

LETTER TO THE EDITOR

# Letter commenting on ‘Survival after short- or long-term ventilation after acute spinal cord injury: a single-centre 25-year retrospective study’

Spinal Cord (2012) 50, 859–860; doi:10.1038/sc.2012.106; published online 25 September 2012

I have reviewed the article above with Dr Watt and Ms Wiredu<sup>1</sup> and agreed that Table 4 gives the mean length of follow-up, not the mean life expectancy. We present a corrected analysis in this letter.

The survival from initial ventilation was poor for the older age group, and for the middle age group who remained on ventilation (Figure 1). About half of the patients in these groups lived for 10 years from initial ventilation (Table 1), and 10–20% died within the first year. The median survival for these 88 patients was 11.4 years (95% confidence interval: 8.0, 14.5 years). Only 10–14% of younger patients, and patients in middle age group who were weaned, died within the first 10 years after ventilation.

The 166 patients who survived at least a year from initial ventilation also had contrasting patterns of surviving (Figure 2). From 8 to 20% of the younger and weaned middle age group died in the next 10 years (11 years after initial ventilation, Table 1). A higher percentage, 36%, of the ventilated older and middle age groups died within 10 years (Table 1).

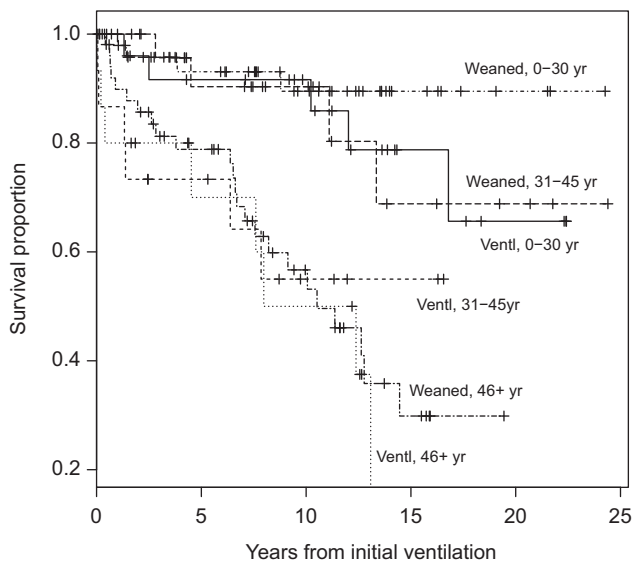
Patients with any comorbidities had substantially poorer survival, both from initial ventilation (Figure 3) and after the high-risk first year interval. Fewer than half survived for a further 10 years, compared with about 90% of those weaned and 80% of those

ventilated without pre-existing comorbidities. Groups defined by the AIS scale do not differ strongly, and survival does not differ significantly by neurological level.

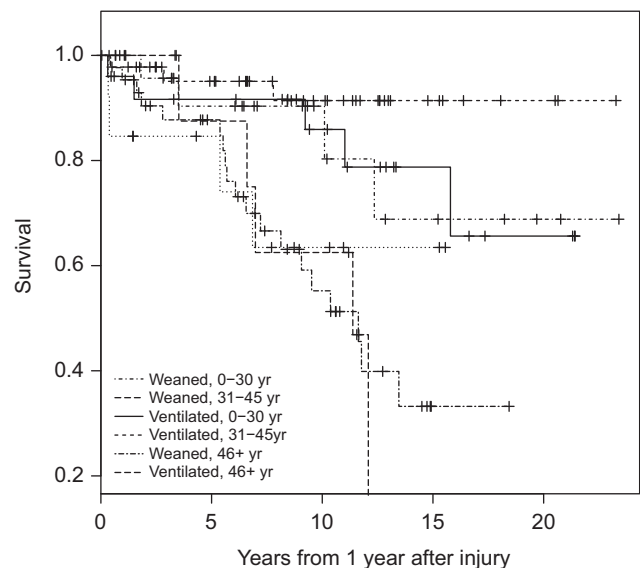
A model which includes wean status, presence and absence of comorbidities, and dependence on age above 31, that is, for the older

**Table 1 Survival after initial ventilation, and after 1-year survival**

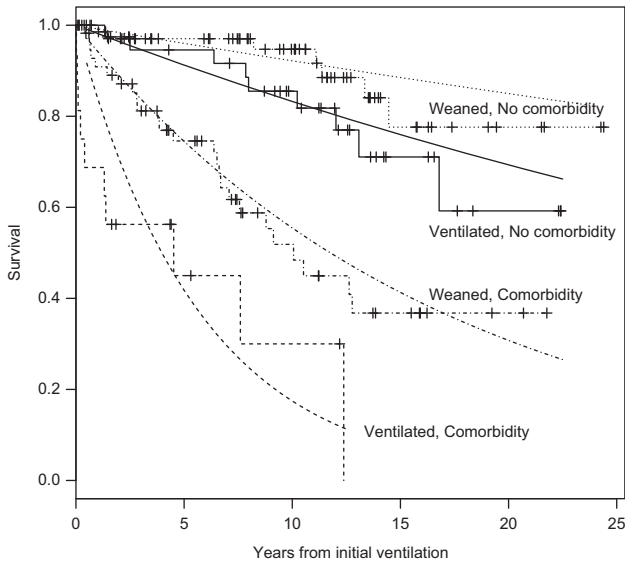
	Weaned from ventilator			Ventilation		
<i>Percentage surviving from initial ventilation for</i>						
Age group (years)	1 Year	5 Years	10 Years	1 Year	5 Years	10 Years
0–30	98	93	90	100	92	86
31–45	100	90	90	88	73	55
≥46	90	79	53	80	70	50
<i>Percentage surviving beyond a year after ventilation for:</i>						
Age group (years)	5 Years	10 Years	15 Years	5 Years	10 Years	15 Years
0–30	95	92	92	92	86	79
31–45	90	80	69	74	64	64
≥46	85	51	33	88	63	0



**Figure 1** Estimated survival from time of injury by age and ventilatory status.



**Figure 2** Estimated survival by age and ventilatory status, 1-year survivors.



**Figure 3** Estimated survival by ventilatory status and comorbidities.

**Table 2** Estimated regression effects, exponential model

Variable	Hazard ratio Initial	Hazard ratio 1 Year
Any comorbidity	3.31 (1.60, 6.26)	3.02 (1.37, 6.66)
Ventilated on discharge	2.11 (1.18, 3.78)	1.86 (0.95, 6.26)
Age above 31 (years)	1.047 (1.02, 1.07)	1.038 (1.01, 1.07)

two age groups, provides the best fit (Table 2). Pre-existing comorbidities increase the mortality rate (hazard rate) by 3.3, that is, reduce the life expectancy to 30% of that for a person similar in all respects except for having no pre-existing comorbidities. The effect of ventilation is less, but still highly significant: the mortality rate is doubled, or life expectancy halved. A 15-year increase in age above 31 years is associated with a doubling of mortality rate.

Long-term survival, from 1 year after initial injury, has similar coefficients (Table 2). Ventilation is associated with mortality rate not quite doubling (1.9) compared with just more than doubling (2.1), for survival from initial injury.

#### CONFLICT OF INTEREST

Professor JL Hutton acts as an expert witness on life expectancy of people with cerebral palsy and other neurological injuries.

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<sup>1</sup> Watt JWH, Wiredu E, Silva P, Meehan S. Survival after short- or long-term ventilation after acute spinal cord injury: a single-centre 25-year retrospective study. *Spinal Cord* 2007; **49**: 404–410.