

ESCALA PESI SIMPLIFICADA



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Granada, Octubre 2010

Objetivos de la presentación

- ¿Por qué usar escalas clínicas?
- Escala PESI
- Escala PESI simplificada
- Nuevos retos

Prognostication of Pulmonary Embolism

Not Just a Matter of the Heart

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Am J Respir Crit Care Med Vol 182. pp 1-2, 2010
Internet address: www.atsjournals.org



Tratamiento domiciliario

Severity of pulmonary embolism

The severity of PE should be understood as an individual estimate of PE-related early mortality risk rather than the anatomical burden and the shape and distribution of intrapulmonary emboli. Therefore, current guidelines suggest replacing potentially misleading terms such as 'massive', 'submassive' and 'non-massive' with the estimated level of the risk of PE-related early death.

Causas de muerte

- MAPPET¹: 10% mortalidad hospitalaria; 94% por TEP
- ICOPER²: 11% muertes a 2 semanas; 45% por TEP
- PIOPED³: 10% muertes por TEP; 90% en las 2 primeras semanas
- RIETE⁴: 61% de muertes precoces por TEP

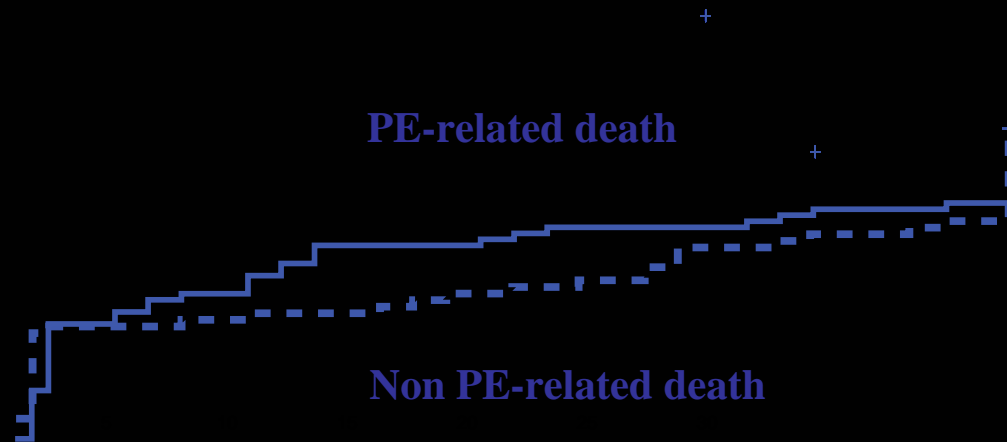
¹*Konstantinides S. Circulation 1997*

²*Goldhaber SZ. Lancet 1999*

³*Carson JL. N Engl J Med 1992*

⁴*Conget F. Thromb Haemost 2008*

Etiología y causa de muerte en 1,291 pacientes con TEP



Causa de muerte y valor pronóstico de cTnI and sPESI

1,291 pacientes de un centro 1/2003-12/2009.

	cTnI	PESI simplificado
VPN	91.3%	98.8%
Mortalidad por todas las causas	(88.9-93.6)	(97.4-100)
VPN	96.5%	99.6%
Mortalidad por TEP	(95.0-98.1)	(98.8-100)

Pulmonary Embolism Severity Index

Table 1 Points assigned to prognostic variables in the prognostic model

Prognostic variables	Points assigned
Demographics	
Age (years)	Age
Male sex	+10
Comorbid conditions	
Cancer	+30
Heart failure	+10
Chronic lung disease	+10
Clinical findings	
Pulse ≥ 110 per minute	+20
Systolic blood pressure < 100 mmHg	+30
Respiratory rate ≥ 30 per minute	+20
Temperature $< 36^{\circ}\text{C}$	+20
Altered mental status ^a	+60
Arterial oxygen saturation $< 90\%$ ^b	+20

A total point score for a given patient is obtained by summing the patient's age in years and the points for each applicable prognostic variable. The five following risk classes are defined based on patients' total point score: Class I, very low risk (< 65 points); Class II, low risk (66–85 points); Class III, intermediate risk (86–105 points); Class IV, high risk (106–125 points); and Class V, very high risk (> 125 points).

^aAltered mental status was defined as disorientation, lethargy, stupor, or coma.

^bArterial oxygen saturation was defined with and without the administration of supplemental oxygen.

Aujesky D, AJRCCM 2005

Escala PESI

Table 2—Validation Cohort 30-Day Mortality and Adverse Events Within Risk Strata Derived From the PESI and the Geneva Prediction Rule*

Variables	Derivation Cohort			Validation Cohort		
	Patients	Deaths†	Adverse Events†	Patients	Deaths†	Adverse Events†
PESI [‡]	n = 10,354	n = 953		n = 599	n = 43	n = 32
I	19.4 (18.7–20.2)	1.1 (0.7–1.7)		12.3 (9.7–15.0)‡	0	4.0 (0.4–8.5)
II	21.5 (20.7–22.3)	3.1 (2.5–4.0)		23.7 (20.3–27.1)	1.4 (0.5–3.3)	2.1 (0.2–4.5)
III	21.7 (20.9–22.5)	6.5 (5.5–7.6)		28.9 (25.2–32.5)‡	6.9 (3.9–13.0)	6.9 (3.1–10.7)
IV	16.4 (15.7–17.1)	10.4 (9.0–11.9)		21.5 (18.2–24.8)§	10.1 (4.9–15.3)	7.0 (2.6–11.4)
V	21 (20.3–21.8)	24.5 (22.7–26.9)		13.5 (10.8–16.3)‡	19.7 (11.1–28.4)	6.2 (0.9–11.4)
Geneva score [§]	n = 268		n = 27			
Low risk	67.1 (61.3–72.6)		2.2 (0.9–5.6)	83.8 (80.9–86.8)	5.6 (3.6–7.6)	4.2 (2.4–5.9)
High risk	32.9 (27.5–38.7)		26.1 (18.0–36.2)	16.2 (13.2–19.1)	15.5 (8.3–22.7)	11.3 (5.0–17.6)¶

*Data are presented as % (95% CI).

†Per risk stratum.

‡p < 0.0001, PESI derivation sample vs validation cohort.

§p < 0.01, PESI derivation sample vs validation cohort.

||p < 0.0001, Geneva derivation sample vs validation cohort.

¶p = 0.02, Geneva derivation sample vs validation cohort.

Escala PESI

- Validada en distintas poblaciones (exacta y generalizable)
- Transportable
- Reproducible
- Utilizada en ensayo clínico OPTE

Simplification of the Pulmonary Embolism Severity Index for Prognostication in Patients With Acute Symptomatic Pulmonary Embolism

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RIETE Investigators

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Simplified PESI

Age > 80

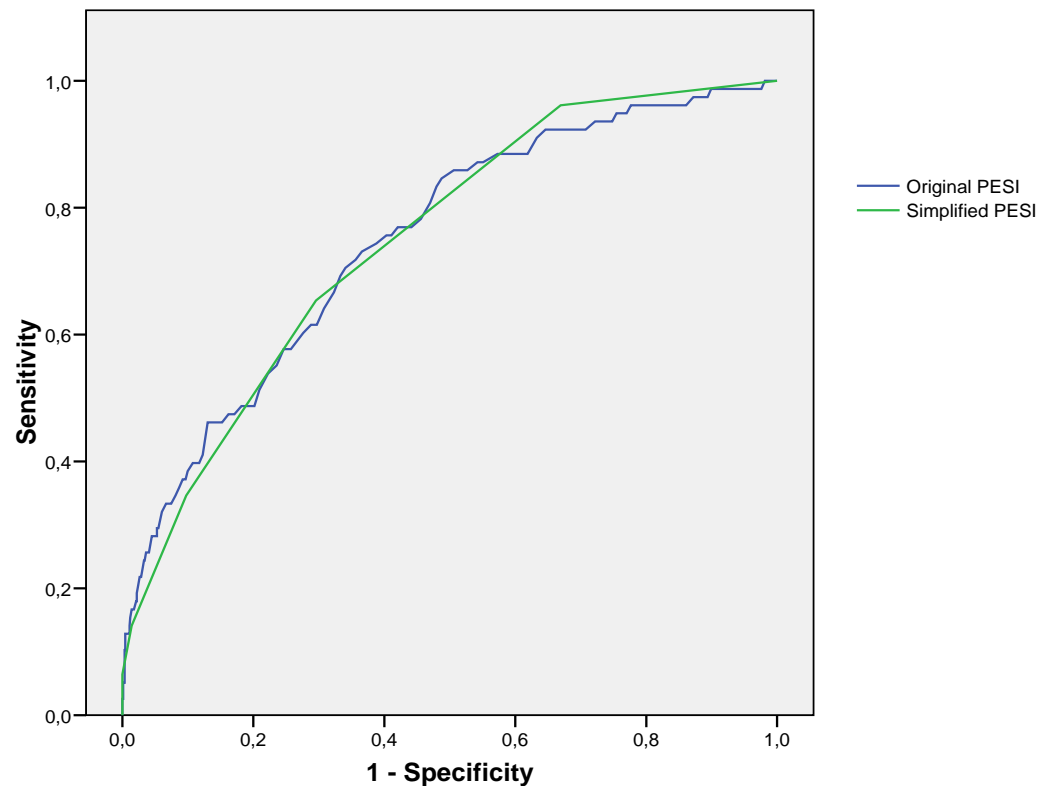
Cancer

Cardiopulmonary disease

HR \geq 110/min

SBP < 100 mm Hg

O₂ saturation < 90%



Registro RIETE

- 7,106 pacientes
- Identificados de bajo riesgo: 36.2%
- Valor predictivo negativo: 98.9% (IC 95%: 98.5-99.3%)

Comparación con el índice de shock

1,206 pacientes de un centro 1/2003-12/2009.

	PESI simplificado	Índice shock
Bajo riesgo	31%	85%
VPN	98.4%	91.7%
VPN*	97.8%	96.7%

*ETEVI recurrente no fatal o sangrado mayor no fatal

Comparación con biomarcadores

331 pacientes normotensos estudio PROTECT.

	BNP	PESI simplificado
Bajo riesgo	84.6%	41.1%
VPN	96.8%	99.3%
VPN*	91.8%	92.7%

*Muerte, recurrencia, sangrado mayor o escalada de tratamiento

Alta precoz

304 pacientes PESI III de un centro 1/2003-12/2009.

	PESI	PESI simplificado
Reclasificados	27.3%	12.5%
VPN	98.8%	100%

Validación externa/refinamiento puntos de corte

11,266 pacientes RIETE 04/2010.

	PESI	PESI simplificado
Bajo riesgo	36%	28%
VPN	98.86%	98.87%

Validación externa/refinamiento puntos de corte

11,266 pacientes RIETE 04/2010.

Edad (años)	PESI simplificado bajo riesgo Mortalidad (%)
<20	0
20-29	0
30-39	0
40-49	0.3
50-59	0.7
60-69	0.4
70-79	1.9
>80	5.8

Escala PESIs

- Al menos tan exacta como la escala PESI para la identificación de pacientes de bajo riesgo con TEP
- Clínicamente útil y más sencilla de usar
- En marcha un ensayo clínico en el ámbito del tratamiento ambulatorio de la TEP

sPESI

Bajo riesgo

BNP

Negativo

Positivo

*Considerar
tratamiento
ambulatorio
Anticoagulación*

*Hospitalización
Anticoagulación*

