

Supplemental Material

Validity of 2015 ESC risk assessment in idiopathic pulmonary arterial hypertension in China

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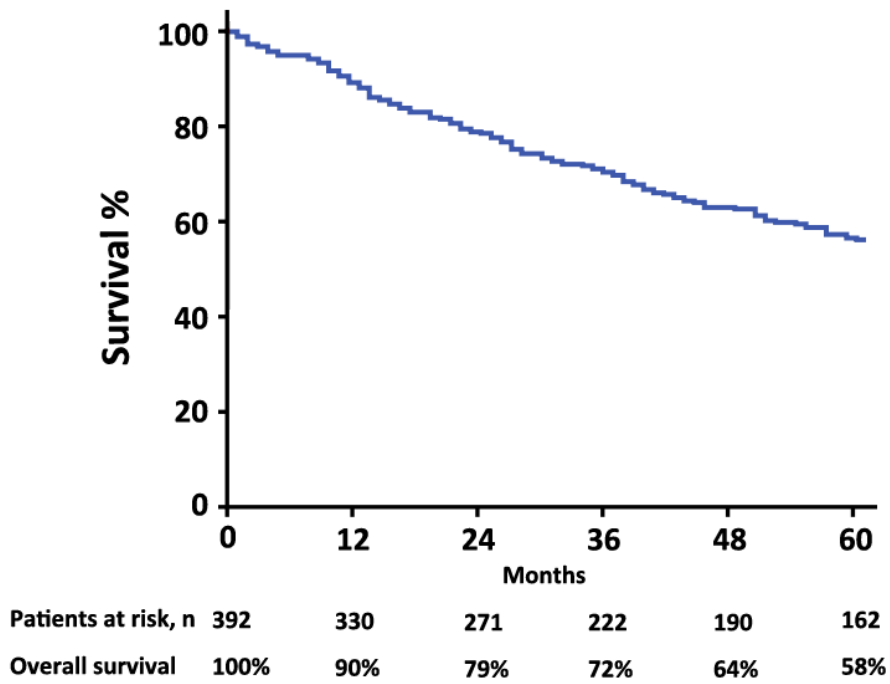
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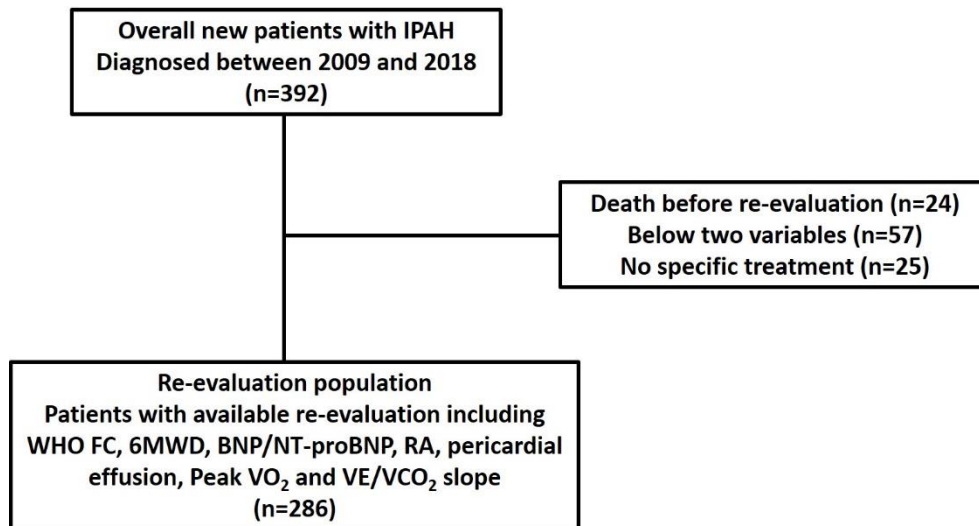
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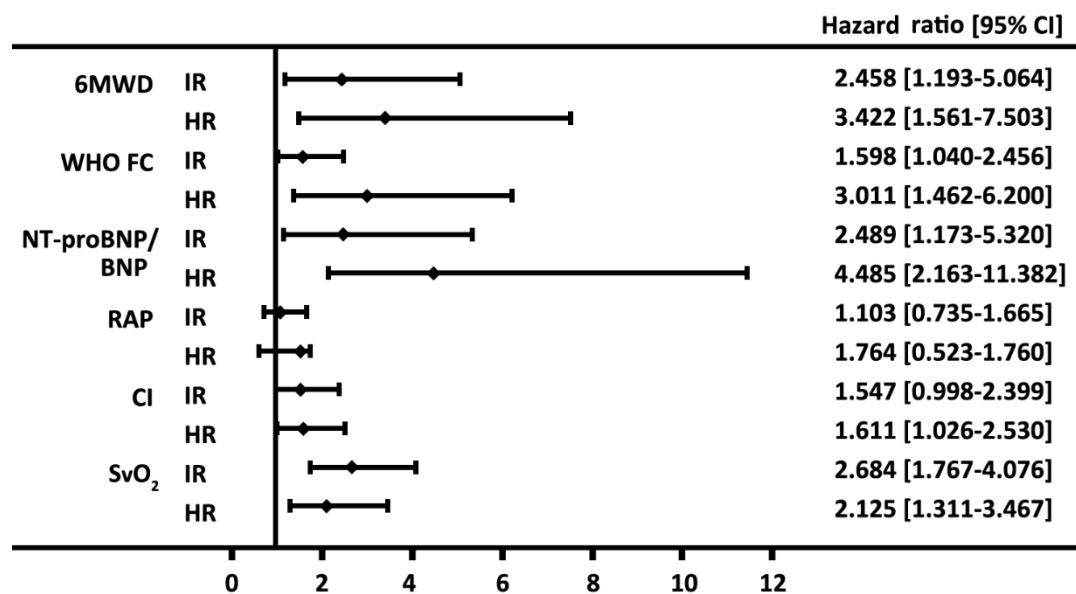
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Supplemental Figure 1. Kaplan-Meier survival estimates of all patients with IPAH at baseline.



Supplemental Figure 2. Patients selection flow chart. BNP: brain natriuretic peptide; IPAH: idiopathic pulmonary hypertension; 6MWD: 6-minute walking distance; NT-proBNP: N-terminal fragmental of pro-brain natriuretic peptide; RA: right atrium; VE/VCO₂: ventilatory equivalents for carbon dioxide; VO₂: oxygen consumption; WHO FC: World Health Organization functional class.



Supplemental Figure 3. Forest plot based on the prognostic values of 6-min walking distance (6MWD), World Health Organization (WHO) function class (FC), brain natriuretic peptide (BNP) or N-terminal fragment of proBNP (NT-proBNP), right arterial pressure (RAP), cardiac index (CI) and mixed venous oxygen saturation (SvO₂) in the Intermediate risk (IR) and High risk (HR) groups. Values for the variables were obtained from re-evaluation. The reference value is from the respective Low risk group.

Supplemental Table 1. PAH-targeted treatment initiated within 3 months after PAH diagnosis and re-evaluation

Treatment	Baseline (392)	Re-evaluation (286)
Monotherapy, n (%)		
ERA*	56 (14)	38 (13)
PDE5-I#	186 (48)	107 (37)
Prostanoid¶	16 (4)	10 (3)
Dual combination, n (%)		
ERA+PDE5-I	68 (17)	102 (36)
PDE5-I+prostanoid	2 (1)	16 (6)
ERA+prostanoid	31 (8)	3 (1)
Triple combination, n (%)	0 (0)	5 (2)
Calcium channel blockers, n (%)	5 (1)	2 (1)
No treatment, n (%)	28 (7)	3 (1)

*ERA treatment included 12 patients in PATENT Trial.

#PDE5-I group included 10 patients in SERAPHIN Trial.

¶Prostanoid treatment included 11 patients in UT Trial and 3 patients in GRIPHON Trial.

ERA: endothelin-receptor antagonist; PDE5-I: phosphodiesterase type-5 inhibitor;

Supplemental Table 2. Characteristics of IPAH patients in baseline risk assessment according to simplified version of 2015 ESC/ERS risk stratification

	Low risk	Intermediate risk	High risk	All
Subjects, n (%)	76 (24)	207 (64)	39 (12)	322
Age, years	36±15	42±16	39±14	38±14
Female, n (%)	53 (70)	143 (69)	19 (49)	215 (67)
WHO FC, n (%)				
Class I-II	55 (72)	50 (24)	0 (0)	105 (33)
Class III	21 (28)	147 (71)	31 (80)	199 (60)
Class IV	0 (0)	10 (5)	8 (21)	18 (6)
6MWD, meters	421±104	363±94	257±100	369±107
BNP, ng/L	46 (23, 81)	204 (132, 412)	661 (370, 844)	160 (71, 390)
NT-proBNP, ng/L	171 (51, 287)	1154 (560, 1918)	2309 (2095, 2703)	1679 (264, 1893)
Hemodynamics				
RAP, mmHg	5 (3, 6)	8 (4, 12)	15 (10, 22)	7 (4, 11)
mPAP, mmHg	62 (44, 65)	62 (52, 70)	61 (58, 81)	62 (51, 78)
PAWP, mmHg	7 (5, 10)	7 (5, 10)	9 (7, 11)	9 (6, 11)
CI, L/min/m ²	3.1 (2.7, 3.7)	2.2 (2.0, 2.4)	1.8 (1.6, 1.9)	2.4 (2.0, 3.1)
PVR, Wood units	10 (7, 12)	15 (12, 18)	19 (15, 26)	14 (10, 17)
SvO ₂ , %	71 (66, 77)	61 (57, 67)	47 (44, 55)	64 (57, 70)
Initial therapies (within 3 months after diagnosis), n (%)				
No specific therapy	5 (7)	17 (8)	1 (3)	23 (7)
CCB therapy	5 (7)	0 (0)	0 (0)	5 (16)
Monotherapy	55 (72)	120 (58)	26 (67)	201 (62)
Combination therapy	11 (15)	70 (34)	12 (31)	93 (29)

Values are expressed as mean±SD, medians (interquartile range) or n (%), unless otherwise stated. BMI: body mass index; BNP: brain natriuretic peptide; CCB: calcium channel blocker; CI: cardiac index; mPAP: mean pulmonary arterial pressure; 6MWD: 6-minute walking distance; NT-proBNP: N-terminal fragmental of pro-brain natriuretic peptide; PAWP: pulmonary artery wedge pressure; PE: pericardial effusion; PVR: pulmonary vascular resistance; RAP: right atrial pressure; SvO₂: mixed venous oxygen saturation; WHO FC: World Health Organization functional class.

Supplemental Table 3. Change in variable between baseline and re-evaluation

	Baseline	Re-evaluation	p-value
Subjects, n	392	286	
Risk assessment, n (%)			<0.001
Low risk	96 (25)	85 (30)	
Intermediate risk	267 (68)	159 (56)	
High risk	29 (7)	42 (15)	
WHO FC, n (%)			<0.001
Class I-II	132 (34)	76 (27)	
Class III	234 (60)	122 (43)	
Class IV	26 (7)	25 (9)	
6MWD, meter	379±107	396±120	0.009
BNP, ng/L	211 (65, 426)	184 (64, 453)	0.698
NT-proBNP, ng/L	748 (255, 1679)	806 (146, 2326)	0.098
Haemodynamics*			
RAP, mmHg	6 (3, 10)	6 (4, 11)	0.073
mPAP, mmHg	58 (48, 68)	57 (40, 65)	0.068
PAWP, mmHg	8 (6, 10)	10 (7, 11)	0.069
CI, L/min/m ²	2.4 (1.9, 3.0)	2.6 (2.2, 3.4)	0.009
PVR, Wood units	14 (9, 18)	10 (5, 15)	0.004
SvO ₂ , %	62 (56, 69)	65 (58, 74)	0.038
Imaging (echocardiography)			
RA area, cm ²	22 (16, 30)	23 (17, 34)	0.224
Pericardial effusion			<0.001
No PE, n (%)	260 (66)	170 (67)	
Minimal PE, n (%)	89 (25)	73 (29)	
PE, n (%)	8 (2)	10 (4)	
Cardio-pulmonary exercise testing			
Peak VO ₂ , mL/min/kg	14±4	13±4	0.668
VE/VCO ₂ slope	56±33	52±28	0.108
Therapies, n (%)			<0.001
No specific/CCB therapy	33 (8)	5 (2)	
Monotherapy	258 (66)	155 (54)	
Combination therapy	101 (26)	126 (44)	

*Haemodynamics of re-evaluation could be successfully measured in 44 patients.

Values are expressed as mean±SD, medians (interquartile range) or n (%), unless otherwise stated. BNP: brain natriuretic peptide; CCB: calcium channel blocker; CI: cardiac index; mPAP: mean pulmonary arterial pressure; 6MWD: 6-minute walking distance; NT-proBNP: N-terminal fragmental of pro-brain natriuretic peptide; PAWP: pulmonary artery wedge pressure; PE: pericardial effusion; PVR: pulmonary vascular resistance; RA: right atrium; RAP: right atrial pressure; SvO₂: mixed venous oxygen saturation; VE/VCO₂: ventilatory equivalents for carbon dioxide; VO₂: oxygen consumption; WHO FC: World Health Organization functional class.