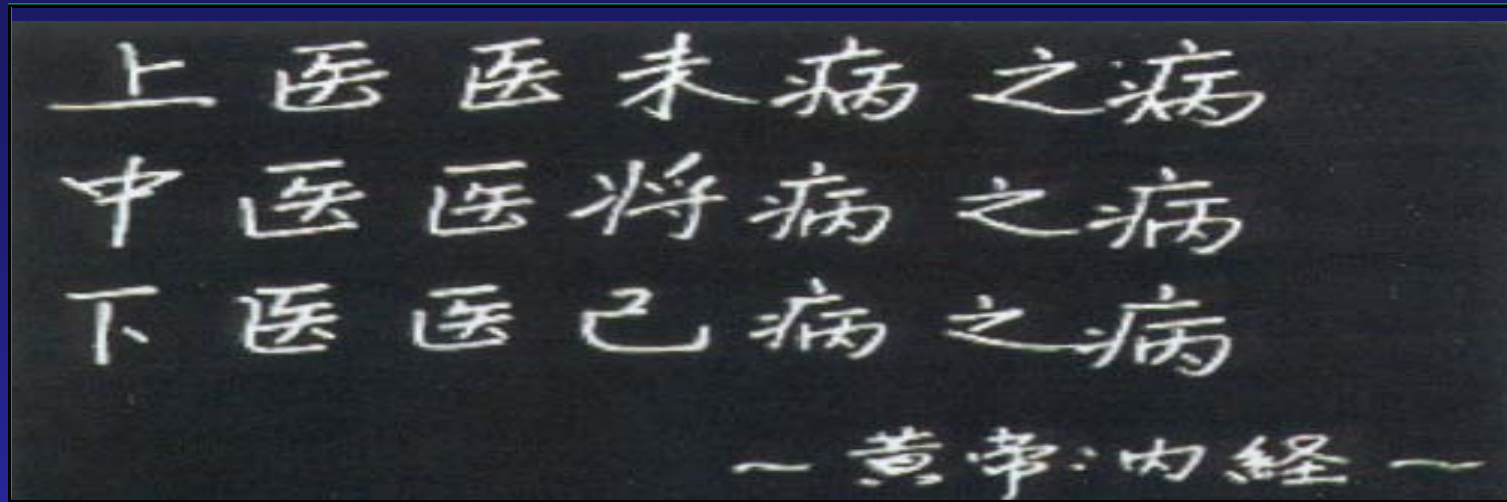
25% con profilaxis



2007



Acerca de la enfermedad



Los doctores superiores la previenen.

Los mediocres la tratan antes de ser evidente.

Los inferiores la tratan ya desarrollada.

Huang Ti, *Nei Ching*, 2650 a.C.