

Abstract

Acute lung attacks are treated with steroids and antibiotics in an indiscriminate manner, not a precision way.

Aim: Can we improve outcome using routine data to make individualised treatment decisions?.

Methods: We performed a prospective observational study of lung attacks presenting to hospital. Following consent, data collected: demography, clinical history, physiological, routine blood tests, ABGs, FeNO and treatment given. Patients perform QOL and symptom questionnaires. Data collected on day 1 and 5 in hospital, follow up on day 30 and 90.

Results: Data mean (95% CI) for 48 patients, 18 males. Only 7 and 6 patients completed spirometry and FeNO respectively. Table1 shows the blood results and VAS scores. Table 2 compares admitted Vs. discharged. pH was lower in those admitted and a lower blood eosinophil count (PBE), eosinophil % and higher VAS scores for sputum production and discolouration.

Discussion: It is possible to predict admission status using symptoms and PBE. The high scores at presentation take >30 days to normalise. They feel better at 30 days but are SOB with impaired QOL. FeNO and Spirometry testing in the ED is problematic.

Table 1

Group	O2 satn (%)	WCC (10 ⁹ cells/l)	Neutrophils (10 ⁹ cells/l)	Eosinophil count (10 ⁹ cells/l)	Eosinophil %	CRP (g/l)
Day 0 n=48	96 (95-97)	11.2 (10-12.4)	8.6 (7.4-9.7)	0.29 (0.17-0.41)	2.9 (1.7-4)	27 (15-39)
Day 1, n=13	94 (92-96)	12.5 (10.4-14.7)	11 (8.7-13.2)	0.06 (0-0.12)	0.43 (0-0.9)	47 (9-84)
	VAS score (mm)				CAT	ACQ
	Cough	Breathlessness	Sputum Production	Sputum Discoloration		
Day 0 n=48	55 (47-62)	71 (64-78)	36 (28-45)	34 (23-44)	22.3 (20-25)	4 (2.2-5.7)
Day 1 n=13	42 (24-60)	50 (35-66)	36 (16-57)	42 (19-65)	24 (18-29)	2.7 (1.3-4.2)
Day 30 n=35	23 (10-36)	50 (36-63)	20 (6.8-33)	15 (12.6-22)	17 (13-22)	1.2 (0.4-1.9)
Day 90 n=24	17 (7.2-28)	17 (6.3-28)	19 (6.6-31)	9 (1-18)	9.3 (5.4-13.2)	0.8 (0.29-1.29)

Table 2

	Admitted (n=13)	Not Admitted (n= 35)	P value (t test)
Oxygen Saturation	94 (92-96)	96 (95-97)	0.5
pH	6.7 (5.2-8.2)	7.4 (7.3-7.5)	0.05
PCO ₂	5.7 (5-6.3)	5.2 (4.8-5.5)	0.5
VAS Cough	56 (39-73)	51 (41-60)	0.5
VAS Breathlessness	68 (49-87)	60 (49-71)	0.5
VAS Sputum <u>Prdn</u>	46 (29-63)	24 (16-33)	0.001
VAS Sputum <u>Discolouration</u>	46 (26-63)	22 (11-32)	0.001
<u>Haemoglobin</u> (g/dl)	145 (136-153)	144 (141-148)	0.5
Neutrophils (x10 ⁹ cells/l)	10.3 (7.7-12.9)	7.9 (6.7-9.1)	0.5
Eosinophils (x10 ⁹ cells/l)	0.14 (0.05-0.22)	0.35 (0.18-0.5)	0.001
Eosinophil %	1.3 (0.45-2.0)	3.5 (1.9-4.9)	0.001
CRP (g/l)	33 (4.7-61)	19 (8.3-30)	0.5
CAT	28 (23-33)	20 (17-23)	0.05
ACQ	4.6 (0-9.4)	3.7 (1.9-5.5)	0.5