Royal National Orthopaedic Hospital NHS
NHS Trust

Audit of Local Adherence to the National Weaning Guidelines

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Purpose

The Respiratory Information for Spinal Cord Injury (RISCI) National Weaning Guidelines are due for review. As members of the RISCI Committee we undertook an audit of our own compliance with the current guidelines at the London Spinal Cord Injury Centre (LSCIC)

Methods

Nine standards from the current RISCI Guidelines were set and agreed with the LSCIC Respiratory Team. These were based on the pre-requisites to start weaning and progression of ventilator weaning.

Notes from cervical cord injured patients admitted to the Intensive Therapy Unit (ITU) of the Royal National Orthopaedic Hospital from 2015 to 2018 were reviewed to examine adherence to the nine standards that were set.

Results

In total seven patients' data was analysed. Their ASIA score ranged from C1 Motor Complete with Zones of Partial Preservation (ZPP) to C4 Sensory Incomplete.

Conclusions

Non-compliance was found in four standards.

1. It appears that it is possible to wean from a Positive Expiratory End Pressure (PEEP) of 8cmH_2O.
2. Initial Ventilator Free Breathing (VFB) time varied in that two patients progressed more quickly than the guideline recommended whereas two progressed more slowly.
3. VFB time was increased on an individual patient basis with patients with higher levels of injury needing a slower progression of VFB time.
4. Ventilator settings were adjusted slightly during the weaning process in three of the patients.

Higher cord injury patients, C4 and above, struggle to wean from ventilation in other ITUs but are often able to be weaned to some extent in the LSCIC.

Implications

Review of the national weaning guidelines is indicated. This audit has been shared with the other RISCI Committee members to analyse their adherence to the set standards within their centres.

It is expected that this will assist in a national review of the guidelines, therefore improving patient care within and outside of Spinal Cord Injury Centres.

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Audit of Local Adherence to the RISCI Spinal Weaning Guidelines from October 2017 to October 2018

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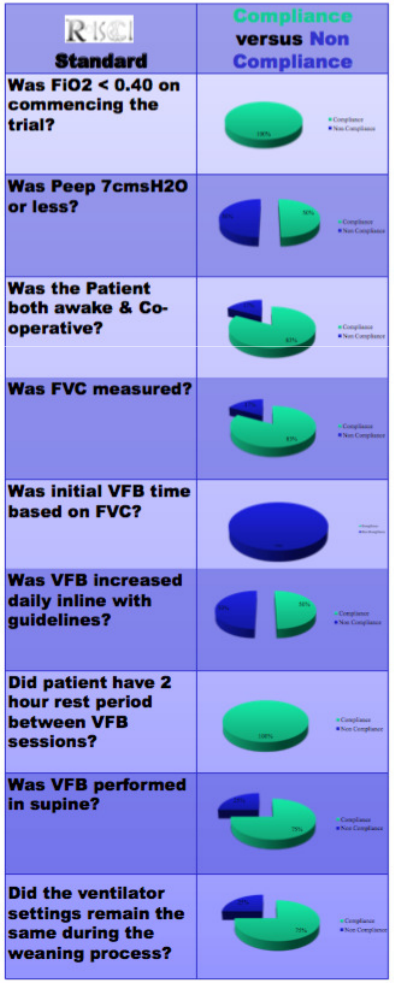
Purpose
The Respiratory Information for Spinal Cord Injury (RISCI) National Weaning Guidelines are due for review. This is an audit of compliance with the current guidelines at the Mater Misericordiae University Hospital (MMUH) , Dublin.

Methods
Nine standards from the current RISCI Guidelines were audited. These were based on the pre-requisites to start weaning and progression of ventilator weaning in patients with spinal cord injury (SCI).
IntelliVue Clinical Information Portfolio (ICIP) notes from cervical cord injured patients admitted to the Intensive Therapy Unit (ITU) of the MMUH from October 2017 to October 2018 were viewed to examine adherence to the nine standards that were set.

Results
In total twelve patients' data was analysed. Their ASIA score ranged from neurological level of injury from C3-C6 and ASIA Impairment scales A-C, ten of the twelve patients had SCI at C4 level.

Conclusions
Non-compliance was found in seven standards. Half of the patients commenced weaning with a peep greater then 8cmsH2O. Two patients had delirium and were uncooperative and therefore unable to follow instructions so Forced Vital Capacity (FVC) could not be measured. As initial Ventilator Free Breathing (VFB) is commenced in the ITU rather than the spinal unit, all patients were started on 10 minutes, VFB time was then progressed on an individual patient basis. Ventilator settings were adjusted slightly during the weaning process in three of the patients, two of which failed to fully wean secondary to other medical co-morbidities, one had liver cirrohosis, ascites, psychosis and right hemi diaphragm paralysis, while the other had breast cancer with lung, kidney and bone metastasis.
As spinal patients commence their weaning process in the general ITU it can be challenging to get adherence to the standards of the guidelines due to the number of clinicians looking after their care. Once they are moved to the spinal unit, adherence to the guidelines is 100% as all staff are familiar with the process.



Reference:
http://risci.org.uk/weaning-guidelines-for-spinal-cord-injured-patients-in-critical-care-units/

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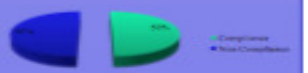
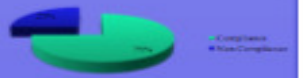
STANDARDS	COMPLIANCE Versus NON-COMPLIANCE
VFB was commenced once FiO_2 was less than or equal to 0.4	
VFB is commenced only once PEEP 7cmH_2O or less	
VFB is commenced only if the patient is both awake and cooperative	
Forced Vital Capacity (FVC) was measured before VFB started	
Initial VFB time was based on FVC	
VFB time increased daily in line with guideline recommendations	
Patient had 2 hours rest between every VFB session	
Was VFB performed in supine	
Did ventilator settings remain the same during the weaning process	

Standard	Compliance versus Non Compliance
Was FiO2 < 0.40 on commencing the trial?	
Was Peep 7cmsH2O or less?	
Was the Patient both awake & Co-operative?	
Was FVC measured?	
Was initial VFB time based on FVC?	
Was VFB increased daily inline with guidelines?	
Did patient have 2 hour rest period between VFB sessions?	
Was VFB performed in supine?	
Did the ventilator settings remain the same during the weaning process?	

Discussion

What do other centres do?

Does anyone want to volunteer to undertake an audit of their own practice at their own centre to help guide the revision of the guidelines?

What should the revised Ventilator Weaning Guidelines include?

FiO2 </= 0.4L

PEEP < 10cmH20

FVC is a useful measurement to initiate and progress a VFB wean

Flexibility with increasing / reducing time increments based on clinical judgement and NLOI should be encouraged

2 hour rest periods initially are indicated

Generally maintain ventilator settings during the VFB wean

What else should be included…….(In My Opinion):

+ Include cuff down ventilation as a pre-requisite to start the VFB process?
+ Consider a slower VFB approach with higher NLOI (C1-C4) and a ‘sprint’ wean for lower cervical injuries (C5-C8)
+ Include a Non-Invasive Ventilation weaning approach based on the VFB guidelines referencing the Wessex Neurosurgical ITU guidelines

Thank you

Especially to Kate Roberts (LSCIC) & to Marie McGroarty (NSIU – Dublin)

Any questions?