

Oxygen Use at a Melbourne Metropolitan Hospital

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RESEARCH WEEK
5-9 OCTOBER 2020
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Introduction & Aims

Introduction

There is very little research on oxygen utilisation and adherence to oxygen guidelines in hospitalised patients in Australia. Current local (TSANZ) and international (BTS) guidelines both recommend careful titration of oxygen therapy and clear documentation of target oxygen saturations. However, their recommendations and oxygen saturation targets differ.

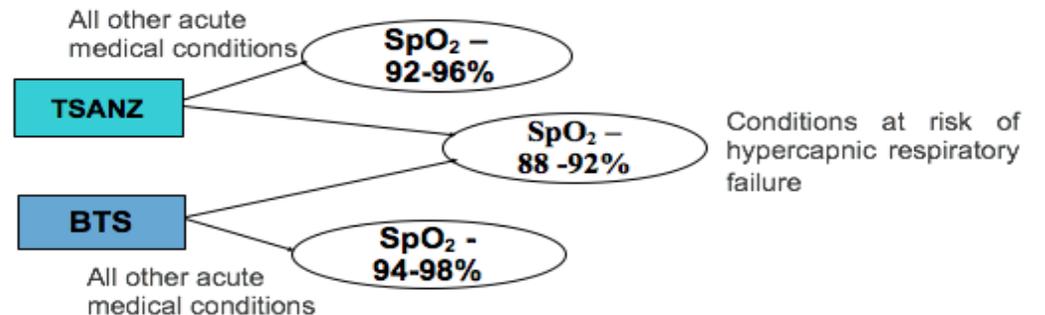
Aims

To measure the point prevalence of supplemental oxygen therapy delivered at a large metropolitan hospital in Melbourne, Victoria and determine the rate of appropriate supplemental oxygen delivery delivered to inpatients according to both TSANZ and BTS recommendations.

Methods

A cross-sectional, point prevalence, observational study was conducted in January 2020. All medical and surgical inpatients at Northern Hospital underwent pulse oximetry with documentation of their current supplemental oxygen therapy and mode of delivery.

Appropriateness of oxygen therapy was defined according to guideline recommendations on oxygen saturations:



TSANZ - Thoracic Society of Australia and New Zealand and
BTS - British Thoracic Society guidelines on oxygen therapy
recommend different oxygen saturation targets

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Results

Results

The study evaluated n=271 inpatients across 11 wards (n=186 medical, n=85 surgical).

Oxygen therapy was delivered to n=23 (8.5%) overall.

Most (n=20) received oxygen via nasal prongs, while other forms of delivery were less common (n=2, invasive ventilation, and n=1, high flow oxygen nasal cannulae).

Correlations were found between use of oxygen therapy and increased length of stay, in-hospital mortality and 2-month mortality however due to limitations of the study design and inability to correct for confounding factors we could not determine causality.

Table 1. Comparison of patient characteristics and outcomes between those on oxygen therapy and not on oxygen therapy

Variable/characteristic	Not on oxygen therapy (n= 248)	On oxygen therapy (n=23)	P value
Age (years), (median, range)	65 (43-77)	75 (60-86)	0.013
Gender, n (%)			
Male	131 (52.8%)	12 (52.2%)	0.952
Female	117 (47.2%)	11 (47.8%)	
Patient category, n (%)			
Medical	167 (67.3%)	19 (82.6%)	0.131
Surgical	81 (32.7%)	4 (17.4%)	
Oxygen saturation			
Mean \pm SD	94.87 \pm 3.01	92.74 \pm 4.52	0.016
Median, Range	95 (93-97)	92 (91-96)	
Hospital outcome			
In-hospital mortality, n (%)	3 (1.2%)	4 (17.4%)	0.001
Length of Stay (median, range)	5 (2-10)	8 (4-15)	0.012
2 month mortality, n (%)	15 (6.0%)	11 (47.8%)	0.000

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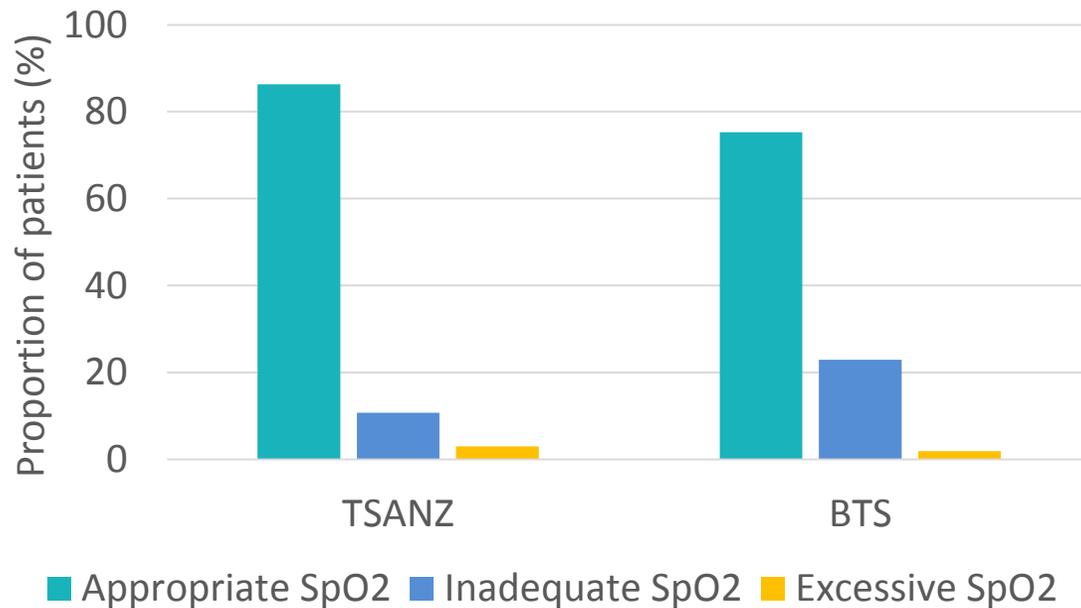
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Results & Conclusion

Appropriateness of oxygen according to guideline recommendations



Using SpO₂ measures, 86.3% of current inpatients had appropriate oxygen saturations according to the TSANZ recommendations, however concordance with BTS recommendations was lower (86.3% vs 75.3%, p=0.002). Discordance with guidelines was mostly due to the measured SpO₂ being lower than target SpO₂ recommended, rather than excessive delivery of supplemental oxygen.

Conclusion

The point prevalence of supplemental oxygen use was low among medical and surgical inpatients at Northern Health. Adherence with local guideline recommendations was better than international guidelines, however underutilisation of supplemental oxygen appeared more frequent than over-utilisation.