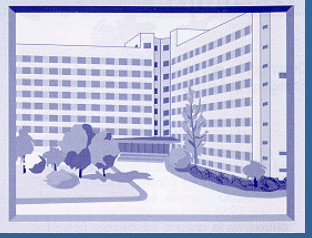
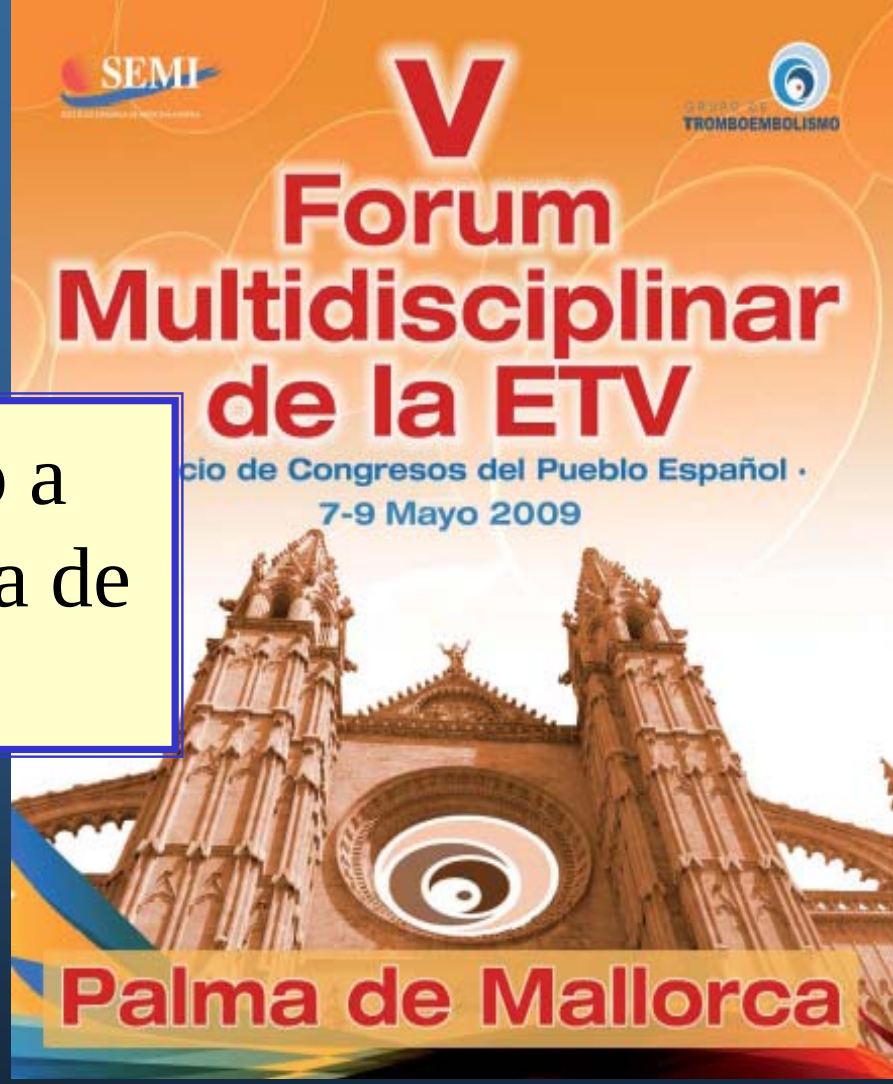




D-dímero y pronóstico a corto plazo en la embolia de pulmón

JL Lobo Beristain
Hospital Txagorritxu. Vitoria

New Technologies, Diagnostic Tools and Drugs

Simple and safe exclusion of pulmonary embolism in outpatients using quantitative D-dimer and Wells' simplified decision rule

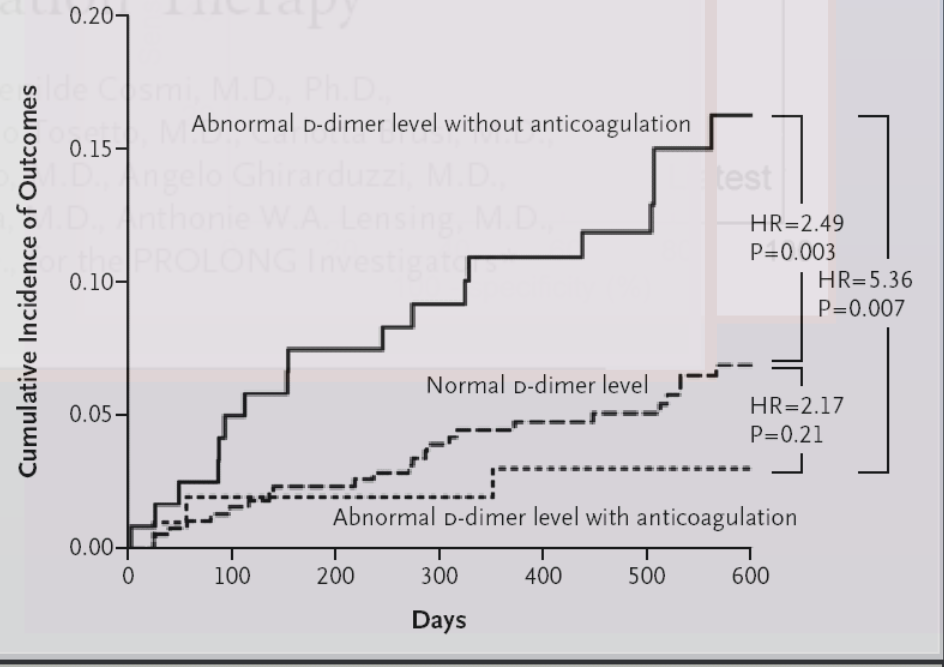
Robbert J. Goeko
Lies Werker-van G
[1]Section of Vascular M
[2]Department of Clinic
[4]Department of Pulm
[6]Department of Intern
[8]Department of Intern

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

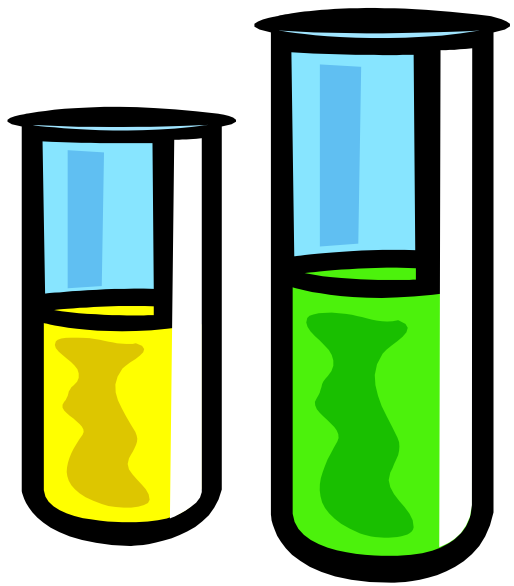
D-Dimer Testing to Determine the Duration of Anticoagulation Therapy

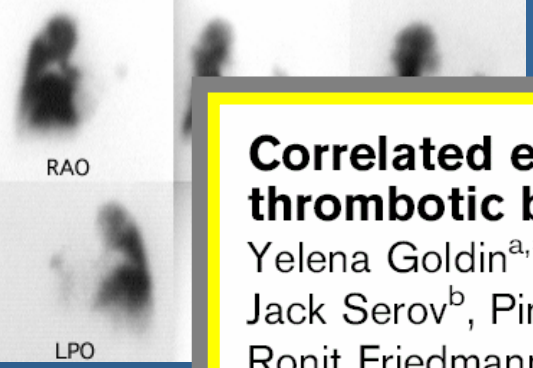
Gualtiero Palareti, M.D.,
Cristina Legnani, D.Sci., Ph.D., Alber
Alfonso Iorio, M.D., Vittorio Per
Corrado Pattacini, M.D., Sophie Tes
and Armando Tripodi, D.Sci., Ph



D-Dimero y pronóstico

- El D-D y la extensión de la enfermedad
  - La gammagrafia Q
  - El Indice de Obstrucción Arterial Pulmonar (PAOI)
- La repercusión de la enfermedad
  - Hemodinámica
  - Gasométrica
- La severidad de la expresión clínica (PESI)
- La mortalidad *de cualquier causa* medio plazo
- La mortalidad estrictamente embólica
  - A medio plazo
  - **A corto plazo**

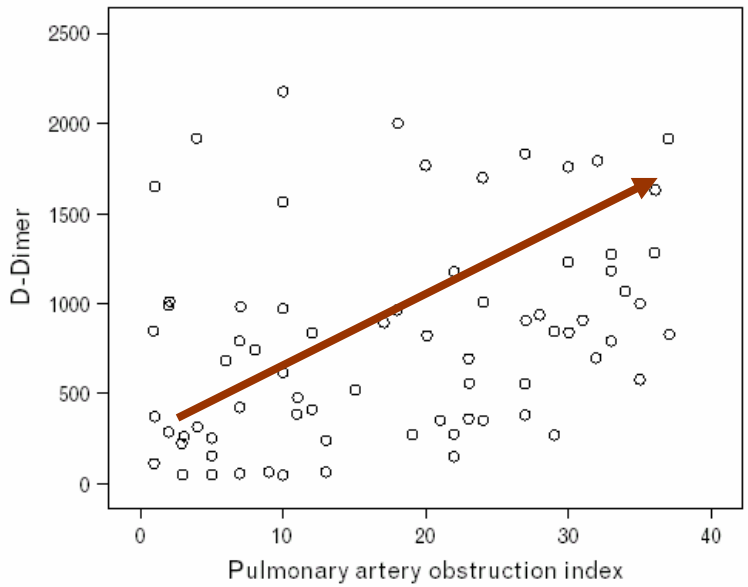




Correlated expression of D-dimer concentrations with thrombotic burden in acute pulmonary embolism

Yelena Goldin[a,*], Shlomo Berliner[a,f,*], Ori Rogowski[a], Oleg Paslowski[a], Jack Serov[b], Pinchas Halpern[b], Michael Cohen[a], Varda Deutsch[c], Ronit Friedmann[d], Itzhak Shapira[a,f,†] and Galit Aviram[e,†]

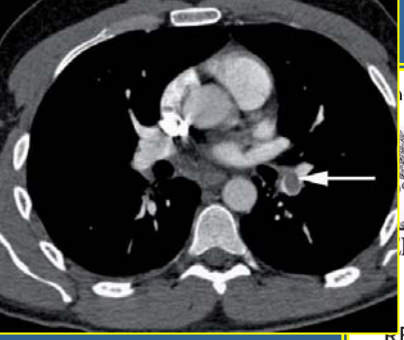
Thrombotic burden might have an influence upon the concentration of D-dimer in patients with acute pulmonary embolism. Patients with small pulmonary embolisms may thus present with relatively low concentrations of D-dimer. The objective of this study was to assess the correlation of the concentrations of D-dimer with the pulmonary artery occlusion score (PAOS) in a cohort of patients with acute pulmonary embolism. We have presently studied the correlation between the concentrations of D-dimer and the PAOS in a group of 75 patients who presented to the Department of Emergency Medicine with a clinical picture suggestive for acute pulmonary embolism and whose pulmonary computerized tomography (CT) angiography was positive for pulmonary embolism. A significant ($P<0.001$) correlation ($r=0.42$) was noted between the concentration of D-dimer and the PAOS in this group of 75 patients with acute pulmonary embolism. We further divided the cohort into those patients who had a score below the median of 18 ($n=37$) and those who had a score above the median ($n=38$), the corresponding mean concentrations of D-dimer being 364 and 814 ng/ml, respectively, in contrast to a mean concentration of 285 ng/ml that was observed in the group of controls ($n=73$). In addition, from the receiver-operated characteristic (ROC) curves that were produced for the purpose of differentiating between the presence or absence of pulmonary embolism, for those who had a low score it was not possible to differentiate between those who had or did not have a pulmonary embolism [area under the curve 0.595 as opposed to 0.835 ($P<0.001$) for the group with the high



Significant ($P<0.001$) Pearson's correlation ($r=0.42$) between the D-dimer and the pulmonary artery obstruction score.

> 50 %

Lung scan perfusion defects



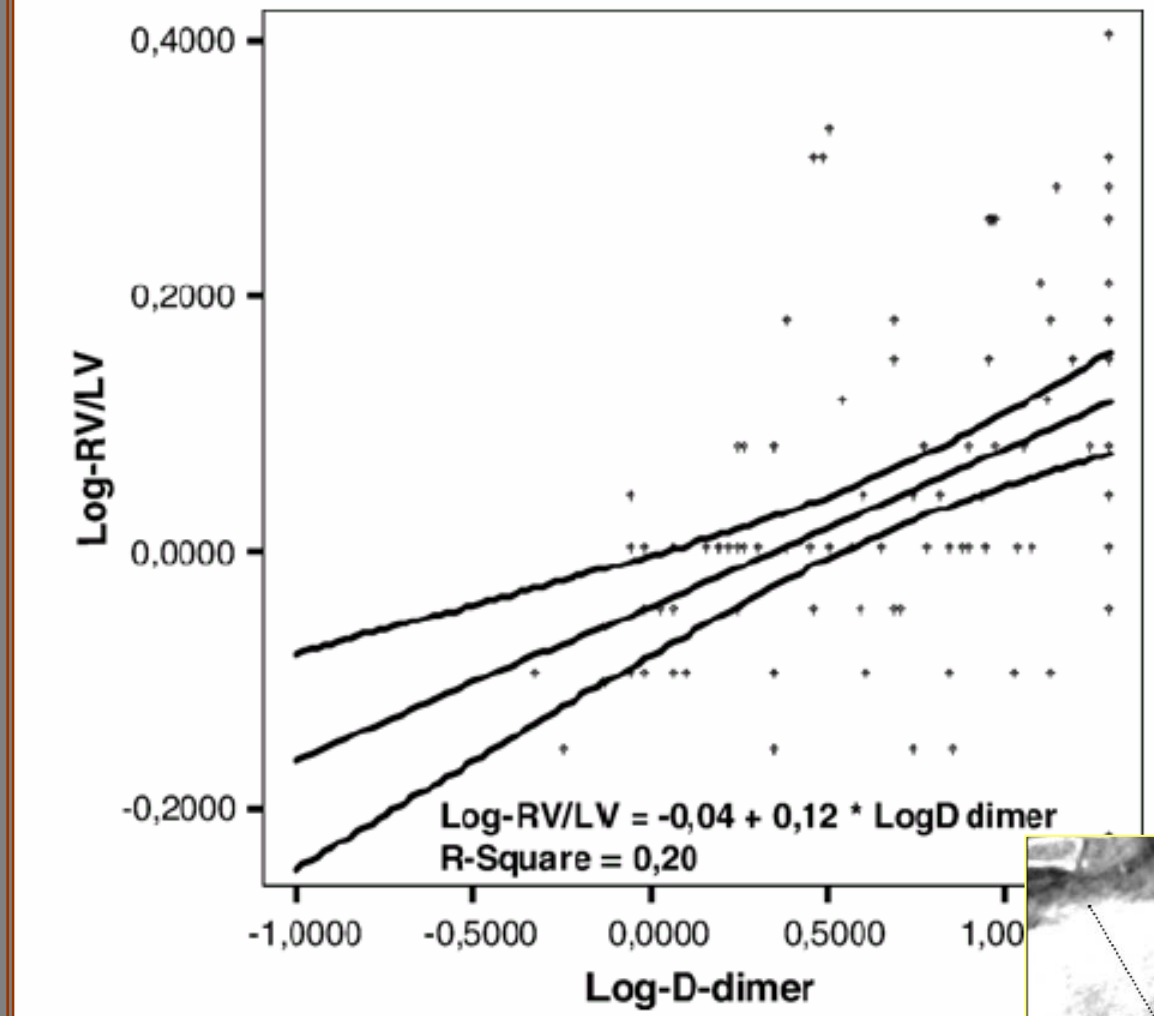


Figure 1 Linear regression and 95% mean pre
intervals between log D-dimer and log RV/LV (right v
ular/left ventricular) ratio.

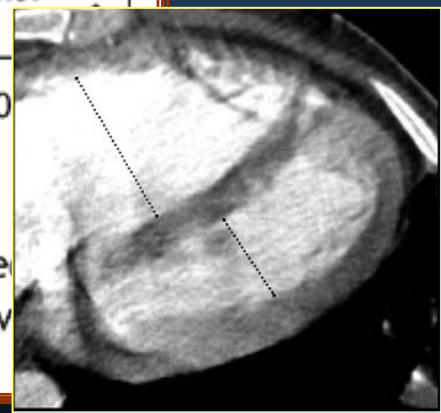


Figure 2 Patient with RV/LV dimension ratio >1 shown on transverse image of contrast-enhanced multidetector CT angiogram. Minor axis of right ventricle is shown by *dotted line* at top, and minor axis of LV is shown at bottom. Flattening of the interventricular septum is shown.

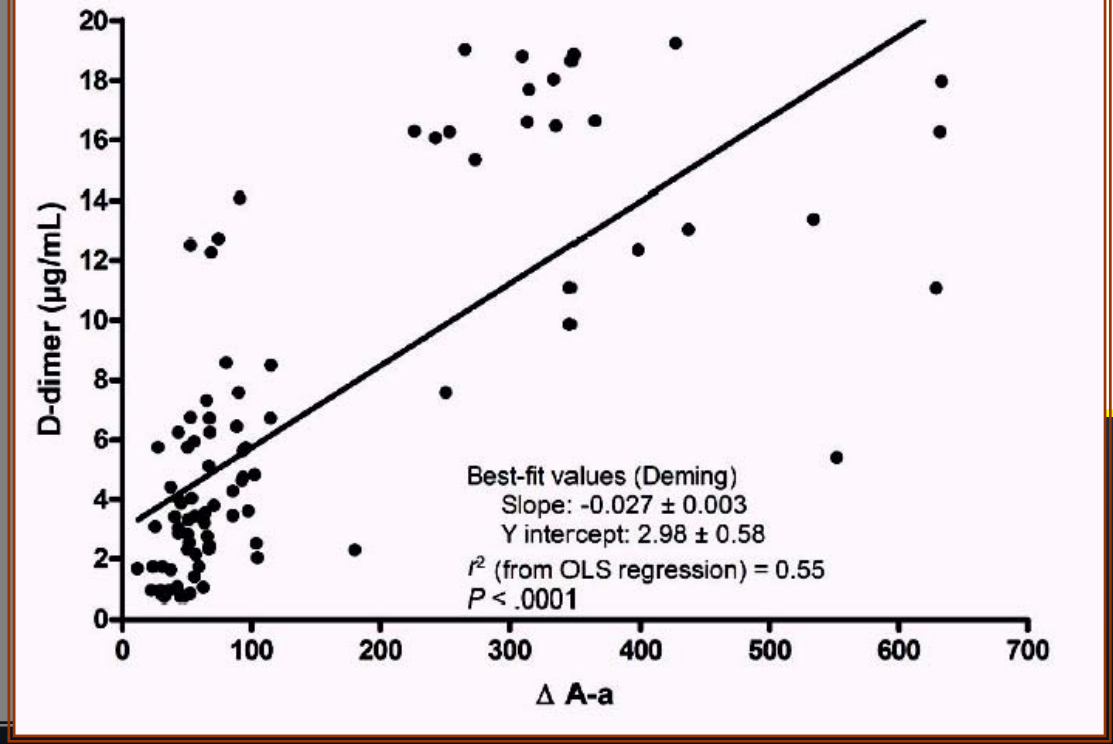
Laboratory Hematology 15:4-9

doi: 10.1532/LH96.08014

The Association of D-dimer Levels with Clinical Outcomes in Patie Pulmonary Emboli

JOHN BLAMOUN,[1,2,4] MARIA A
MOAMMAR,[1,2,4] MICHAEL MA

[1]Department of Medicine and Divisions
Medical Center, Paterson, NJ, USA; [4]Sch



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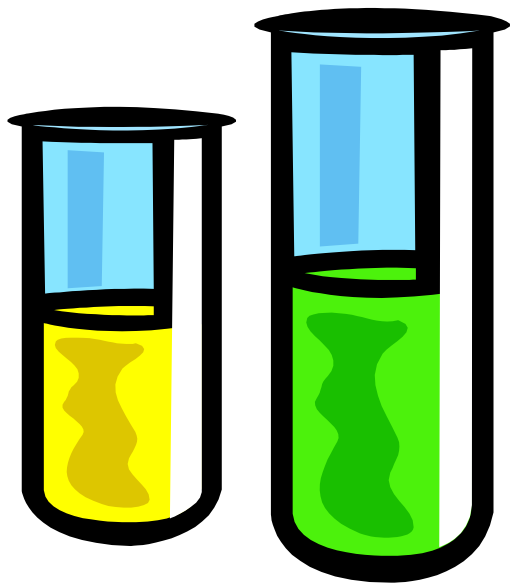

Prognostic value of D-dimer in patients with pulmonary embolism

Drahomir Aujesky[1], Pierre-Marie Roy[2], Meyer Guy[3], Jacques Cornuz[1,4], Olivier Sanchez[3], Arnaud Perrier[5]

[1]Division of Internal Medicine, University of Lausanne, Lausanne, Switzerland; [2]Department of Emergency Medicine, University of Angers, Angers, France; [3]Department of Respiratory and Critical Care Medicine, Hôpital Européen Georges Pompidou, Paris, France; [4]University Outpatient Clinic, University of Lausanne, Lausanne, Switzerland; [5]Division of General Internal Medicine, University of Geneva, Geneva,

PESI risk class	Patients	Mortality	D-dimer level, µg/l
	Number (percent)		Median (interquartile range)
Risk class I	80 (22)	0 (0)	1738 (916–3649)
Risk class II	107 (29)	1 (0.9)	2830 (1495–5110)
Risk class III	104 (28)	6 (5.8)	3587 (1534–5189)
Risk class IV	43 (12)	6 (14.0)	4079 (2418–7907)
Risk class V	32 (9)	6 (18.8)	4864 (2835–6072)

*Severity of illness was assessed using the Pulmonary Embolism Severity Index (PESI), a validated clinical prognostic model for pulmonary embolism that stratifies patients into five classes (I-V) of increasing risk of adverse outcomes (1, 2). Overall mortality rates and D-dimer levels significantly increased with increasing severity of illness (P <0.001 for all comparisons).

Table 2: Overall mortality and d-dimer levels by severity of illness*.

Keywords
D-dimer, pulmonary embolism, prognosis

Thromb Haemost 2006; 96: 478–82

Pacientes 366. Mortalidad “global” a 90 días: 5.2%

Prognostic value of D-dimer in patients with pulmonary embolism

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Pacientes 366. Mortalidad “global” a 90 días: 5.2%

	Odds ratio for mortality (95% confidence interval)
	Univariate
D-dimer level, by quartile	
First quartile (<1500 µg/l)	1.0
Second quartile (1500–2999 µg/l)	3.1 (0.31–30.1)
Third quartile (3000–5500 µg/l)	7.1 (0.85–58.7)
Fourth quartile (>5500 µg/l)	9.0 (1.1–73.5)
Severity of illness, by PESI risk class†	
Risk class I	1.0
Risk class II	
Risk class III	11.4 (1.4–95.9)‡
Risk class IV	30.2 (3.5–258)‡
Risk class V	42.9 (5.0–371)‡
Presence of proximal deep vein thrombosis	1.8 (0.72–4.6)

Pacientes 366. Mortalidad “global” a 90 días: 5.2%

	Odds ratio for mortality (95% confidence interval)
	Multivariate*
D-dimer level, by quartile	
First quartile (<1500 µg/l)	1.0
Second quartile (1500–2999 µg/l)	2.3 (0.22–23.3)
Third quartile (3000–5500 µg/l)	3.8 (0.44–33.1)
Presence of proximal deep vein thrombosis	-

bolism

of Angers,
University
Geneva,

....Por lo tanto el D-D **puede** ser un marcador global de severidad de enfermedad más que una medida de la severidad de una enfermedad específica...

Pacientes 366. Mortalidad "global" a 90 días: 5.2%

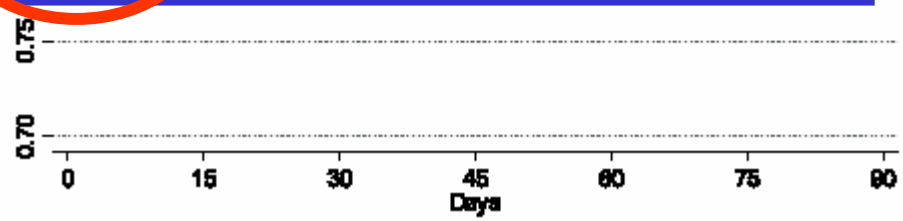
D-dimer levels correlate with mortality in patients with acute pulmonary embolism: Findings from the RIETE registry

Enric G
Ramón

Table 3. Multivariate logistic regression analysis of D-dimer and other risk factors for mortality at 90 days

	OR (95% Confidence Interval)	*p*
Body weight in kg		.032
>70 (ref)	1	
50–70	1.91 (1.00–5.70)	
<50	5.53 (1.83–16.67)	
Known cancer	4.62 (2.39–8.95)	<.0001
PE without DVT	2.33 (1.25–4.36)	.008

De hecho, los pacientes con EP y D-dimero >5000 ng/mL mostraban un mayor riesgo de fallecer de EP fatal (OR: 4.4, IC_{95} 0.5-33.0)...



Crit Care Med 2007 Vol. 35, No. 8

D-dimer level is not a prognostic

...no respaldados por el correspondiente intervalo de confianza, que se superpone sustancialmente con el valor nulo de 1.

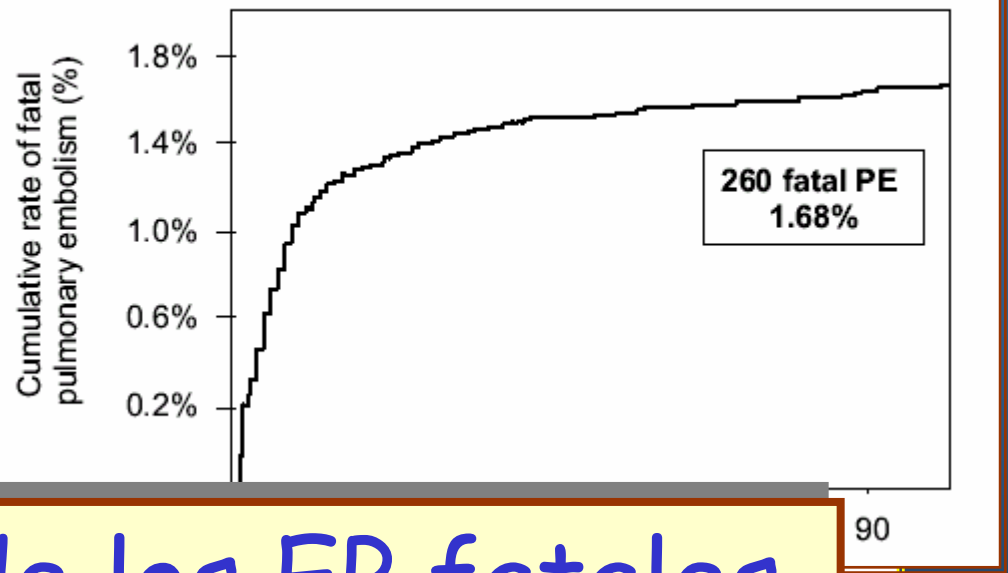
We read with great interest the article by Dr. Grau and colleagues (1) in which they reported a relationship between

... el D-dimero tiene también un papel pronóstico en Insuficiencia Cardiaca, Sindromes coronarios, F Auricular, Neumonia y cancer.

Va

Clinical Predictors for
Patients Wit
Findings From the R
TromboEm

Silvy Laporte, PhD; Pa
Fernando Uresandi, MD, PhD;

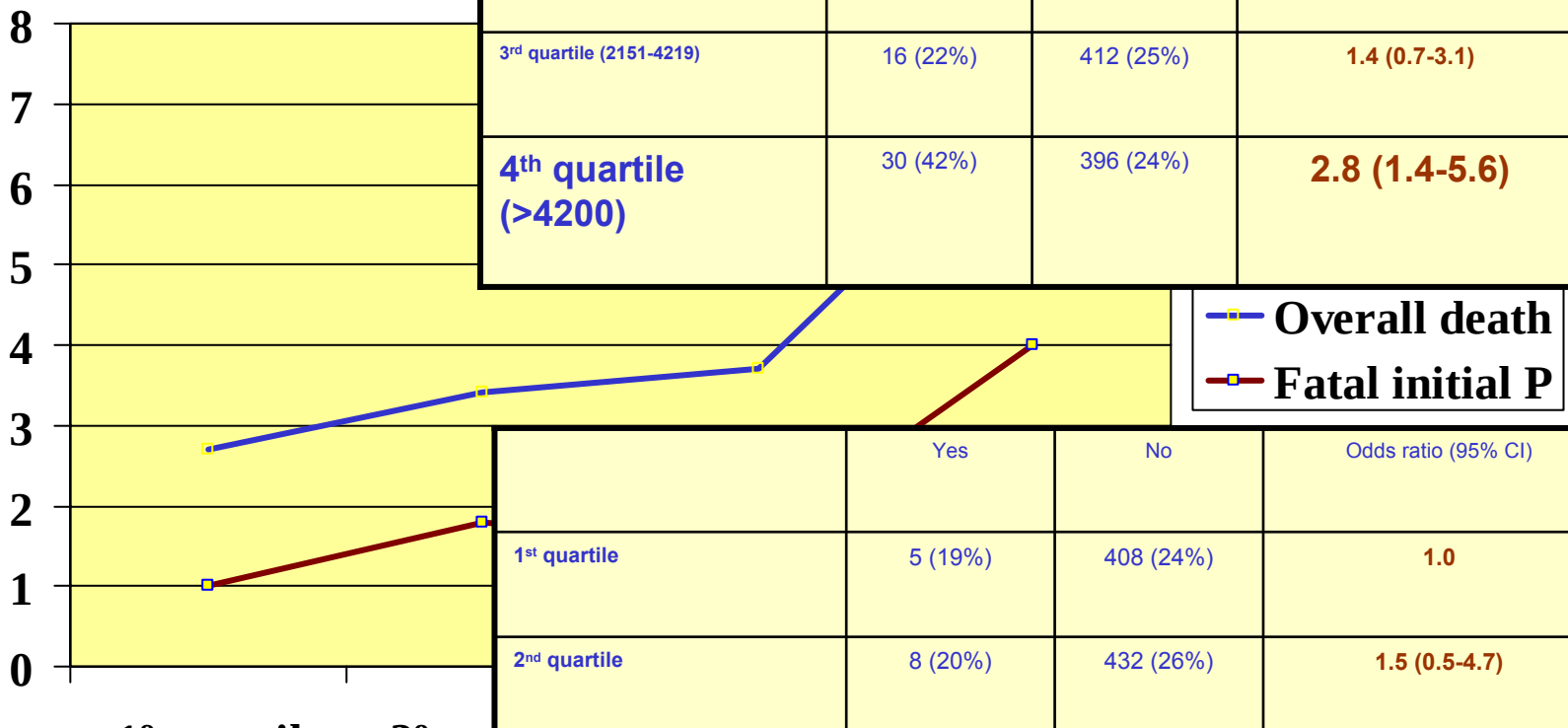


La mitad de los EP fatales ocurrían en los primeros 5 días, y el 75% en los primeros 12

included in any clinical risk stratification scheme to optimally adapt the treatment of PE to the risk of the fatal outcome.
(*Circulation*. 2008;117:1711-1716.)

M

	Yes	No	Odds ratio (95% CI)
1st quartile (<1050)	11 (15%)	402 (25%)	1.0
2nd quartile (1050-2150)	15 (21%)	425 (26%)	1.3 (0.6-2.8)
3rd quartile (2151-4219)	16 (22%)	412 (25%)	1.4 (0.7-3.1)
4th quartile (>4200)	30 (42%)	396 (24%)	2.8 (1.4-5.6)



	Yes	No	Odds ratio (95% CI)
1st quartile	5 (19%)	408 (24%)	1.0
2nd quartile	8 (20%)	432 (26%)	1.5 (0.5-4.7)
3rd quartile	9 (23%)	419 (25%)	1.8 (0.6-5.3)
4th quartile	17 (44%)	409 (24%)	3.4 (1.2-9.3)

15-day outcome

(1.707 patients)

	1st quartile	2nd quartile	3rd quartile	4rth quartile	p trend
Major bleeding	4 (1.0%)	2 (0.5%)	8 (1.9%)	15 (3.5%)	0.001
Fatal bleeding	2 (0.5%)	0	1 (0.2%)	3 (0.7%)	N.S.
R					
F					
F					
Overall death	11 (2.7%)	15 (3.4%)	16 (3.7%)	30 (7.0%)	0.002

... En estudios previos los niveles de D-Dimero se han asociado a la extensión del TEP, la edad del paciente, la presencia de cancer y otras comorbilidades.

	Overall death			Fatal PE
	Yes	No	Odds ratio (95% CI)	
Gender (males)	23 (32%)	742 (45%)	**0.6 (0.3-0.9)**	
Chronic heart failure	9 (13%)	104 (6.6%)	**2.1 (1.0-4.4)**	
Creatinine levels >1.2 mg/dL	28 (39%)	322 (20%)	**2.6 (1.6-4.2)**	
Immobility ≥4 days	36 (50%)	404 (25%)	**3.0 (1.9-4.9)**	
Cancer	29 (40%)	302 (18%)	**3.0 (1.8-4.8)**	
Idiopathic	13 (18%)	677 (41%)	**0.3 (0.2-0.6)**	
SBP <100 mm Hg	13 (18%)	125 (7.6%)	**2.7 (1.4-5.0)**	
Heart rate >100 bpm	38 (53%)	494 (30%)	**2.6 (1.6-4.2)**	
Atrial fibrillation	16 (25%)	146 (9.6%)	**3.1 (1.7-5.7)**	

	Fatal PE		
	Yes	No	Odds ratio (95% CI)
Gender (males)	10 (26%)	755 (45%)	**0.4 (0.2-0.9)**
Chronic heart failure	5 (14%)	108 (6.7%)	2.2 (0.8-5.8)
Creatinine levels >1.2 mg/dL	13 (33%)	337 (20%)	**2.0 (1.0-3.9)**
Immobility ≥4 days	22 (56%)	418 (25%)	**3.9 (2.0-7.3)**
Cancer	12 (31%)	319 (19%)	1.9 (0.9-3.7)
Idiopathic	6 (15%)	684 (41%)	**0.3 (0.1-0.6)**
SBP <100 mm Hg	9 (23%)	129 (7.7%)	**3.6 (1.7-7.7)**
Heart rate >100 bpm	20 (51%)	512 (31%)	**2.3 (1.2-4.4)**
Atrial fibrillation	7 (19%)	155 (10%)	2.2 (0.9-5.0)

Multivariate analysis on the risk for overall death

	Odds ratio (95% CI)	p value
Gender (females)	2.0 (1.1-3.3)	0.026
Creatinine levels >1.2 mg/dL	2.7 (1.5-4.9)	0.001
Immobility ≥4 days	2.9 (1.7-5.1)	<0.001
Cancer	3.8 (2.1-6.8)	<0.001
Systolic blood pressure <100 mm Hg	2.2 (1.1-4.5)	0.035
Heart rate >100 beats per minute	2.1 (1.2-3.7)	0.008
Atrial fibrillation	2.5 (1.3-4.8)	0.007
D-dimer, 4th quartile (>4200)	**1.8 (1.1-3.2)**	0.032

Multivariate analysis on the risk for fatal PE

	Odds ratio (95% CI)	p value
Gender (females)	2.0 (1.0-4.8)	0.043
Immobility ≥4 days	3.2 (1.7-6.2)	<0.001
Systolic blood pressure <100 mm Hg	2.5 (1.1-5.6)	0.025
D-dimer, 4th quartile (>4200)	**2.0 (1.0-3.8)**	0.044

Multivariate analysis on the risk for major bleeding

	Odds ratio (95% CI)	p value
Gender (females)	2.5 (1.0-5.0)	0.061
Creatinine levels >1.2 mg/dL	2.0 (0.9-4.3)	0.095
Thrombolytic therapy	6.7 (2.2-20)	0.001
D-dimer, 4th quartile (>4200)	**3.2 (1.5-7.0)**	0.002

Multivariate analysis on the risk for major bleeding

	Odds ratio (95% CI)	p value
Gender (females)	2.5 (1.0-5.0)	0.061
Creatinine levels >1.2 mg/dL	2.0 (0.9-4.3)	0.095
Thrombolytic therapy	6.7 (2.2-20)	0.001
D-dimer, 4th quartile (>4200)	3.2 (1.5-7.0)	0.002

Identificación de pacientes de alto riesgo (9.753 pacientes con TEP)

	Puntos
Insuf. renal	16.8
Cancer	15.8
EP sin TVP sintomática	15.4
Inmovilidad > 3 días	15.2
Edad avanzada	12.9
Sat O2 < 90%	9.7
Taquicardia > 110	9.1
DD > 2.500 ng/mL	5.1
TOTAL	100

(mortalidad global a 15 días 4.2%)

Mortalidad a 15 días

9.753 pacientes con TEP

Clase I (score < 30)	0.2-1.6
Clase II (score 31-50)	1.7-5.6%
Clase III (score 51-75)	6.0-22.9%
Clase IV (score > 75)	24-59.6%

(mortalidad global a 15 días 4.2%)

Conclusiones

- Los niveles elevados de D-Dímero se asocian incontestablemente a riesgo aumentado de fallecimiento, fallecimiento embólico y sangrado mayor a corto plazo.

- Su utilización junto con otros marcadores de riesgo permitirá determinar el manejo más adecuado en los pacientes con EP