LETTERS

Prognosis of patients with COPD admitted to the ICU

We read with interest the article by Wildman *et al*.[1] They have carried out an interesting study on patients with chronic obstructive pulmonary disease (COPD) or asthma admitted to the Intensive Care Unit (ICU). The authors in their discussion state that their overall results may be least applicable to patients on long-term oxygen (LTO) and/or with low functional scores. Intubated patients with COPD on LTO constitute 10.4% of 394 intubated patients in this study. Only mortality results relating to this population are shown in this article. It would have been interesting to show results such as quality of life at 180 days. If deciding to intubate is difficult in patients with exacerbated COPD, it is more difficult in those patients on LTO. Clinicians tend to be pessimistic about survival and quality of life and they are very selective when admitting these patients. In 1999 we reported on a study[2] which focused on patients with exacerbated COPD on LTO who were mechanically ventilated. Mortality was higher than that reported by Wildman *et al* in this subgroup of patients: 35% (in ICU), 50% (in hospital), 75% (at 1 year) and 85% (at 5 years). Patients who died in hospital and in the first year after discharge had a lower forced expiratory volume in 1 s (FEV_1) than survivors. Although the study was carried out in a University tertiary hospital, the sample size was small (20 patients recruited in 2 years). Our paper is, to date, the only one which focuses on patients with COPD on LTO. The small sample size of patients with COPD on LTO, both in the series of Wildman *et al* and in our series, supports the statement about the selective criteria considered when admitting these patients. Therefore, how many patients are not admitted who could survive with an acceptable quality of life? In our experience, of the five survivors at 1 year, two had a good functional level previously and both had a functional status similar to that prior to the ICU admission. The mean age of the three patients alive at 5 years was 63.3 years, and one of them was independent. The cost per quality-adjusted life year was US$44.602. Obviously, we have no predictors to help us in the daily decision making regarding these patients although we agree that functional status in the period of stability and FEV_1 before ICU admission can be helpful. However, our decisions can only be supported by the experiences of small studies or data from studies with different main objectives. Therefore, results regarding these patients with severe COPD would be very welcome.

J M Añón,[1] A García de Lorenzo[2]

[1] Intensive Care Unit, Hospital Virgen de la Luz, Cuenca, Spain; [2] Intensive Care Unit, Hospital Universitario La Paz, Madrid, Spain

Correspondence to: Dr J M Añón, Intensive Care Unit, Hospital Virgen de la Luz, C. Hermandad Donantes de sangre 1, 16002 Cuenca, Spain; jmaelizalde@telefonica.net

Competing interests: None.

Provenance and peer review: Not commissioned; not externally peer reviewed.

Accepted 22 April 2009

Thorax 2009;**64**:916. doi:10.1136/thx.2009.116509

REFERENCES

1. **Wildman MJ,** Sanderson CFB, Groves J, *et al*. Survival and quality of life for patients with COPD or asthma admitted to intensive care in a UK multicentre cohort: the COPD and Asthma Outcome Study (CAOS). *Thorax* 2009;**64**:128–32.
2. **Añón JM,** García de Lorenzo A, Zarazaga A, *et al*. Mechanical ventilation of patients on long-term oxygen therapy with acute exacerbations of chronic obstructive pulmonary disease: prognosis and cost-utility analysis. *Intensive Care Med* 1999;**25**:452–7.

Authors' reply

Thank you for giving us an opportunity to comment on the letter by Añon and Garcia de Lorenzo. We agree that further information about patients on long-term oxygen

Table 1 EuroQol (EQ) and other outcomes reported by intubated patients with chronic obstructive pulmonary disease (COPD) who survived 180 days: comparison of those on long-term oxygen therapy (LTOT) on admission vs the rest

	On LTOT	Not on LTOT	p Value (F or χ^2 test)
Number in study	41	353	
% surviving to 180 days	48.8	55.2	0.432
Number responding to questionnaire	15	156	
% of survivors responding	75.0	80.0	
Median (IQR) days in ICU	5 (2–14)	9 (4–16)	
EQ thermometer score			
Mean (SD)	34.4 (14.6)	59.3 (17.0)	<0.001
Median (IQR)	36 (30–50)	60 (50–74)	
EQ-5D			
Mean (SD)	33.4 (27.7)	62.0 (25.4)	0.014
Median (IQR)	28.5 (19, 52)	69 (52, 80)	
EQ Mobility (%)			
No problems walking	0.0	18.7	0.001
Some problems walking	92.9	81.3	
Bedbound	7.1	0.0	
EQ Self-care (%)			
No problems	21.4	60.7	0.002
Some problems	64.3	37.4	
Cannot wash/dress	14.3	1.9	
EQ Usual activities (%)			
No problems	7.14	21.9	0.001
Some problems	35.7	61.3	
Cannot do	57.1	16.8	
EQ Pain/discomfort (%)			
None	28.6	43.9	0.404
Moderate	71.4	53.6	
Extreme	0.0	2.6	
EQ Anxiety/depression (%)			
None	28.6	49.7	0.006
Moderate	50.0	47.1	
Extreme	21.4	3.2	
Functional score (%)			
Fully mobile	0.0	28.9	0.000
Independent	20.0	37.8	
Housebound	73.3	33.3	
Bedbound	6.7	0.0	
Compared with health before hospitalisation (%)			
Much worse	26.7	5.8	0.025
A little worse	26.7	16.1	
Same	13.3	17.4	
A little better	6.7	25.2	
Much better	26.7	35.5	
Would choose ICU again?			
Yes (%)	86.7	96.1	0.098

EQ-SD, EuroQol composite score for five domains.

therapy (LTOT) is important, especially as, anecdotally, some clinicians seem to consider LTOT to be an absolute contraindication to intubation. Table 1 summarises the outcomes for intubated patients with chronic obstructive pulmonary disease (COPD) in the COPD and Asthma Outcome Study (CAOS), comparing those who were on LTOT before admission with those who were not. It can be seen that, although the two groups of patients had similar 180-day survival rates, the LTOT group had significantly lower EuroQol scores. These differences partly reflect differences in health status before the onset of the acute episode (at that stage 63% of the LTOT group were housebound, chairbound or bedbound compared with 27% of the rest) and partly the higher proportion of the LTOT group who felt that their health at 180 days was worse than it had been before onset. Nevertheless, in our data, 86% would choose ICU and intubation again. The actual number of patients on LTOT who responded to the follow-up questionnaire was small and the confidence interval wide (58–98%). It is also possible that the small numbers of patients with COPD on LTOT currently being admitted to critical care are atypically positive about invasive procedures, at least in retrospect. Nonetheless, the straightforward interpretation of these data is that, from the perspective of the patient with COPD, intubation is not futile—even for those on LTOT. If so, patient preferences must often be frustrated by limits on the availability of ICU beds. What the threshold should be for intubation in terms of probability of survival and how patients' (or carers') perspectives might be brought into decisions on intubation are currently unanswered questions.

M Wildman, C Sanderson

Respiratory Medicine Department, Northern General Hospital, Sheffield, UK

Correspondence to: Dr M Wildman, Respiratory Medicine Department, Northern General Hospital, Herries Road, Sheffield S5 7AU, UK; martin.wildman@sth.nhs.uk

Competing interests: None.

Provenance and peer review: Not commissioned; not externally peer reviewed.

Accepted 25 June 2009

Thorax 2009;**64**:916–917. doi:10.1136/thx.2009.122390

Iloprost-induced rash

We report a 59-year-old woman with a background history of CREST syndrome (calcinosis, Raynaud phenomenon, (o)esophageal dysmotility, sclerodactyly and telangiectasia) and secondary pulmonary hypertension who presented with a bilateral lower limb vasculitic rash.

A couple of weeks earlier she had been initiated on nebulised iloprost (Ventavis; Bayer New Zealand, Auckland, New Zealand) for progression of her pulmonary hypertension while on treatment with Sildenafil. She started on 20 μg three times a day, increasing every 3 days to a total of 20 μg every 4 h. Within a few days of reaching the maximum dose she developed a painful vasculitic rash over both lower limbs, which did not respond to analgesia and emollients (see fig 1). The dose of iloprost was reduced slowly over a couple of weeks to 15 μg three times a day. During this time, the rash improved considerably.

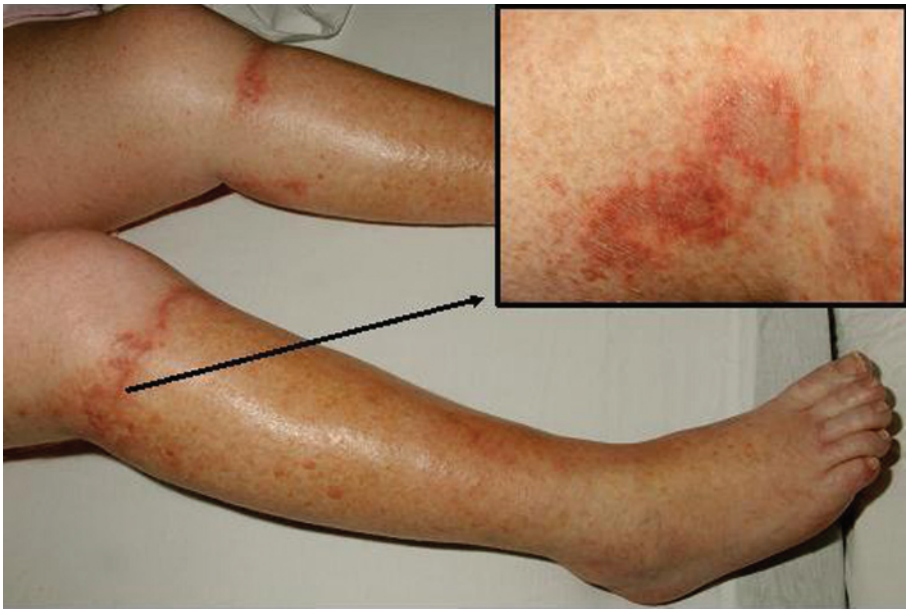

Figure 1 Iloprost-induced vasculitic rash.

Unfortunately, she continued to deteriorate and was admitted to hospital profoundly hypoxic. Oxygen therapy and diuretics were increased with minimal effect. The decision was made to re-challenge with an increased dose of iloprost, hoping that dual therapy with appropriate dosing may ameliorate her pulmonary hypertension.

After only two doses at 20 μg, the rash recurred dramatically and became intolerable. On reducing the iloprost dose to 15 μg, the rash again improved. She was discharged home with assistance from palliative care and died a week later.

Iloprost is a stable analogue of prostacyclin which is synthesised in the vascular endothelium, and it shows a pharmacological profile similar to that of endogenous prostacyclin. Its vasodilating effects are used clinically to treat moderate to severe pulmonary hypertension.[1]

Various side effects of iloprost have been reported, including flushing, dizziness, cough, headache, spasm of the jaw muscles, back pain, vomiting and diarrhoea.

Bleeding events were common in clinical trials, especially in patients also taking anticoagulants.[2] Iloprost is known to interfere with platelet aggregation; however, this effect is more common and more pronounced with intravenous use.[3] Of note, our patient did not develop thrombocytopenia.

Cutaneous drug reactions are common, with an incidence of 2–3% in hospital patients. Almost any drug can cause rash; most common are antibiotics and non-steroidal anti-inflammatory drugs (NSAIDs). Drug-induced small vessel vasculitis (or hypersensitivity vasculitis) is rarer. This is generally limited to the skin, but can occur as an element of a systemic illness. The rash is purpuric, palpable and occurs in dependent areas. Biopsies show a cellular infiltrate of small vessels often with leucocytoclasis. The most common causes are drugs and infection.[4]

Adverse drug reactions can be difficult to diagnose, and scoring systems may help.[5] In our patient the vasculitic rash appeared after initiation of iloprost and improved when the dose was reduced. More importantly, it deteriorated with a repeat drug challenge. This gives a high probability of a drug reaction. In a different clinical scenario, cessation of the drug may well result in complete resolution of the rash.

To our knowledge, this is the first reported case of iloprost-induced vasculitic rash. The precise mechanism and frequency are unknown. Clinicians should be aware of this potential adverse effect, and the drug should be reduced or stopped if possible.

R S Finn,[1] L Beckert,[2] R Troughton[3]

[1] Canterbury District Health Board, Respiratory Department, Christchurch Hospital, Christchurch, New Zealand; [2] Canterbury District Health Board, Respiratory Laboratory, Christchurch Hospital, Christchurch, New Zealand; [3] Canterbury District Health Board, Cardiology Department, Christchurch Hospital, Christchurch 8011, New Zealand

Correspondence to: Dr L Beckert, Canterbury District Health Board, Respiratory Laboratory, 4th Floor, Riverside Block, Christchurch Hospital, Christchurch 8011, New Zealand; Lutz.Beckert@cdhb.govt.nz