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Home-Based exercise in patients awaiting liver transplantation: a single centre feasibility study

Felicity Rhian Williams¹, Alice Vallance, Thomas Faulkner, Jennifer Towey, Simon Durman, Derek Kyte, Ahmed Mohamed Elsharkawy, Thamara Perera, Andrew Holt, James Ferguson, Janet Lord, and Matthew James Armstrong

Background

Frailty increases the risk of mortality pre- and post- liver transplantation [LT]. There are no standardised exercise programs, in particular home-based, in patients awaiting LT. The aim of this study was to investigate the feasibility and efficacy of a home-based exercise program [HBEP] in patients awaiting LT.

Method

Adult patients were randomly selected from the Birmingham LT waiting list and provided with a 12-week HBEP, including average daily steps [ADS] and twice-weekly resistance-exercises. Feasibility was based on patient eligibility (>66%), target recruitment (>90% of n=20), safety and adherence (>66% adherence to a 6-week HBEP). Measures of aerobic (incremental shuttle walk test [ISWT], ADS), functional capacity (short physical performance battery test [SPPBT]) and health-related quality of life (Euroqol-5dimension-5levels [EQ-5D-5L], hospital anxiety and depression score [HADS]) were taken at baseline, 6 and 12-weeks.

Results

18 patients (50% male; median age 55 years; median 414 days wait on LT list) were recruited. All domains of the feasibility criteria (above) were met. There were no related adverse events and bi-weekly adherence to the resistance-exercises was 90% at 6-weeks. ISWT improved after 6-weeks (+50m; p=0.008) and 12-weeks (+210m; p=0.008). Similarly, improvements were seen in ADS (+2700; p=0.008) and the SPPBT (+2.5; p=0.016) after 12-weeks. There was no difference in HADS (MD -2; p=0.69), but EQ-VAS, improved after 12-weeks (+17.5%; p=0.039).

Conclusions

A 12-week HBEP, incorporating both easy-to-apply, resistance and aerobic exercises, is safe and feasible. Measures of aerobic and functional capacity demonstrate trends towards improvement that warrant further investigation in a randomised control trial.

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Death in ILD – why aren't we talking about it?

Anja Hudson¹

Aim

For 95% of inpatient ILD patients to have a palliative care referral considered within the weekly MDT by the 1st November 2018.

Personal opportunity statement

To improve the candidness of the MDT when talking about End of Life Care.

Background

At the Royal Brompton and Harefield Foundation Trust (RBHT) we found many inpatients were naïve of their prognosis and consequently many were unprepared for their death. Historically at RBHT, management has biased medical treatment and discussions around symptom control was less profound. Evidence shows patients receiving palliative care have improved quality of life (Thomas and Armstrong-Wilson, 2017) however our evaluation highlighted that we do not identify patients in the last 12 months of their life.

Methods

Using Quality Improvement methodology (Deming, 1950), 'Plan-Do-See-Act' cycles were used to trial various interventions to try to improve the frequency of palliative care conversations (Table 1). Changes were measured as a percentage; quantifying the number of patients whom had prognosis discussed in the MDT.

Results

The project successfully exceeded its aim. 100% of patients were discussed in the MDT for their appropriateness for palliative care input (Figure 1). Consequently, patients were more aware of advanced care planning and palliative care referrals increased. Interviews were conducted with patients and responses were all positive. This project has also incited specific palliative care training for medics.

Conclusions

Implementation of palliative care conversations in this group can be challenging due to the difficulty in diagnosis. End of life care is a sensitive subject for clinicians and specific training is essential to ensure effective conversations are had. The success of this project is apparent in objective data but also within subjective feedback received by patients and professionals alike. The recognition of the importance of these discussions has already had significant impact on our holistic management of patients; leading to more transplant referrals, advanced care planning and openness about talking about death in ILD. The next step is to embed this approach within our MDT permanently.

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Table 1: A Table to explain the PDSA cycles uses.

Intervention	Details
PDSA Cycle 1 – <i>Palliative Care Attendance</i>	Palliative care attended the ILD MDT meeting. This visible presence within the MDT naturally prompted discussions surrounding prognosis and end of life care.
PDSA Cycle 2 – <i>‘Surprise Question’</i>	‘Would you be surprised if this patient died in the next 12 months?’; this question was asked within the MDT for each patient. This challenged the team to think about the prognosis for patients and therefore whether advanced care planning or improved symptom management should be considered.
PDSA Cycle 3 – <i>Column in handover</i>	It was apparent that only the patients that were discussed on Monday’s MDT were considered for palliative care referrals. By inserting a column in the medical handover ‘palliative care Y/N’ it encouraged Doctors to consider the appropriateness of a palliative care referral without awaiting prompts at the MDT at the start of the week.

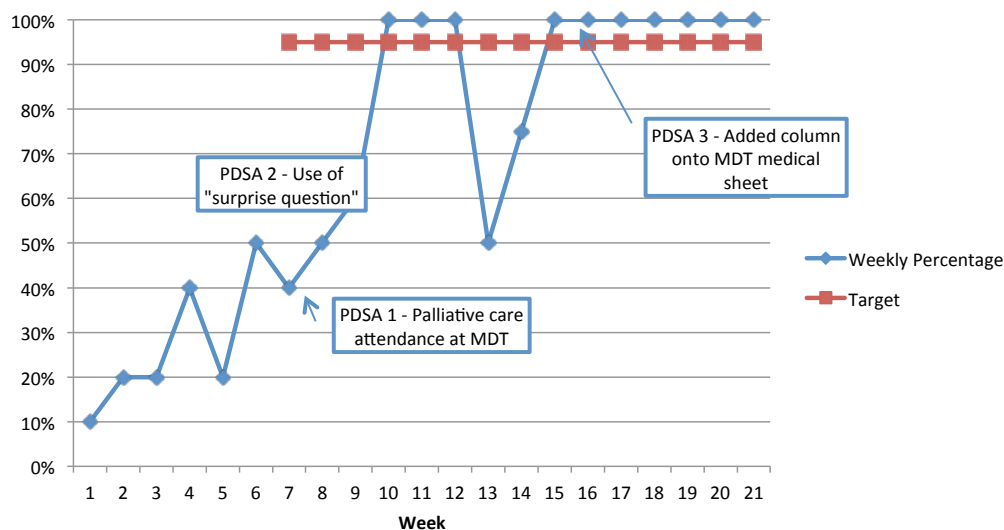


Figure 1: A Graph to show the percentage of patients that have palliative care discussed during inpatient ILD ward rounds.

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Web-based self-management following an Acute Exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD) – is it feasible?

Linzy Houchen-Wolloff^{1,2}, Mark Orme², Lisa Clinch¹, Nikki Gardiner¹, Sally Singh^{1,2}

Introduction and objectives

Post-exacerbation Pulmonary Rehabilitation (PEPR) is known to reduce hospital readmissions. Despite these benefits, uptake to and completion of PEPR remains poor in the UK. To address this, we have developed home-based alternatives to attending a traditional programme. The web-based SPACE for COPD self-management programme has shown promising results in stable COPD¹.

The primary aim was to assess the feasibility of the web-based programme for individuals hospitalised with a COPD exacerbation of COPD.

Methods

Eligible patients were consented during their hospitalisation and received access to the website following discharge, in addition to usual care. The programme facilitates patients to self-manage their condition through education and home-based exercises.

The primary outcome was the proportion of screened patients consenting to the programme. We also collected web usage statistics and PR uptake at 6-months.

Results

2080 patients were screened for eligibility. 100 patients (71.2±9.3 years, 55% male, FEV₁/FVC ratio 0.46±0.14, 50.2±31.0 pack years) were recruited (4.8% of those screened). Main reason for ineligibility: not web-literate/no email (70%). 18% had completed the web programme by 6-months, 27% still registered, 55% did not log on to the programme. Of those accepting a referral to PR on discharge (N=57), 35 started and 19 completed PR.

Conclusion

Based on the recruitment challenges and poor participant engagement with the web-based self-management programme, it is not a feasible approach to roll out widely. Digital literacy in this group was lower than expected though web-based strategies may provide a viable stepping stone to PEPR in web-literate patients.

References

¹Chaplin et al. (2017). Interactive web-based pulmonary rehabilitation programme: a randomised controlled feasibility trial. *BMJ Open*, 7: e013682.

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Implementing a cycle ergometry protocol for patients with critical illness: a service evaluation

Eleanor Douglas¹, Clair Martin¹, Sonja Bradshaw¹, Rebecca Elliott¹ and Sarah Needham¹

Background

Cycle-ergometry is a modality for early physical rehabilitation in critical care (CC) patients. Clinical trials have shown it to be safe and feasible, however, implementing interventions such as this in the clinical setting can be challenging.

Aims

1. To determine whether the cycle-ergometry protocol was safe.
2. Examine if the protocol was operationally feasible.
3. Identify barriers to implementation.

Methods

Cycle-ergometry was delivered by therapy support workers under the guidance of qualified physiotherapists to eligible patients whose length of stay was ≥ 5 days. Data were collected on patient demographics, diagnosis, pre-morbid function and sedation levels, the day the cycle protocol was commenced, adverse events, reasons for not completing the protocol, first day to stand and length of stay.

Results

During the data collection period 18 out of 242 patients admitted to CC received cycle-ergometry. The mean day for initiating the protocol was day 8 (range 1–28). A total of 50 cycle-ergometry sessions were delivered but 17 sessions were not completed as per protocol. The main reason for none completion was patient request due to fatigue. No adverse events occurred. Several barriers to operational implementation were identified. These included ‘time constraints’, ‘patient fatigue/refusal’ and ‘staffing issues’.

Conclusions

In this setting cycle ergometry was shown to be safe but operational feasibility was more problematic. This was due to ‘staffing issues’ and ‘lack of time’ from the therapist perspective and patient reported fatigue or refusal. Further work is required to identify the factors necessary for successful integration of the protocol.

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How easy is it to establish a better recovery; get up, get dressed, and get moving, in the critical care environment

Philippa Oram¹ and Jo Steele¹

Background

It is well-known that patients develop physical, psychological and cognitive dysfunction following critical illness (Pandharipande et al, 2013). Deconditioning projects are recognised in ward-based environments and improve patient outcomes (EndPjParalysis, 2018).

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Aims

As an established critical care unit with a motivated rehabilitation multidisciplinary team (MDT), the aim was to maximise the opportunity for patients to dress and move, investigating the barriers and improving functional outcomes.

Method

Adopting the #EndPjParalysis campaign, a rehabilitation focused 10-week education programme to the MDT was provided. For six-weeks the number of patients dressed and moving was collected. For four-weeks, the number of patients sat out of bed and the barriers faced was explored, excluding sedated patients. Retrospective data of Chelsea Critical Care Physical Assessment (CPAx) tool (Corner et al., 2013) and the Manchester Mobility score: Modified (MMS-M) (McWilliam, 2016) were compared before and during. Feedback was provided by patients.

Result

Table 1: Amount and percentage of patients that were dressed and moving for first six weeks.

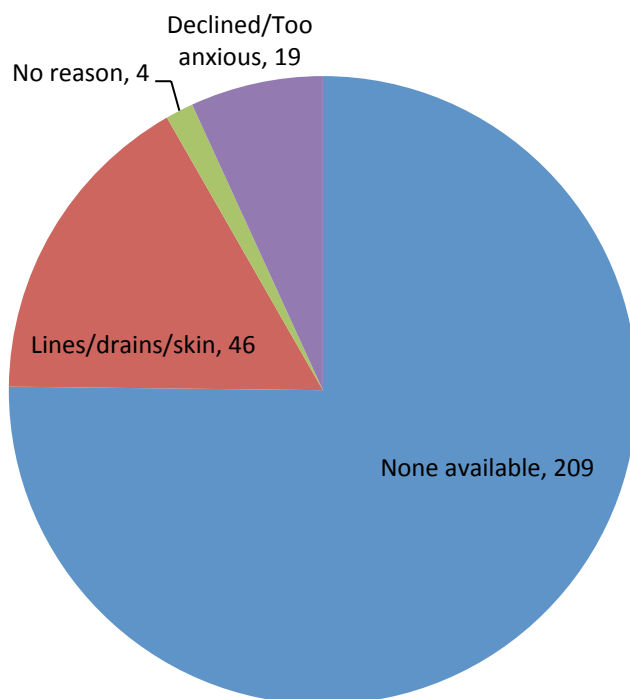
	No. of Patients that did	Total no. of patients identified by therapist that could have.	Percentage
Dressed	93	219	42.5%
Moving	413	413	100%

Table 2: Amount and percentage of patients sat out of bed, excluding sedated patients, for last 4 weeks.

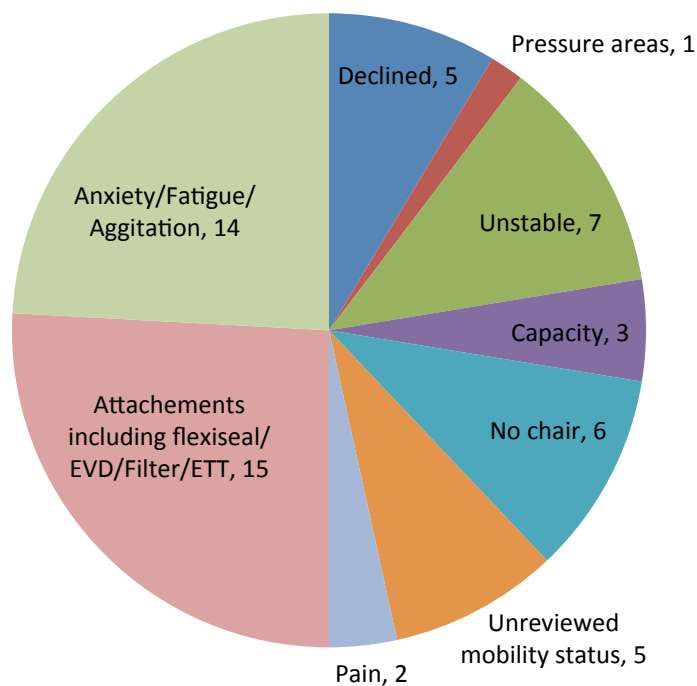
Sat out of bed	169	229	74%
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Table 3: Comparison of CPAx and MMS-M 10 weeks before and 10 weeks during rehab focused educational programme.

	Before	During
CPAx	24 (Jan-March)	23 (April-June)
MMS-M	7.7 (Jan-March)	7.3 (April-June)



Pie Chart 1: Reason for patients not getting dressed.



Pie Chart 2: Reason for patients not getting out of bed.

Conclusion

The study demonstrated that all patients that could move were supported to. Lack of clothing was the primary reason for patients not dressing, facilities and long-standing culture may influence this. Barriers such as; inotropic requirements, unreviewed mobility status, attachments, and low neurological status cannot be influenced whilst ensuring patient safety and could be excluded from future audit. The education and focus on rehabilitation did not demonstrate improvements in functional outcomes, however subjective evidence illustrated improvements in motivation and psychological well-being. Additional specific focused education for staff, patients and family could be delivered and further auditing can be recommended to address these barriers and limitations.

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Repeatability and comparisons of the LCI in Stable Chronic Obstructive Pulmonary Disease

Enya Daynes^{1,2,3}, Neil Greening^{1,2,3}, John Owers-Bradley⁴, Sally Singh^{1,2,3} and Salman Siddiqui^{2,3}

Introduction

Chronic Obstructive Pulmonary Disease (COPD) is a small airway disease associated with ventilation heterogeneity. Physiotherapists utilise methods of increasing ventilation efficiency however its effect is difficult to quantify. The Lung Clearance Index (LCI) is a measure of ventilation heterogeneity however its feasibility and repeatability is unknown in COPD.

Aims and objectives

This study aims to evaluate the feasibility and repeatability of the LCI among subjects with COPD and compare to other lung status measures.

Methods

The LCI was measured by inert Multiple Breath Washout using a modified photoacoustic Innocor with 0.2% Sulphur Hexafluoride (SF₆) on subjects with stable COPD (70% male, mean [SD] age 70 [7.6], FEV₁ %predicted 50[18.3]). The LCI_{SF6} was repeated (in triplicate) within visit and eight weeks later (N=20), in accordance with ERS/ATS standards. Repeatability data was analysed using Intraclass Correlation Coefficients (ICC). Correlations between spirometry and LCI were explored using Pearsons correlations.

Results

57 patients were recruited to perform the LCI and 20 performed repeatability analysis. The within visit repeatability (ICC) was: FRC_{LCI} 0.963, LCI_{SF6} 0.917, S_{cond} 0.942 and S_{acin} 0.947. The between visit repeatability was FRC_{LCI} 0.919, LCI_{SF6} 0.881, S_{cond} 0.517 and S_{acin} 0.801.

The LCI poorly correlates with FEV₁-.175. The Sacin significantly correlates with Forced Expiratory Flow (FEF) -0.428 and exacerbation frequency is significantly correlated with the Scond and Sacin.

Conclusions

The LCI_{SF6} is feasible and repeatable within and between visits for patients with COPD demonstrating high ICC's. The LCI does not correlate with spirometry, however FEF and S_{acin} measures correlate significantly.

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Do physiotherapists use behaviour change techniques to influence patients' behaviour and ability to successfully self-manage within the context of Pulmonary Rehabilitation for patients with Chronic Obstructive Lung Disease (COPD)?

Frances Butler^{1,2}, Dr Katherine Baker¹, Professor Pamela Dawson⁴ and Dr Lisa Robinson³

Background

Pulmonary Rehabilitation is associated with positive improvements in functional status, but benefits obtained in exercise performance, quality of life, and symptoms diminish over time (BTS, 2013).

Aim

To investigate how Respiratory Physiotherapists understand, appreciate and use behaviour change techniques as interventions with patients' self-management in COPD.

Methods

An online survey was sent out to approximately 1,000 members of the Association of Chartered Physiotherapists in Respiratory Care (ACPRC). The survey was open between April – June 2018. Survey questions were analysed using quantitative and qualitative methods. The survey was anonymous and consent was obtained by completion on an opt-in basis.

Questions focussed around the perceptions of self-management, barriers and enablers to self-management from both patient and Physiotherapists' perspectives as well as behaviour change techniques.

The Framework Method was used to analyse qualitative questions. Quantitative questions were analysed by mapping against the behaviour change taxonomy; a comprehensive list of behaviour change techniques.

Results

32 members responded. Participants primarily used Goal-Setting (n=30), Follow-up Contacts (n=13), Cognitive Behavioural Therapy (n=9) and Health Coaching (n=13) methods. Specific behaviour change techniques such as feedback, using cues and prompts and behavioural contracts were not reported.

84% responded that they educated patients on self-management. Participants described self-management as empowering patients in relation to maintenance, confidence and knowledge.

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Conclusions

A limited range of Behavioural Change Techniques are used in clinical practice indicating scope for improvement within self-management education content and delivery. Varying perspectives on what self-management means can influence Physiotherapists' behaviours towards patients with COPD. An individualised approach is required for successful self-management.

The effectiveness of High Fidelity Simulation Based Training (HFSBT) to maintain on call respiratory competency

Louise McClelland¹, Rachel Farley, Doug Still

Background

HFSBT is widely used within medical and nursing education and is emerging within education for physiotherapists. At Imperial College Healthcare NHS Trust on call competency training involved a robust training and induction programme, but lacked the realism of on-call duties. There is growing evidence surrounding human factors and the interactions between other elements of a system, such as teamwork and how this affects human behaviours and aids learning.

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Aim

Does HFSBT assist staff to assess and maintain their on call respiratory competence?

Method

Each physiotherapist completed a half day HFSBT, participating in a scenario where on call skills, rapid deterioration and escalation procedures can be experienced in a safe and supportive environment. This was followed by a debrief. Questionnaires were completed following the session to assess the change from classroom based to simulation based training for on call competence.

Results

Thirty-two HFSBT questionnaires were analysed. 50% (n=16) strongly agreed and 38% (n=12) slightly agreed that simulation was an accurate judge of their overall on call competence. Twenty-seven on call competency questionnaires were analysed and 67% thought HFSBT was a realistic tool in assessing and maintaining on call competency. The debriefing was considered to be a very useful learning experience alongside utilising non-technical skills.

Conclusion

HFSBT for on call physiotherapists does help staff to assess and maintain competencies however practical sessions on patients are still essential in the self-reported confidence and maintenance of competency. Further analysis of the questionnaires will inform redesigning of the training day and assessment of competence.

Dysfunctional breathing: making a diagnosis and effective symptom management in a district general hospital

Scott Hawkes¹ and Sarah Grisenthwaite¹

Introduction

By definition dysfunctional breathing (DB) exists whereby individuals display sustained chronic changes in breathing patterns which results in dyspnoea in the absence of organic cardio-respiratory pathology¹. It is thought that as many as 6–10% of the population develop abnormal breathing patterns and as many as 29% in the asthmatic population. In this trust patients can be referred to an outpatient physiotherapy clinic to help limit symptoms. The investigations required to establish a diagnosis can be extensive due to the differential diagnoses of chronic dyspnoea and the lack of a definitive diagnostic test.

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Aim

To quantify the investigations requested by chest physicians to make a diagnosis of DB, whilst assessing the outcomes from front-line thoracic physiotherapy.

Methods

We retrospectively analysed referrals from 44 patients diagnosed with DB and referred to thoracic physiotherapy. Route to referral was assessed including investigations undertaken and previous cardiology referrals for dyspnoea. Thoracic physiotherapy outcomes were assessed with pre v.s post Nijmegen questionnaire.

Results

Of the 44 patients referred 73% (32) were females, with an average age of 55±17. Average Nijmegen was 28±10 and reduced to 21±10 (p=0.003) following treatment, within an average 2.5±0.8 appointments. 45% (20) had previously been investigated for dyspnoea by a cardiology unit. Over 90% of patients performed spirometry and a CXR, over 50% performing more detailed clinical imaging and physiological testing (Table 1).

Table 1: Clinical investigations performed before a diagnosis of DB and subsequent referral.

Clinical Investigations Performed	n/44	%
Spirometry	42	91%
Gas Transfer (Tlco)	26	59%
FeNO (Fractional exhaled nitric oxide)	23	52%

Clinical Investigations Performed	n/44	%
Bronchial Challenge Testing (mannitol)	4	10%
CXR	43	98%
CT Chest	25	57%

Conclusions

It is clear that thoracic physiotherapy including breathing retraining is a cheap and effective tool in helping symptom management, and despite its clear clinical limitations the nijmegen questionnaire remains a practical tool in assessing physiotherapy outcomes. The lack of a definitive diagnosis for DB means that most patients perform extensive cardio-respiratory investigations prior to a diagnosis. The substrate for dyspnoea means that patients are often seen by dual specialties delaying the time to diagnosis at cost to both NHS and patient. Going forward it is clear that streamlining symptom led investigations may help put patients onto a treatment pathway sooner, despite no definitive diagnostic test investigations that stress both respiratory and cardiovascular systems concurrently such as CPET may help drive service development.

Test-test reliability of Modified Borg Breathlessness on completion of the Chester Step Test in healthy participants

Sarah Pierrepoint¹, Nichola Gale¹, Una Jones and Michael Smith¹

Background

The Chester step test (CST) is a submaximal incremental exercise test utilised to predict VO₂max, using a choice of 4 step heights. The test is terminated when 80% maximum heart-rate (HR) and/or Rate of Perceived Exertion (RPE) is reached (Buckley et al., 2004). In people with respiratory problems, breathlessness – as measured by the Modified Borg Breathlessness scale (MBS), can result in the termination of an exercise test. There is, however, limited research on the reliability the MBS as part of the CST.

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Aim

The aim was to evaluate the test-retest reliability of MBS in healthy participants at each available step height.

Methods

Four groups of participants (one for each step height), were recruited from Cardiff University. Each participant conducted the CST three times with a minimum of 48-hours rest in-between tests. MBS was recorded on completion of the test. Data were analysed using SPSS version 23 using a two-way mixed effects, intra-class correlation coefficient (ICC).

Results

In total 77 (26 male) participants, mean age of 21 years, completed the test. The MBS intra-class correlation coefficient ranged between 0.560 and 0.694 across the step heights (Table 1).

Conclusion

Although variable between the participants completing different CST heights, all ICCs were within 0.5 and 0.75 indicating moderate reliability (Koo and Mae, 2016). Further research in clinical populations is necessary to explore reliability of MBS to ensure validity of the outcome of the CST.

Table 1: Descriptive data (mean ± SD) and ICC for each step height.

	Step Height 0.30m	Step Height 0.25m	Step Height 0.20m	Step Height 0.15m
Gender male:female	5:13	6:15	9:10	6:13
Age (years)	20.5 ±1.4	21.0 ±2.1	20.5 ±0.8	21.4 ±2.3
Height (cm)	169.6 ±7.7	170.1±6.6	1.74 ±0.1	170.2 ±9.9
Weight (kg)	68.1 ±9.2	68.2 ±9.8	75.9 ±12.7	67.5 ±16.4

	Step Height 0.30m	Step Height 0.25m	Step Height 0.20m	Step Height 0.15m
BMI (kg/m ²)	23.7±3.1	23.6 ±2.82	24.9 ±4.0	22.9 ±4.3
ICC	0.560	0.706	0.694	0.576

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Early detection of post-operative pulmonary complications with lung ultrasound: a case study

Simon Hayward¹

Introduction

Lung ultrasound (LUS) has been shown to have higher diagnostic accuracy for the detection of pneumonia in patients with respiratory symptoms when compared to chest radiograph (CXR). Physiotherapists trained in LUS can use this diagnostic technique to monitor patients for pneumonia especially when they begin to show signs of post-operative pulmonary complications (PPC).

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Case presentation

A 51 year old male underwent a quadruple coronary bypass graph. His history included a permanent pacemaker, asthma, cardiomyopathy and a current smoker.

Day 1: Fraction of inspired oxygen (FiO₂) requirements increased to 0.80 with a slightly elevated white cell count (WCC) of $13.3 \times 10^9/L$. His CXR showed volume loss so he received intermittent positive pressure breathing (IPPB).

Day 2: A repeat CXR was reviewed by the consultant anaesthetist and deemed unremarkable. The treating physiotherapist performed a LUS scan shortly after the CXR and identified diffuse left sided B-lines and an irregular pleura consistent with a lower respiratory tract infection (LRTI). This was fed back to the consultant who immediately prescribed antibiotics.

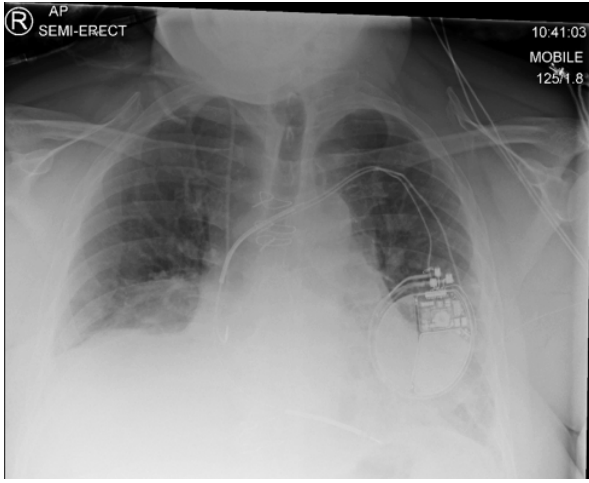
Day 3: Repeated use of IPPB while the patient continued to require increased levels of respiratory support.

Day 4: Oxygen requirements dropped to FiO₂ 0.70. CXR showed extensive left sided consolidation consistent with a LRTI.

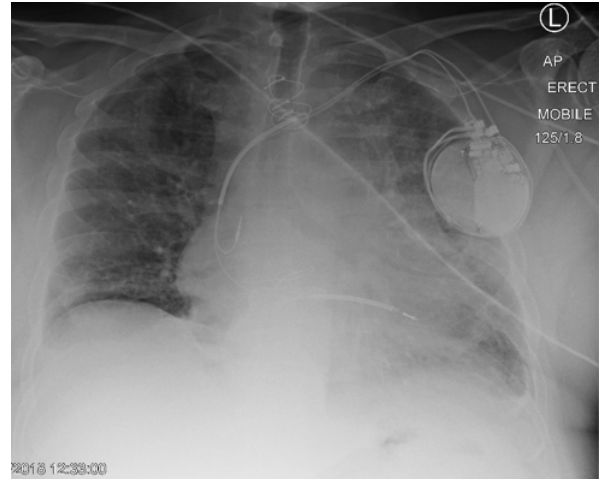
The patient continued to make progress and was discharged to the ward on day 7.

Discussion

Physiotherapists are well placed to monitor patients for PPC's such as pneumonia. With its higher levels of diagnostic accuracy LUS can further supplement physiotherapy assessment skills by enhancing their ability to diagnose complications sooner.



Day 2 chest radiograph.



Day 4 chest radiograph.

Reflections on the first year of the UK Early Access to Medicines Scheme for Raxone® (idebenone) in Duchenne Muscular Dystrophy (DMD)

Catherine Lawrence¹ and Shabir Hasham²

Introduction

In DMD, respiratory decline and the subsequent complications with which it is associated (infections, hospitalisations, hypoventilation and the need for non-invasive/invasive ventilation) are serious burdens and unmet needs. Secondary mitochondrial dysfunction is believed to be a major contributor to muscle decline in DMD and Raxone (idebenone), a synthetic, short chain benzoquinone, which restores mitochondrial function has been shown in the DELOS study, to reduce the rate of respiratory decline, reduce frequency of hospitalisations and delay the time taken to cross relevant clinical respiratory thresholds.

Raxone received the first positive scientific opinion for a treatment option in DMD for inclusion into the Early Access to Medicines Scheme (EAMS) in June 2017. The positive scientific opinion was confirmed, and the EAMS renewed for a further year, in June 2018. EAMS is regulated by the UK's Medicines and Healthcare products Regulatory Agency (MHRA) and aims to provide earlier availability of promising new unlicensed medicines to UK patients that have a high unmet clinical need. The medicines included in the scheme are those that are intended to treat, diagnose or prevent seriously debilitating or life threatening conditions where there are no adequate treatment options.

This abstract reflects on the implementation of the programme during the first year vs. the EAMS programme aims, and describes the development of the patient eligibility criteria and the introduction of effectiveness monitoring in the second year.

First year of implementation

The first patient was enrolled 12 weeks after the scheme approval. In the first year of the scheme forty-six patients were able to access Raxone in six neuromuscular expert centres: five centres in England and one in Northern Ireland. Ease of implementation of the scheme across the National Health Service (NHS) was variable. In addition to the MHRA positive scientific opinion, and supportive guidance issued by NHS England and Scotland, most clinicians were required to obtain local hospital committee approvals before entering the scheme, which introduced some delays in patient enrolment. Local knowledge of EAMS, its objectives and stakeholder responsibilities, was found to be limited and also contributed to delays in implementation and inequality of access.

EAMS patient eligibility

The EAMS was designed to ensure the safe and effective use of unlicensed idebenone in people with a confirmed diagnosis of DMD, who are not currently taking glucocorticoids, and have

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experienced a decline in respiratory function. At renewal the eligibility criteria were clarified so that enrolled patients must have active respiratory decline confirmed by a measurement of FVC between 25%–80% predicted.

Introduction of effectiveness monitoring

Under EAMS Raxone is administered under routine clinical practice with no additional visits and monitoring except the requirement to report Adverse Events. New DMD international clinical guidelines were published during the first year of the EAMS which may influence routine clinical practice. In the second year of the scheme additional data collection has been introduced to obtain information on the effectiveness of the use of Raxone in an environment similar to that which would exist if the medicine receives a future marketing authorisation for DMD. Data to be collected include changes in respiratory function status, interventions, treatments and other medication. These data will be shared with the MHRA at the end of the EAMS and may also help to inform future technology appraisals prior to NHS funding.

Note: Raxone (idebenone) is currently unlicensed for use in DMD.

More information on this EAMS is available at <http://santhera-eams.co.uk> or <https://www.gov.uk/government/collections/early-access-to-medicines-scheme-eams-scientific-opinions>.

Fixing multidisciplinary care in rib fracture management

Michelle Gibb¹, Karishma Chandarana¹, Edward Caruana¹, Apostolos Nakas¹

Background

Chest wall trauma with rib fractures is associated with significant patient morbidity and healthcare resource utilisation. We sought to identify the specific needs of these patients and identify factors influencing short-term outcomes and assess the impact of a local clinical practice guideline implemented at our institution.

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Methodology

All patients presenting with rib fractures to a single thoracic surgical unit between January 2016 and October 2018 were identified from prospective databases, and data collected retrospectively from patient imaging and electronic case records. Statistical analysis was performed in Microsoft Excel 365 with the Analyse-it[®] add-on.

Results

60 patients (71% male, age 63±18 years) were included, with falls (55%) and road traffic accidents (33%) being the commonest mechanisms of injury. Patients injured 4 ±2 ribs on average, with bilateral fractures in 3%, flail segments in 25%, and 45% requiring intercostal chest tube placement. They required an average of 3 (1–21) physiotherapy (PT) sessions, over a hospital stay of 6.0±5.4 days. Patients were discharged on 31±36mg morphine equivalents of opiate analgesia, and with 38% requiring occupational therapy (OT) input. Only 42% had returned to baseline activities of daily living (ADL) at six weeks follow-up. Age ($p = 0.0001$) and frailty score ($p = 0.0057$) predicted requirement for OT involvement; and all 3 factors (age, frailty score and OT involvement) were predictive of prolonged hospitalisation ($p = 0.01$, $p = 0.02$, $p < 0.0001$ respectively). The introduction of our local guideline had no impact on time to ($p = 0.52$) or extent of PT ($p = 0.62$), hospital stay ($p = 0.45$) or return to ADL ($p = 0.22$).

Conclusions

Rib fractures require significant resource allocation and have significant impact on Quality of Life. Practice guidelines should take into account these factors in order to improve outcomes.

Annual reviews with Advanced Clinical Practitioner during long-term maintenance exercise programmes

Anna Alderslade^{1,2}

Introduction

COPD is a highly prevalent respiratory disease causing significant burden to patients, costing the NHS approximately £11 billion per year (BLF, 2016). In 2014, an annual review with an Advanced Clinical Practitioner (ACP) was introduced for post-pulmonary rehabilitation (PR) maintenance exercise programme (MEP) attendees. This service evaluation aims to evaluate the additional benefit of annual ACP reviews.

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Methodology

'Fit2Breathe' is a once weekly, supervised MEP for one hour in a hospital gym consisting of aerobic and strength training exercises. Data was extracted from 60 COPD patients attending 'Fit2Breathe' after completing PR who had attended at least one annual review from 2014–2017. Patients completing PR within 6 months of the review were not invited; some patients could not attend due to illness or holidays. Outcome measures included: respiratory medication optimisation, recognition and early intervention for co-morbidities, smoking cessation and inhaler technique.

Results

1. 63 hours of ACP time was required to complete 60 patient reviews.
2. 14 medication changes were requested; the majority were respiratory-based. In comparison, 19 extra consultations were completed outside the annual review during normal class times.
3. 68% of attendees were ex-smokers. 3% were smokers but none became non-smokers.
4. Full inhaler technique checks were not always possible. Verbal checks (simulated) were completed in 68% of patients in 2017.
5. 16 co-morbidities were identified, ranging from cardiovascular to new oxygen requirements.

Conclusion

High time usages for only small changes to patient care. There is a paucity of evidence in this area to compare these results to (Jenkins' et al., 2017). In this circumstance, ACP skills do not appear to offer any additional benefit to this patient group so may be better used in other pathways such as hot clinics or prevention roles.

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A six month retrospective study comparing The Chelsea critical care physical assessment (CPAx) and the modified Manchester mobility score (MMS) on an adult critical care (CC)

Deborah Rowley¹, Steph Sussex¹, Helen McCreary¹, Emma Pagdin¹

Background

Wide documentation shows that early rehabilitation on CC reduces hospital length of stay and should be based on a comprehensive multi-disciplinary assessment of physical function. MMS (McWilliams, 2016) a pure mobility outcome score and CPax (Corner, 2014) a more holistic outcome score are used nationally in CC, this study reviewed a 36 bedded mixed CC and compares these two scores at the point of discharge. Outcome scores assist therapists to identify needs of patients on discharge.

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Method

The study was January 2018 to June 2018. Data from all patients who were on CC more than 48 hours was collated. CPax and MMS were recorded on discharge. 316 patient's information was collected. Comparison was made between the patient's final CPax score and the MMS. Final scores were taken within 72 hours prior to discharge from CC.

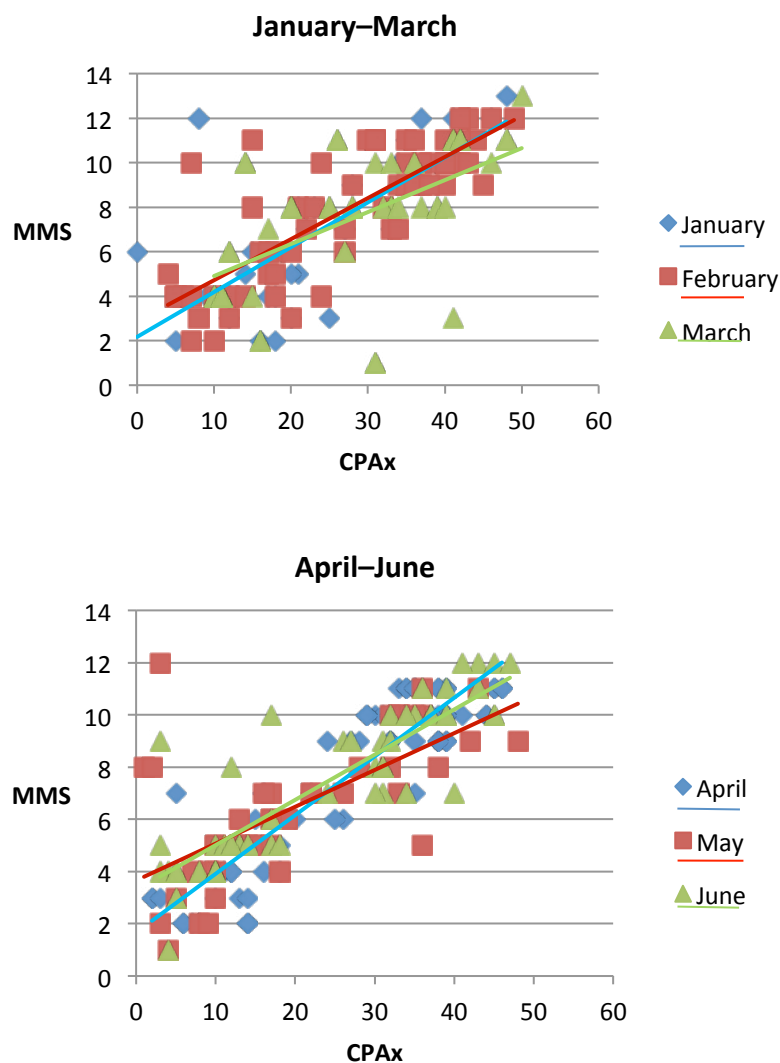
Aspect of physicality	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
Respiratory function	Complete ventilator dependence. Mandatory breaths only. May be fully sedated/ paralysed	Ventilator dependence. Mandatory breaths with some spontaneous effort	Spontaneously breathing with continuous invasive or non-invasive ventilatory support	Spontaneously breathing with intermittent invasive or non-invasive ventilatory support or continuous high flow oxygen (>15l)	Receiving standard oxygen therapy (<15l)	Self-ventilating with no oxygen therapy
Cough	Absent cough, may be fully sedated or paralysed	Cough stimulated on deep suctioning only	Weak ineffective voluntary cough, unable to clear independently (e.g. requires deep suction)	Weak, partially effective voluntary cough, sometimes able to clear secretions (e.g. requires Yankauer sectioning)	Effective cough, clearing secretions with airways clearance techniques	Consistent effective voluntary cough, clearing secretions independently
Moving within the bed (e.g. rolling)	Unable cough, may be fully sedated or paralysed	Initiates movement. Requires assistance of two or more people (maximal)	Initiates movement. Requires assistance of at least one person (moderate)	Initiates movement. Requires assistance of at least one person (minimal)	Independence in ≥ 3 seconds	Independence in ≤ 3 seconds
Supine to sitting on the edge of the bed	Dynamic unable/unstable	Initiates movement. Requires assistance of two or more people (maximal)	Initiates movement. Requires assistance of at least one person (moderate)	Initiates movement. Requires assistance of at least one person (minimal)	Independence in ≥ 3 seconds	Independence in ≤ 3 seconds
Dynamic sitting (i.e. when sitting on the edge of the sitting).	Unable/unstable	Requires assistance of two or more people (maximal)	Requires assistance of at least one person (moderate)	Requires assistance of at least one person (minimal)	Independent with some dynamic sitting balance (i.e. able to alter trunk position within base of support)	Independent with full dynamic sitting balance (i.e. able to reach out of base of support)
Sit to stand (starting position 90° hip flexion)	Unable/unstable	Sit to stand with maximal assistance (standing hoist or similar)	Sit to stand with moderate assistance (e.g. one or two people)	Sit to stand with minimal assistance (e.g. one person)	Sit to stand independently pushing through arms of the chair	Sit to stand independently without upper limb involvement
Transferring from bed to chair	Unable/unstable	Full hoist	Using mobility aids and assistance of at least one person (moderate)	Pivot transfer (no stopping) with mobility aid or physical assistance	Stand and step transfer with mobility aid or physical assistance	Independent transfer without equipment
Stepping	Unable/unstable	Using a standing hoist or similar	Using mobility aids and assistance of one person (moderate)	Using mobility aid or assistance of one person (minimal)	Using mobility aid or assistance of one person (minimal)	Independent without aid
Grip strength (predicted mean for age and gender on the strongest hand)	Unable to access	<20%	<40%	<60%	<80%	$\geq 80\%$

Modified Manchester Mobility score

- 1 Requires passive movements and positioning only.
- 2 Able to participate in active -assisted exercises in bed/motomed bike.
- 3 Able to be sat on edge of bed with 2 or more assistants.
- 4 Able to be sat out with hoist.
- 5 Unsupported sitting balance.
- 6 Stand with the assistance of more than 2 or 2 assistants with standing hoist.
- 7 Able to stand with assistance of 2, with or without walking aid.
- 8 Able to walk on the spot with assistance/transfer with assistance of 2
- 9 Able to mobilise with 2 with or without walking aids less than 10 metres.
- 10 Able to mobilise with 2 with or without walking aids more than 10 metres.
- 11 Able to mobilise with 1 assistance with or without walking aids.
- 12 Able to mobilise independently with or without walking aids.
- 13 Independent on stairs with or without walking aids/usual assistance.

Results

All 316 were included in the analysis. The study demonstrated linear correlations between the two outcome measures. The mean CPAx over 6 months was 24.9 and the mean MMS was 7.39.



Conclusion

Correlation demonstrates CPAX and MMS provide similar results. CPAX is a useful measure to individualise goal setting whilst MMS is clearer for MDT members to interpret.

Further data is needed for scores on discharge from CC and on hospital discharge to establish the impact of a prolonged CC stay.

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An observational study into the efficacy and effectiveness of a Pulmonary Rehabilitation maintenance exercise class: an 18 month review

Michael Kensington¹, Terry Curtis, Gemma Kott

Pulmonary Rehabilitation (PR) is a well evidenced treatment for patients with COPD, ILD, and bronchiectasis. PR intends to achieve behaviour change, improve exercise capacity, condition management, and symptom control. Patients lose strength and aerobic fitness between 6–12 months after completing PR (Beauchamp et al., 2013, Houchen et al., 2011). The aim of this study is to review the impact of a PR maintenance exercise class on patients physical and health outcomes, and primary/secondary care usage.

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The class formed as an option for patients to attend after PR discharge. Patients attended a weekly, hour long, circuit exercise class. Participants were invited to repeat the PR outcomes measures and were grouped into 6, 12, and 18 months categories depending on the length of time they have been attending the exercise class (N=10 per group, 30 total). This allowed a comparison between the maintenance results against their PR outcomes over the given time frames. The ISWT and ESWT, or 6MWT (depending on test the patient performed in PR), CRQ, and LINQ were used. Participation was voluntary and some patients did not complete all outcome measures and were emitted from analysis where data was not available.

GP records were accessed with consent for patients who had attended the class for a full year period (N=15). The GP notes were reviewed for emergency primary/secondary care usage and antibiotic/steroid prescribing for the year prior to starting the class and compared against the year since attending the class.

The results indicate that exercise capacity was mostly maintained or improved for each group. MCID was not met by all patients with the results being comparable to the improvements made from PR. Some patients made significant improvements beyond discharge outcomes. The CRQ results overall were comparable. Exploring health use data the patients had five less hospitalisations and fewer GP visits.

In conclusion, PR maintenance exercise class enabled comparable outcomes to patient's PR discharge 18 months post discharge in terms of exercise capacity and HRQOL outcomes. It highlights less primary/secondary care use supporting the meta-analysis of maintenance exercise (Jenkins et al., 2018).

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Life beats on: rehabilitation in paediatric VAD patients

Zoë Cotton¹ and Emma Shkurka¹

Introduction

Ventricular assist devices (VAD) are used to support patients with end stage heart failure. Rehabilitation in adults with a VAD is well established; improving cardiorespiratory fitness and strength. The Berlin Heart, an extracorporeal VAD, is used as a bridge to heart transplant in children. There is no evidence to guide rehabilitation in this population and the impact on development and post-transplant recovery requires investigation.

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Case summary

We present a case series discussing the rehabilitation of three children supported on Berlin Heart. Two were males and diagnoses included dilated cardiomyopathy and aortic stenosis. At implantation the patients were aged between 16–50 months and significantly deconditioned with delayed gross motor skills.

Rehabilitation, including active-assisted and functional exercises, started on day one post VAD insertion. Two children sat over the edge of bed whilst intubated and all were sitting out by day 18. The patients regularly attended the gym once discharged to the ward. Gym rehabilitation focused on developmental play, strengthening, and exercise tolerance; involving crawling, stairs, and cycling. No adverse events were reported during rehabilitation sessions. At the time of transplant each child was independently mobile, displayed age-appropriate motor skills, and tolerated 30–60 minute gym sessions.

Conclusion

All three children improved exercise tolerance and motor skills whilst on the Berlin Heart. This case series suggests that rehabilitation in paediatric VAD patients is safe. From our experience optimizing pre-transplant physical status helps to facilitate post-transplant recovery. This small study highlights the need for further research, including investigation into standardised outcome measures and optimal levels of activity.

Does provision of a weekend therapy rehabilitation service for Critical Care (CC) improve outcome measures?

Stephanie Sussex¹, Sarah Stevens, Clare Johnson

Introduction

A generalised seven-day service for respiratory patients covering CC was historically provided, however rehabilitation of CC patients was only available Monday to Friday.

Aim

To see if a dedicated weekend therapy led respiratory and rehabilitation service for CC patients would improve rehabilitation outcome measures.

Method

Dedicated weekend service was commenced in April 2017, initially with 3 qualified Physiotherapists, increasing to 5 members of staff (3 qualified and 2 technicians or an Occupational therapist) in October 2017.

Data was collected between April 2016 to May 2018 for CC length of stay (LOS), number of admissions to CC, the Chelsea Critical Care Physical Assessment Tool (CPAx) and the number of weekend rehabilitation treatments provided.

Results

From April 2016 to May 2018 the average LOS for CC remained static, whilst the average number of admissions to CC increased by 8.6%. The average CPAx score for CC patients on discharge remained consistent between 19–24/50.

The percentage of weekend rehabilitation treatments compared to respiratory provided during April 2016–May 2018 increased from 0% of the caseload to 44% with 3 staff and 54% with 5 staff.

Conclusions

There was no obvious impact shown with the new service on CPAx or LOS, although there was an increase in admissions to the unit. Further evaluation is needed over a longer period and the impact of this service after CC on ward LOS and discharge destination.

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Impact of implementing a cardiac surgery post-operative screening tool

Romain Lefebvre¹, Francine Sehmbi, Anna Tarrant, Nicola Thompson and David McWilliams

The benefit and necessity for prophylactic physiotherapy post-operatively remains unclear¹. Combined with an increased demand on resources, scores to identify those patients who would most benefit are being increasingly used². At present no validated tool exists for those following cardiac surgery. The Birmingham cardiac surgery screening tool (BCSST) was developed to identify patients at high risk of developing post-operative pulmonary complications (PPC's).

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Objective

To evaluate the effectiveness of introducing a post-operative screening tool to identify patients at risk of PPC's following cardiac surgery.

Method

All patients undergoing cardiac surgery between 25th November and 24th December 2018 were included in the analysis. BCSST scores were calculated on day 1 post-operatively. For patients identified as low risk, post-operative care was led by nursing staff with no physiotherapy involvement. High risk patients received standard physiotherapy input, including respiratory interventions and mobilisation. Primary outcome was development of PPC's, assessed using the Melbourne risk prediction tool.

Results

During the trial period 21/47 (42%) of patients were classified as low risk. None of the patients in the low risk group developed a PPC, although two patients were re-referred to physiotherapy (1 for mobility assessment and 1 for respiratory deterioration). Patients in the low risk group mobilised 30m earlier and spent less time in hospital than the high risk group.

	High Risk	Low risk	Re-referral
Screening outcome	26 patients (53%)	21 patients (42%)	2 patients (4%)
Developed PPC	8 patients (31%)	0 patient	0 patient
Time to Mob > 30 m	5.58d	4.65d	5d
Physio complete	6.65d	0d	10.5d
Length of stay	9.31d	6.60d	11d
Treatment duration	317min	15min	345min

Conclusion

The BCCST was effective at identifying low risk patients, with no patients in this group developing a PPC. For these low risk patients care was safely led by nursing staff with no adverse events or falls reported.

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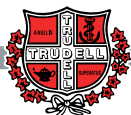
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Musical rounds in Critical Care to enhance wellbeing

Eleanor Douglas¹, Marc Bloc, James Tolhurst and Anneli Haake

Background

Live music has beneficial effects for patients and staff in healthcare settings. In critical care (CC) the beneficial effects include reducing the patient's pain, anxiety, respiratory rate, and heart rate. The beneficial effects for staff include feeling relaxed and more positive and engaged. In 2018 'Wellspring Music' was funded by the Nottingham Hospitals Charity and the Arts Council England to deliver live music on CC one morning a week.

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Aims

This service evaluation aimed to provide insight in to the perceived effects of live music in CC from a patient, staff and visitors perspective.

Methods

A bespoke observation sheet was developed to identify patient responses including their engagement and interactions with the music. 37 patient responses to the music were observed. Staff and visitor surveys explored what effects they felt the music had, and free text questions asked them to describe people's reactions to the music in their own words.

Results

73% patients showed clear signs of enjoyment and 95% showed physical signs of relaxation. 50% of patients physically engaged in the music by tapping, moving or swaying. Both visitors and staff provided a wealth of feedback with many examples of how the sessions 'lifted the spirits', 'calmed patients' and provided 'emotional release'. Patients were also observed to interact with the musicians by beckoning and reaching towards them.

Conclusions

Live music in CC demonstrated positive effects in patients, staff and visitors. More work is needed to explore the effects and impact of delivering live music in the CC setting.

Trial of a guided self-directed exercise-based rehabilitation programme for intensive care survivors: a feasibility study

Sian Goddard¹ and Dr Hilary Gunn

Poster awarded third prize

Introduction

Over 149,000 UK patients are discharged home each year following an Intensive Care episode.

The NICE Guidelines for critical care rehabilitation (NICE, 2009) highlight the importance of physical rehabilitation both in critical care units and continuing through to follow-up, however evidence identifies significant limitations in current provision. (Connolly et al., 2014).

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Aims and objectives

To determine the feasibility of running a trial to compare a 10 week guided self-directed rehabilitation programme to usual care, including evaluation of the proposed intervention, study methodology and anticipated outcomes.

Method

Randomised controlled feasibility trial.

Intervention:

A self-directed 10-week exercise rehabilitation programme with weekly telephone support, for intensive care survivors, starting 2 weeks post discharge.

Outcomes:

- Recruitment, progression and retention data.
- Proposed trial outcomes (measured prior to discharge and at 13 weeks post discharge):
 - Six-minute walking test (6MWT).
 - Incremental Shuttle Walk Test (ISWT).
 - Hospital Anxiety and Depression Score (HADS) Participant feedback via semi-structured interviews.
- Participant and staff interviews.

Results

Three participants were recruited in six months. A number of issues relating to recruitment of otherwise eligible patients were identified.

Participant feedback and exercise diaries indicated good engagement with the programme frequency and content.

Clinical outcomes were acceptable and sensitive to change.

Participants found the assessment sessions manageable. Telephone support provided ongoing motivation.

Staff highlighted a range of recruitment barriers.

Conclusion

Low recruitment limits firm recommendations. Findings suggest:

- Outcome measures were appropriate, acceptable and suitable.
- Programme was acceptable and not overly burdensome.
- Telephone support was positively received.
- Dedicated support for recruitment is essential.

A tool-box approach: a new way of delivering an MSc physiotherapy (pre-registration) cardiorespiratory curriculum

Samantha Targett¹

Introduction

Historical shortages of graduate physiotherapists and the challenges of recruiting to the area led to the creation of an innovative new MSc Physiotherapy (pre-registration) course which welcomed its first cohort of students in January 2018.

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Aims and objectives

The curriculum was designed on a 'tool-box' approach, recognising the increasing complexity of patients and the fact that no patient presents with just one problem. The goal was to develop graduates that could think and practice beyond the 'speciality' boundaries.

Methods

Modules are taught based on the skills and qualities a physiotherapist needs to practice; assessment and treatment, the applied sciences, interprofessional working, service evaluation and transformation. There are no 'core' specialty modules. Cardiorespiratory teaching and assessment is delivered across both years, incorporating the use of high fidelity simulation. Students were introduced to cardiorespiratory assessment and interventions in year one and year two will build on their existing knowledge working with more complex cases and those in need of longer-term care.

Results

The Chartered Society of Physiotherapy awarded five commendations for the course's innovation and design. Anecdotal feedback has been excellent, practice partners have commended the university on the abilities of the students to 'think outside the box' and the innovative delivery of the programme.

Conclusions

Delivering a cardiorespiratory curriculum via this approach is proving an effective way of equipping graduates with the skills and abilities required in the evolving healthcare environment.

Service evaluation of a seven day physiotherapy service for cardiothoracic surgery patients

Leanne McCarthy¹, Chloe Tait, Laura Forsyth, David Seddon and Simon Hayward

Introduction

A 7-day Cardiothoracic Physiotherapy service commenced in September 2017 providing Physiotherapy for patients Day 1 post major cardiothoracic surgery, emergency respiratory physiotherapy and twice daily contact for Cardiothoracic Enhanced Recovery After Surgery (ERAS) patients allowing introduction of ERAS pathway for selected thoracic surgical patients.

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Aim

The aim of the evaluation was to analyse the data following the introduction of a 7-day service to review the results against the objectives of the service.

Methods

From 1st March 2017 to 28th February 2018, data was collected for all patients following cardiothoracic surgery. Data was reviewed retrospectively, analysed and presented as descriptive statistics.

Results

- The service supported the commencement of a Thoracic ERAS pathway, resulted in earlier mobilisation, reduced time on Physiotherapy caseload and a reduced hospital length of stay (LoS) for thoracic ERAS patients but not for cardiac ERAS patients.
- 96% of ERAS patients had Physiotherapy twice daily.
- 100% of patients admitted to Cardiac ITU were assessed by Physiotherapy within 24 hours of admission.
- Cardiothoracic patients requiring respiratory Physiotherapy had continuity of care from Physiotherapists working within the speciality.

Conclusion

This review shows some positive effects following the introduction of a 7-day Physiotherapy Service. Factors including staff vacancies may potentially have reduced the impact/effectiveness of seven day working. Further analysis of the longer term impact of a Seven Day Cardiothoracic Physiotherapy service is indicated. Preliminary results suggest that the roll out of ERAS to all VATS lung resection patients with Physiotherapy over seven days may result in earlier mobilisation, reduced time on caseload and a reduction in hospital LoS.

Right information, right time and right place: using digital technology to empower physiotherapists 24/7 in an acute care environment

Sarah Fitzgerald¹ and Gabrielle Donnelly¹

Aim

To provide access to physiotherapy protocols, guidelines and resources at point-of-care in the acute setting to support clinical decision making.

Background

Physiotherapists commonly treat complex patients with life-threatening conditions. Such situations demand rapid decision-making and evidence-based treatment to prevent further deterioration. The physiotherapist often works in isolation with limited peer support and has no ready access to up-to-date clinical resources to confirm decisions.

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Method

A participatory design study was conducted between January 2014 and April 2018. Physiotherapists were surveyed (n=40) to explore three themes: information resources required at point-of-care, perceived confidence when working oncall, and digital literacy. A time-in-motion study established the time taken to locate existing paper based resources. Alignment of physiotherapy protocols and guidelines with current evidence was undertaken, and a website 'physio 24/7' created. Quarterly data analysis was performed to evaluate website usage. A nine month follow-up survey was conducted to identify if 'physio 24/7' meets physiotherapists' needs and reassess staff confidence.

Results

Physiotherapists' confidence rate working oncall has improved since the website launch: 75% pre-launch versus 100% at three and 12 months post-launch. Website analytics demonstrate a high level of user uptake with 5,928 sessions in 24 months and access occurring at point-of-care on both desktop and mobile devices. 103 minutes is saved across the physiotherapy service daily with use of physio 24/7, allowing for increased patient care.

Conclusion/key practice points

- Point-of-care access to clinical resources improves physiotherapists' confidence.
- Access to physio 24/7 saves staff time.
- Digital resources are well utilized in an acute setting.

A pilot of the feasibility, outcomes and patient opinions of physiotherapy on the day of surgery post major thoracic and cardiac surgery

Megan Gregory¹, Kate Barnett¹ and Clair Martin¹

Introduction

Physiotherapy intervention traditionally starts Day 1 post-surgery. Some national centres commence physiotherapy on Day 0. There is currently no published evidence stating the outcomes of these services, however, there is evidence to suggest that early physiotherapy is effective and cost-efficient during patient recovery.

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Aims

To explore feasibility, patient outcomes and opinions of this service at Nottingham University Hospitals.

Method

A new shift pattern of 10am–6pm Mon–Fri was introduced, staffed by senior physiotherapists over a 4 week period (May–June 2018). Potential patients were selected from the cardiac and thoracic theatre lists (n=87). 27 patients were eligible and received physiotherapy intervention on day 0.

Quantitative data was collected; length of stay (LOS), days of physiotherapy intervention (DPI) and post-operative pulmonary complications (PPCs) during the trial and this was compared with retrospective data from the previous 4 weeks. Qualitative data was collected using questionnaires for patient and staff feedback.

Results

The results are shown in the tables below.

Thoracic Group (n=19)

	LOS	DPI	PPCs
Pre-trial	5.2	5.2	0
Trial	5.2	3.3	0

Cardiac Group (n=8)

	LOS	DPI	PPCs
Pre-trial	8.8	5.5	0
Trial	5.6	5.2	0

Patients rated the service as 'excellent' and found later treatments 'acceptable'. Staff delivering the service understood the benefits but felt the new shift pattern impacted negatively on work life balance.

Conclusions

The results suggest a benefit to patients but lack generalisability due to short duration and small sample size. Further work to increase the sample size is required to establish whether physiotherapy intervention on day 0 improves patient outcomes and reduces PPCs. Additionally, cost- saving and increased flexibility of shift times can be explored.

Does exercising with Non-invasive Ventilation (NIV) improve Quality Of Life (QOL) in patients with severe Chronic Obstructive Pulmonary Disease (COPD)? A randomised controlled trial

Kathryn Buchan¹, Kathryn Badlan² and Shea Palmer²

Introduction

Pulmonary rehabilitation (PR) can improve QOL in patients with severe COPD. However, these patients are repeatedly hospitalised, deconditioned and cannot access PR. NIV may offload the respiratory muscles relieving breathlessness allowing patients to train, which may increase QOL. Previous studies have trialled positive pressure as a means of relieving ventilatory load, allowing more severe COPD patients to exercise (Maltais et al., 1995). Studies have assessed mixed pathology or stable COPD patients (Menadue, et al., 2010 and Dyer et al., 2011).

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Aim

To identify potential differences in QOL between patients with severe COPD, following a hospitalised exacerbation, who exercise on NIV and those receiving standard care.

Methods

18 patients with COPD (mean age 66.5 years [46–97], FEV₁ mean 25% predicted [9–51%]), recruited following an admission for an exacerbation of COPD requiring treatment with NIV, were randomised to 3 groups. Group 1 received standard hospital physiotherapy care, Group 2 exercised on NIV (Trilogy 100, Philips-Respironics) with a PS of 10cmH₂O (10–16) twice weekly for the duration of the admission and Group 3 exercised on NIV during hospital stay and also twice weekly at home for 3 months following discharge. Exercise in all 3 groups included weights and pedal cycling or walking. All were followed up monthly for 3 months. QOL was assessed using the European quality of life - 5 Dimensions - 5 Levels (EQ-5D-5L) utility index.

Results

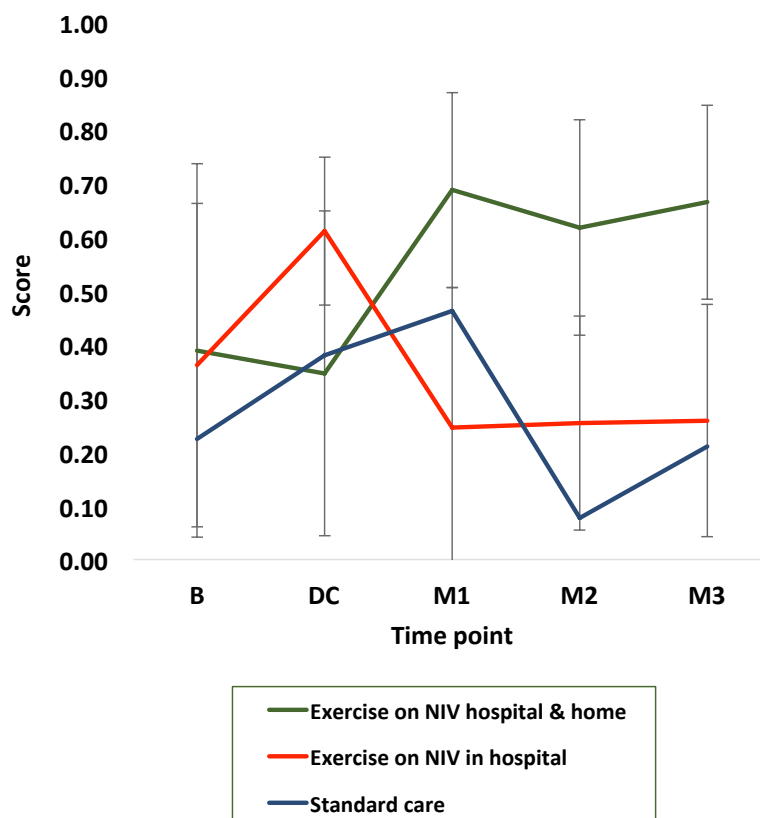


Figure 1: EQ-5D-5L mean utility scores. (B-Baseline, DC-Discharge, M1-Month one, M2-Month two, M3-Month three) with SDs. Minimum clinically important difference (MCID) is 0.03, 1.00=best health.

Conclusion

There is a trend that the patients in group 3 (exercise on NIV hospital & home) had improved EQ-5D-5L compared to those in group 1 (standard care).

A systematised literature review investigating the effects of Oscillating Positive Expiratory Pressure (OPEP) therapy on clinical outcomes in patients with Chronic Obstructive Pulmonary Disease (COPD)

Becky Ransley¹, Kerry Gaskin, Helen Frank

Background

Use of airway clearance techniques to remove excess secretions is widely used in the management of COPD. Intra-thoracic Oscillating Positive Expiratory Pressure (OPEP) produces high-frequency oscillations and increases expiratory airflow, to create shearing forces, which reduce secretion viscosity and aid secretion mobilisation.

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Aims

To establish the effects of OPEP on clinical outcomes in stable and acute exacerbations of COPD.

Methods

A comprehensive search of MEDLINE, Academic Search Complete, CINAHL complete, psychINFO, SPORTdiscus, TRIP, ProQuest Central, and PubMed was conducted to identify randomised controlled trials or randomised crossover studies, which investigated the effects of intrathoracic OPEP in COPD. Methodological rigour, quality and validity of each record was assessed with the PEDro scale.

Results

322 participants from 10 studies were included. The results of the review showed a significant improvement in FVC, 6MWT and exertional breathlessness and slowed deterioration in FEV₁ and was equally as effective in improving SpO₂, sputum volume, and PEFr, as other ACTs in stable COPD. In AECOPD, OPEP significantly improved ABGs, significantly reduced the requirement and duration of NIV treatment and reduced hospital length of stay.

Conclusions

This review suggests that in stable COPD, OPEP is associated with an improvement in exercise capacity, and in acute exacerbation of COPD, reduces the requirement and duration of NIV treatment and reduces hospital length of stay. More long-term trials are required, particularly investigating the effect of OPEP as an adjunct to pulmonary rehabilitation.

Non-invasive Ventilation Compliance and survival trends in Motor Neurone Disease

Holly Van Ristell¹, Joanna Shakespeare and Edward Parkes

Background

The loss of motor neurones is the hallmark of motor neurone disease. This can present as limb, respiratory or bulbar muscle weakness or a combination of all. The literature has suggested that patients with bulbar onset symptoms are six times less likely to tolerate NIV (Gruis, 2005). The NICE guidelines (2016) on the assessment and management of motor neurone disease recommend that all motor neurone disease patients are given the option to trial NIV when respiratory function results suggest the need for it.

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Method

All patients who had a previous diagnosis of MND and referred to the respiratory physiology and sleep department for commencement of NIV according to NICE guidelines were reviewed. Patients were sub grouped into bulbar and limb onset MND. We compared compliance, starting pressures, pre-NIV SNIP, set up arterial blood gas and time from diagnosis to NIV initiation. Patient demographics were collected from the departments NIV database.

Results

The results found no significant difference in compliance at 90 days (11 patients in the bulbar patient group compared to 8 in limb group) ($p=0.734$) between bulbar and limb onset patients. There was also no significant difference in survival time (280 days compared to 294 days) ($p=0.897$). No significant difference was found in pre NIV PCO₂ ($p=0.662$). There was no significant difference in starting IPAP (mean of 13cmH₂O compared to 15cmH₂O) ($p=0.86$) or starting EPAP (mean of 5 cmH₂O compared to 5cmH₂O) ($p=0.142$).

Conclusion

This single centre, small cohort, observational study suggests that bulbar patients can be successfully initiated onto NIV and remain as compliant as limb patients at both 30 and 90 days. Our data appears to show that there is no NIV survival advantage between groups however, bulbar patients due to their preserved mobility may experience dyspnoeic symptoms sooner and therefore commence NIV earlier in the disease process. A trial of NIV should be therefore considered in all MND bulbar patients.

What is the impact of therapists routinely giving brief advice on smoking cessation to patients on the vascular ward?

Niamh Keating¹, Esther-Rose Tuakli, Livia Fornasari, Megan Townsend, Kate Conneally

Introduction

Smoking is the UK's biggest killer. Promotion of smoking cessation in hospital is recommended in NICE guidelines and is a priority in the NHS long term plan. There is an untapped potential for physiotherapists to encourage and enable patients to quit smoking.

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Aim

- For therapists to give very brief advice (VBA) on smoking cessation and offer a referral to local Stop Smoking Services (SSS), to 75% of patients who smoke on the vascular ward, from March to August 2018.
- To achieve an increase in referrals from the ward to local SSS.
- To measure the public health impact by assessing the uptake of SSS referrals and the number of successful quit attempts.

Methods

Training was delivered to the vascular therapy team on giving VBA on smoking cessation and how to refer patients to their local SSS. Therapy Assessment forms were updated to record smoking status, whether VBA was given, and the outcome of VBA.

Results

During the intervention study period 22% of vascular in-patients were recorded as smokers (n=43). 83% of these patients (n=36) were given VBA, of which 33% (n=12) were referred to local SSS. 17% of patients given VBA were referred to ward doctors/pharmacists for Nicotine Replacement Therapy (NRT). In addition, there was a 50% increase in SSS referrals from the ward.

Conclusion

By routinely giving brief advice on smoking cessation and offering a referral for NRT and local stop smoking services, physiotherapists can 'make every contact count' and help patients to quit smoking to improve their health.

Designing a protocol for post-operative care and mobilisation of patients having harvest of free fibula for head and neck reconstruction

Jeremy Daly¹, Ashish Magdum, Barra Al-Khayat

The vascularised free fibular flap is the most commonly used flap in reconstructive head and neck surgery. However, surgeries are often long, requiring protracted periods of general anaesthetic, placing patients at increased risk of post-operative complications.

There is considerable variation in the management of this patient group, with little official guidance available. This contributed to inconsistencies in post-operative management and delays to mobilising – increasing the risk of venous thromboembolism, respiratory tract infections and delirium. Immobilising the affected limb with a backslab affected weight bearing status, made mobilising challenging, and on one occasion resulted in significant pressure damage to a patient's limb.

Inconsistencies in management were highlighted to consultant surgeons, who encouraged the project and assigned surgical fellows to liaise with. Multiple versions of a protocol were generated following consultation with relevant members of the MDT, before a final draft was approved by the surgical team. An audit of surgeries from the last two years is currently underway for comparison to more recent, protocol-driven surgeries.

This protocol hopes to standardise post-operative management of this patient group, specifically enabling early mobility through use of alternative dressings and orthoses. This has the potential to provide more consistent care, reduce post-operative complications and time to independent mobilising.

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Adherence to pulmonary rehabilitation, and associated sociodemographic factors in the borough of Tower Hamlets: a retrospective case note review

Valentina Vergara¹, Charlotte Pereira, Eleanor Main, Lucy Gardiner, Harriet Shannon

Background

Pulmonary rehabilitation (PR) is a cost-effective intervention enabling patients to manage their symptoms of COPD. However, attendance and adherence rates remain low. Exploration of a PR service at Barts Health NHS Trust, London was undertaken, to identify any predictors of low adherence.

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Aims and objectives

To characterise the sociodemographic profile of attendees of four PR classes in the borough of Tower Hamlets and to identify any factors associated with adherence to PR.

Methods

A retrospective casenote review was conducted, using data collected from March 2016 to February 2018. Measurements of age, sex, smoking status, living status, diagnosis, severity of diagnosis, HADS scores, co-morbidities and number of PR sessions attended were gathered. Participants were categorised into adherence groups of low, medium or high adherence (1–5, 6–15 and 16+ sessions respectively).

Results

A total of 887 patients attended at least one PR session. Low adherence was recorded in 52.4%, with 5 being the median number of sessions attended. 208 patients (23.4%) demonstrated high and 215 patients (24.2%) moderate adherence to PR. There was no statistically significant difference between adherence groups in terms of any of the outcomes measured. There were no correlations between variables measured and adherence.

Conclusion

No outcomes measured could reliably predict adherence, either in isolation or in combination with other outcomes. Adherence may result from multiple, individual factors that are challenging to summarise for a population. Future analysis of a larger, more detailed dataset may provide new insights that could contribute to ongoing discussions regarding adherence to PR.

The effectiveness of preoperative inspiratory muscle training for preventing and managing atelectasis in adults after major elective surgery: A systematic review and meta-analysis

Luke Heath¹ and Robyn Stiger²

Background

This systematic review aimed to evaluate the effects of preoperative Inspiratory Muscle Training (Pre-IMT) on postoperative atelectasis (a known Postoperative Pulmonary Complication (PPC)), Maximal Inspiratory Pressure (MIP) and Length of Stay (LOS) in adults undergoing major elective surgery compared with standard care.

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Methods

Database searches using CINAHL, PubMed, AMED, CENTRAL and PEDro were conducted in April 2018. Randomized controlled trials (RCTs) that compared the use of a Pre-IMT training period to usual care in adults undergoing major elective cardiac or abdominal surgery were included.

The PEDro score was used to assess methodological study quality.

Where possible, a meta-analysis was performed to synthesize the findings.

Results

4 RCTs met the selection criteria. 3 were of high quality.

Pre-IMT significantly reduced the incidence of atelectasis in adults after major elective surgery (risk ratio (RR) 0.37; 95% confidence interval (CI) 0.19 to 0.72; P value = 0.003; I² statistic = 0%). There was no incidence of all-cause mortality or adverse events. MIP improved significantly between baseline and postoperative day 3 (Mean Difference (MD) 8.82; 95% confidence interval (CI) 13.21 to 4.43; P value = 0.0001; I² statistic = 22%). LOS reduction was not significant but favoured the training group (Mean difference (MD) 0.54; 95% confidence interval (CI) -2.31 to 1.24; P value = 0.55; I² statistic = 0%).

Conclusion

Pre-IMT reduces the incidence of postoperative atelectasis and is safe for patients. Future research should investigate robust methods for screening atelectasis and standardizing pre-IMT protocols so that effects on PPCs and LOS can be better understood.

A survey examining Mechanical Insufflation-Exsufflation use in UK, adult intensive care units

Emma Swingwood¹, Lyvonne Tume and Fiona Cramp

Background

Despite potential benefits it is not known how widely mechanical insufflation-exsufflation (MI-E) devices are used by physiotherapists on UK intensive care units (ICU).

Aim

To describe the use of MI-E devices in adult ICU across the UK.

Method

Physiotherapists working in a permanent post on UK, adult ICU were invited to participate in an electronic survey. Ethical approval was granted by the Faculty Research Ethics Committee, University of the West of England, Bristol.

Results

166 complete surveys were returned, with good geographical UK representation. Over half (72% 119/166) respondents were band 7 and above, with a mean (\pm SD) of 13 (\pm 7) years since qualification.

Nearly all (98% 163/166) clinicians had access to MI-E on ICU, with a range of devices reported. Estimated frequency of use varied, with the majority reporting weekly or monthly use ($n=52/163$, 32% and $n=50/163$, 31% respectively). Just over half of respondents ($n=86/163$, 53%) stated they use MI-E with intubated patients. In contrast, 99% of clinicians stated MI-E use with extubated patients. Of those clinicians who did not use MI-E in intubated patients ($n=74/163$, 45%), a range of perceived barriers was reported (Figure 1).

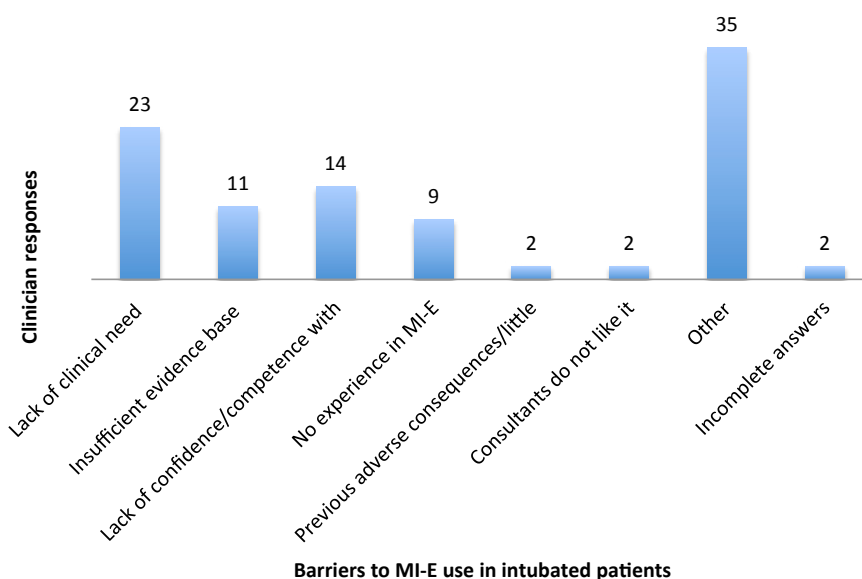


Figure 1: Perceived barriers to MI-E use in the intubated population.

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Conclusions

MI-E is widely available on adult ICUs across the UK. Clinicians reported greater use with extubated patients. Barriers to MI-E use in the intubated population warrants further investigation.

The introduction of an induced sputum procedure for patients with potential TB

Rebecca Hall¹, Ema Swingwood¹, Dr Sarah Mungall and Dr Abbey Leahy

Introduction

Tuberculosis (TB) is in the top 10 mortality risks worldwide. The main cause of TB is mycobacterium tuberculosis which often affects the lungs. The World Health Organisations (WHO) 'End TB Strategy'¹ aims to reduce the incidence of TB related deaths by 95% and 90% respectively by 2035. Prompt diagnosis and treatment is paramount.

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Bronchoscopy is a frequently used diagnostic assessment when spontaneous sputum samples have been negative. This technique is invasive and costly to the healthcare provider. A cheaper non-invasive alternative is induced sputum. Research has found diagnostic sputum yields to be similar between both induced sputum and bronchoscopy techniques.

Aims

To introduce an induced sputum procedure into the TB Pathway to aid timely assessment for this vulnerable patient group.

Methods

A standard operating procedure (SOP) was written for the induced sputum process, alongside mapping of the patient pathway. All staff involved with the procedure were provided with adequate training to continue working independently.

Results

Between April 2017 and May end 2018, 29 induced sputum procedures were completed (19 inpatient procedures and 10 outpatient procedures), with a successful yield rate of greater than 70%. An incidental finding was how stressful patients found this procedure due to 'a fear of the unknown'. A patient information sheet has been produced and is currently under review.

Conclusions

The introduction of a SOP for induced sputum has enabled patients to be assessed in a timely manner and has negated the need for bronchoscopy in a high number of patients- thus providing financial benefits to the healthcare provider.

References

¹WHO End TB Strategy. <http://www.who.int/tb/strategy/en/>.

The development and implementation of rehabilitation prescription tools on respiratory high care

Rebecca Hall¹, Amy Smith¹ and Ema Swingwood¹

Background

CG83¹ highlights the importance of rehabilitation following critical illness and illustrates a rehabilitation continuum from intensive care through to community settings. Despite this continuum there is little guidance or criteria to highlight those patients who can start rehabilitation which may lead to prolonged bed rest and an increased length of stay.

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Previous audit against these guidelines demonstrated a delay in rehabilitation initiation. This delay was often associated with a lack of clinician confidence with the patient group.

Aims

To support inexperienced members of the MDT in initiating decision making about rehabilitation on respiratory high care through the creation of a comprehensive algorithm, and safety criteria.

Methods

The current pathway was reviewed alongside the evidence base (¹⁻³). We created an algorithm; this provided detail for the MDT to support their decision to refer to therapy, and outlined how they could support the rehabilitation process. The algorithms were split into 3 pathways using a stratification tool.

Separately we devised a traffic light system to support inexperienced therapists with decisions to begin rehabilitation.

Results

Time to rehabilitation initiation has improved, with greater MDT involvement following implementation of the rehabilitation algorithm and traffic light tools. We also anticipate that the MDT feel more supported in their decisions to begin rehabilitation.

Conclusions

The development and implementation of an algorithm and traffic light system has provided opportunity for earlier initiation of rehabilitation for this patient group. Overall we hope that patient care will be improved and patient experience enhanced as illustrated by further audit against the national guidelines.

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³Hodgson, C. et al. (2014). Expert consensus and recommendations on safety criteria for active mobilization of mechanically ventilated critically ill adults. *Critical Care*. 18(6): 658.

Assessing frailty in cystic fibrosis candidates for lung transplantation using the Short Physical Performance Battery: Feasibility and significance compared to non-CF candidates

Laura McGarrigle¹, Ruth Bradley¹, Gail Rinchey¹, James Sidderley¹, Sarah Hunt¹, Mohamed Al-Aloul¹, Rajamiyer Venkateswaran¹

Background

Improvements in CF care and life expectancy have led to an increasingly complex group of lung transplantation (LT) candidates. Extra-pulmonary complications may contribute to the development of frailty, a state characterised by a lack of physiological reserves and increased vulnerability to stressors. A number of studies link frailty to adverse outcomes on the LT waiting list and post-LT.

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Aims

We aimed to investigate if one simple, validated measure of frailty, the Short Physical Performance Battery (SPPB), could be used to evaluate candidates with CF and make comparisons to other advanced disease presentations.

Method

240 consecutive LT candidates presenting at one UK centre completed a SPPB (static balance, 4 metre gait speed, rising from a chair) as part of routine physiotherapy evaluation between 2014 and 2018. Diagnosis, age, gender and frailty score were documented.

Results

Median age was 56 (range:17-68) and 141 (59%) were male. 12 candidates with CF demonstrated a median SPPB score of 11 (range 9–12). There were significant differences found between the distribution of scores in the mixed diagnosis and CF groups ($p=0.002$) and the COPD/Emphysema and CF groups ($p=0.013$).

Conclusion

Use of the SPPB was quick, simple, feasible and acceptable to the CF population. CF candidates were significantly less frail than those with mixed disease and COPD/emphysema. Identifying frailty could help physiotherapists target candidates at high risk for pre and post LT mortality.

	Frail (SPPB 0-7)	Pre-Frail (SPPB 8-9)	Not Frail (SPPB 10-12)
ILD (N=91)	9 (9.9%)	25 (27.5%)	57 (62.6%)
Mixed disease (N=33)	8 (24.2%)	14 (42.4%)	11 (33.3%)
COPD/emphysema (N=65)	14 (21.5%)	19 (29.2%)	32 (49.2%)
PAH (N=19)	4 (21.1%)	2 (10.5%)	13 (68.4%)
CF (N=12)	0	3 (25%)	9 (75%)

Does the short physical performance battery as a stand-alone measure of frailty in lung transplant candidates correlate with post-operative length of stay?

Laura McGarrigle¹, Ruth Bradley¹, Gail Rinchey¹, James Sidderley¹, Sarah Hunt¹, Mohamed Al-Aloul¹, Rajamiyer Venkateswaran¹

Background

Frailty, a clinically recognisable state of declining physiological reserves and function is prevalent among lung transplant (LT) candidates. Many studies have linked frailty to adverse outcomes whilst on the LT waiting list and post-LT including increased mortality, hospital length of stay (LOS), and level of residual disability. Most frailty constructs require data from a multitude of investigations. We aimed to investigate if one simple validated measure of physical frailty, the Short Physical Performance Battery (SPPB), correlated with LOS after LT.

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Method

SPPB data was collected at 240 consecutive adult LT assessments between 2014 and 2018 in one UK LT centre. LOS was calculated for the 60 for LT recipients within this period.

Results

Median age was 56 (range 17–68) years with 59% male. 16% were frail (SPPB \leq 7), 29% pre-frail (SPPB 8–9) and 55% were not frail (SPPB \geq 10). There was a weak, negative, non-statistically significant correlation between SPPB score and total LOS ($r = -0.120$, $p = 0.38$) and ICU LOS ($r = -0.15$, $p = 0.29$). There was no correlation between SPPB and ward LOS.

Conclusion

Frailty was common in this LT population. LT in frail individuals anecdotally results in longer recovery periods but this has not been supported by our study, allowing for the small data set. The SPPB needs further investigation as a stand-alone measure of frailty in LT candidates to determine its usefulness in predicting LOS and other post-operative outcomes.

A review of an oxygen prescription and follow up pathway for patients with Cystic Fibrosis

Ema Swingwood¹, Peter Moran, Amy Smith, Philippa Warden, Dr Nicholas Bell and Dr Kathryn Bateman

Background and objectives

Cystic Fibrosis (CF) is a genetic condition affecting 10,400 people in the UK. A build up of thick mucus on the lungs results in repeated infections, scarring, inflammation and inevitably respiratory failure. Hypoxaemia can frequently occur during sleep, ambulation or air-travel. As a result some patients may require a prescription for supplementary oxygen.

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In the absence of national CF specific guidelines, a local oxygen assessment and management pathway was created in 2016 at the Bristol Adult CF centre. Following this, national guidelines were published in 2017, leading to a need to update the local oxygen pathway. This special interest report documents the review and update of the local pathway and acts as a method of dissemination to others within this clinical area.

The objective was to review an established local pathway against newly released national guidance for oxygen prescription and management in CF.

Methods

Newly published guidelines of oxygen prescription in CF were compared with the existing local oxygen pathway and current standards of oxygen prescription. The pathway was updated and a meeting of the centre's multidisciplinary team (MDT) was held to debate and finalise the updates.

Results

Reassuringly, a number of similarities were found between the national guidelines and original local pathway. The MDT identified a systematic approach to oxygen assessment and management already in place, while identifying areas to update.

Conclusion

This project demonstrated the importance of reviewing local clinical pathways against national guidelines. A retrospective audit of the pathway will be conducted later in 2019.

The development of a Non-Invasive Ventilation Pathway in an adult cystic fibrosis centre

Ashley Tugwell¹, Charlotte Hardaker¹, Peter Moran¹, Emma Pilkington¹, Ema Swingwood¹, Nicholas Bell¹, Kathryn Bateman¹

Background

Cystic Fibrosis (CF) is a genetically inherited condition resulting in a cycle of infection and lung damage causing ventilation failure that may require Non-Invasive Ventilation (NIV). Since implementation of the original NIV pathway in 2016, new research and guidelines supporting the use of NIV within the CF population have been produced (NICE Guidelines, 2017). NIV has shown to improve management of ventilation failure, facilitate exercise, airway clearance and as a bridge to transplant. A review of the Pathway was essential to ensure timely and effective use of NIV in our service.

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Objectives

Review the latest research and guidelines to further develop our NIV pathway, including setup and management of NIV (acute and long term) in patients with CF.

Methods

- Literature review of the current published guidelines on NIV use in CF.
- Informal focus group to discuss the Pathway and potential amendments, based upon the findings and clinician experience.

Results

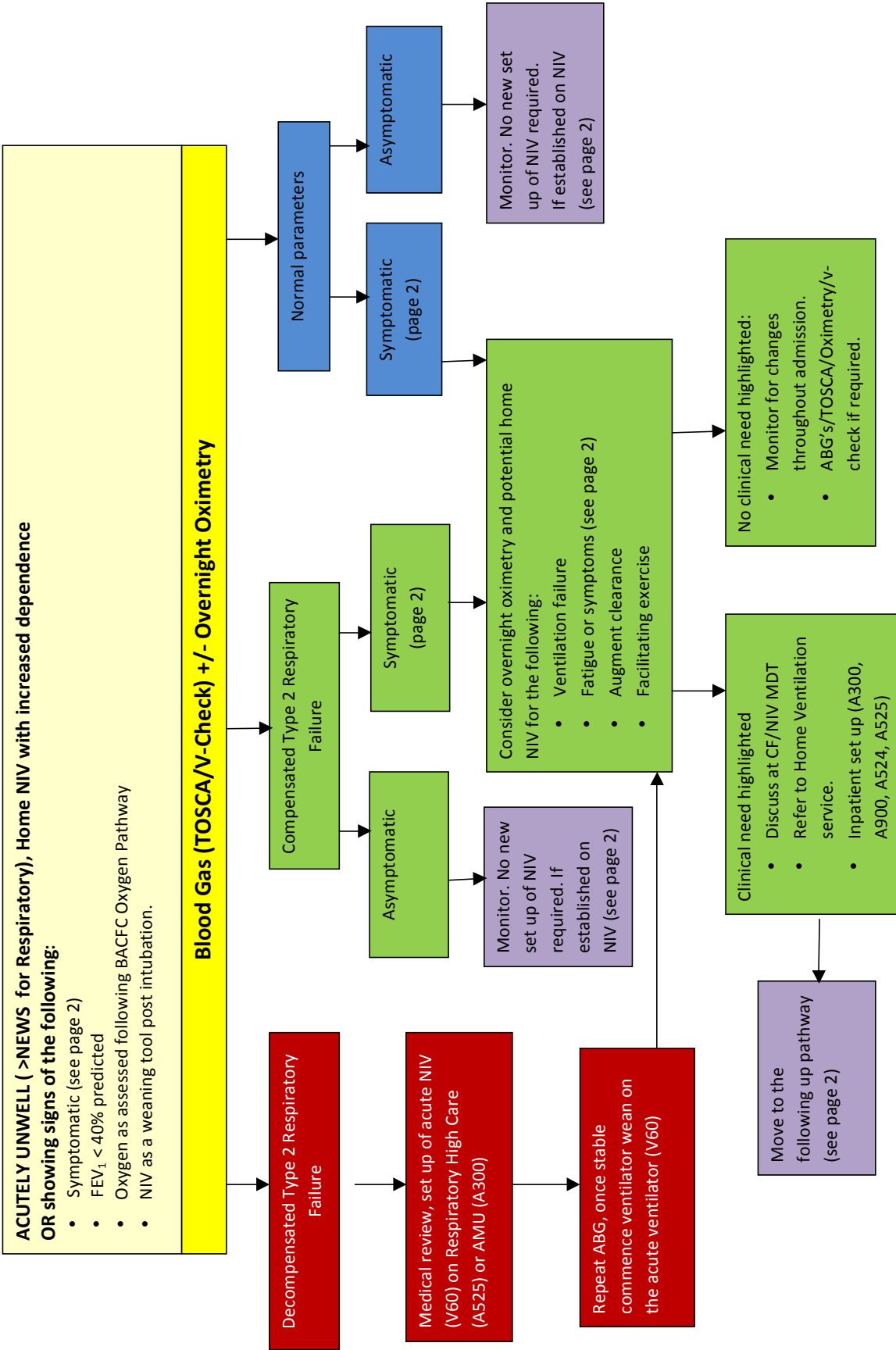
Our NIV Pathway has been amended to include both clinical and symptomatic indications for NIV use in CF. Emphasis on collaborative working between the MDT's, greater use of non-invasive assessment tools and an awareness of symptomatic management to facilitate exercise and airway clearance in addition to ventilation failure. The review highlighted educational needs around implementation of NIV in this specialist patient group, particularly for symptomatic indications.

Conclusions

Revision of CF NIV Pathways is vital to support best patient care, in particular highlighting the importance of NIV with symptom management and facilitating. An educational programme will also be implemented alongside this Pathway.

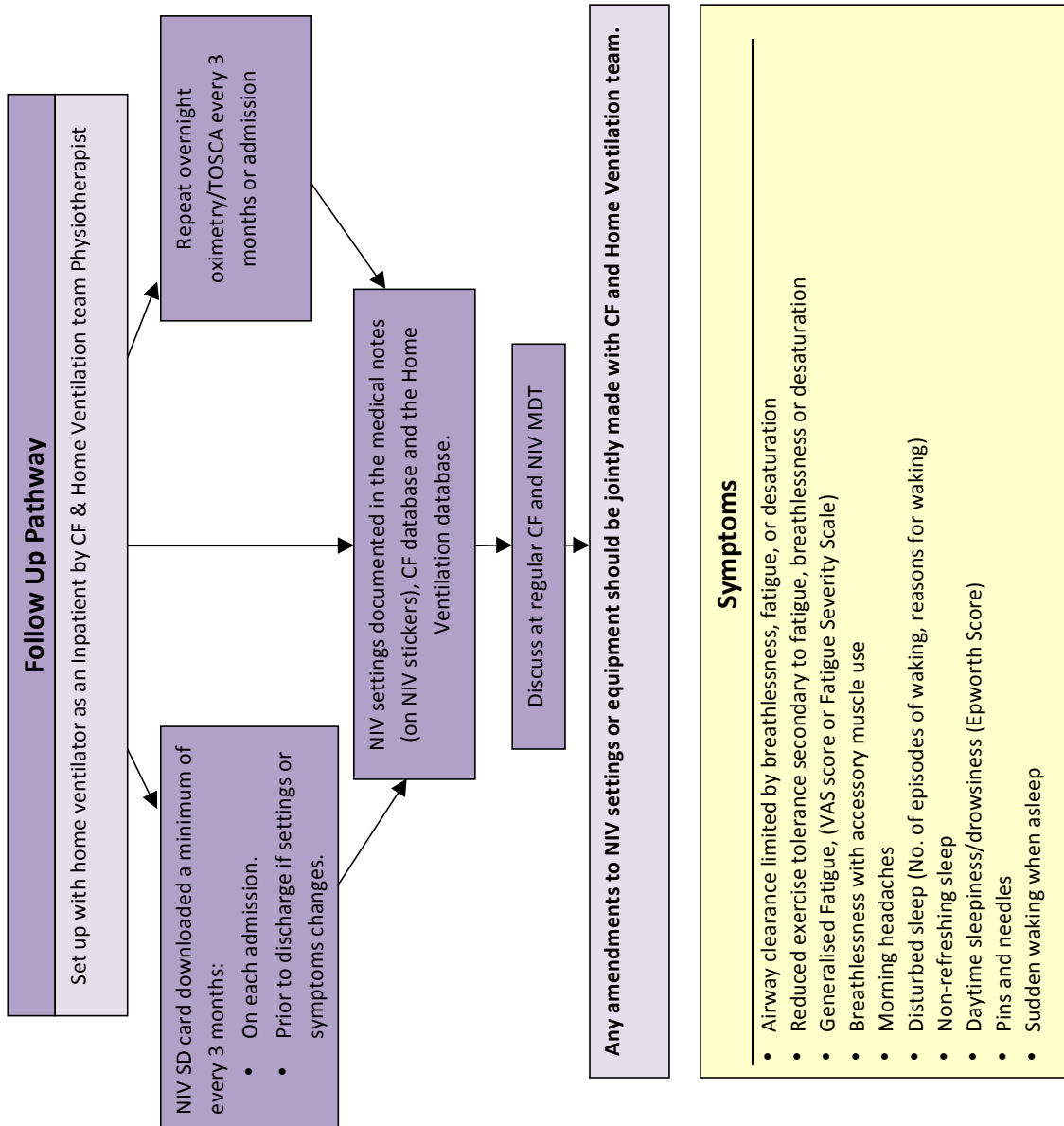


BACFC ACUTE / LONG TERM NIV PATHWAY





BACFC ACUTE / LONG TERM NIV PATHWAY



Symptoms

- Airway clearance limited by breathlessness, fatigue, or desaturation
- Reduced exercise tolerance secondary to fatigue, breathlessness or desaturation
- Generalised Fatigue, (VAS score or Fatigue Severity Scale)
- Breathlessness with accessory muscle use
- Morning headaches
- Disturbed sleep (No. of episodes of waking, reasons for waking)
- Non-refreshing sleep
- Daytime sleepiness/drowsiness (Epworth Score)
- Pins and needles
- Sudden waking when asleep



BACFC ACUTE / LONG TERM NIV PATHWAY

Guidance

Acute Respiratory Acidosis

- ABG should be completed within 60 mins of a patient arriving in acute respiratory distress.
- NIV should be commenced within 60 mins of abnormal ABG or within 120 mins of patients arriving acutely unwell to hospital.
- All new NIV set ups for decompensated Type 2 Respiratory Failure should follow UHBristol NIV proforma
- ABG should be repeated 1 hour after commencing NIV – clinical improvement within first 2 hours is strong predictor of outcome.
- ABG completed again if clinical deterioration or at 4 hour mark.
- Target individualised Spo2 target ranges set by Consultant/Doctor. NIV settings should be adjusted/optimised prior to oxygen titration.
- Aim to maximise use of NIV in first 24 hours during acute Type 2 Respiratory Failure.
- All CF patients commencing NIV should be setup with a humidified circuit
- Staff to initiate NIV = NIV Physio / CF Physio (NIV competent) / NIV Nurse / Physiologist
- Nebulised therapies should be administered during breaks from NIV however patients dependent on or with high use of NIV, bronchodilator therapies can be given via an Aerogen neb inserted into the ventilator circuit.

Compensated Type 2 Respiratory Failure / Normal ABG but symptomatic

- A decision to start NIV for symptomatic management in context of compensated Type 2 Respiratory Failure or normal ABG should be made jointly by the CF Consultant & CF Physiotherapists
- NIV can be considered appropriate in absence of abnormal ABG to provide symptomatic relief as per CF NICE guidelines.
- Patients being set up on a home NIV ventilator require referral from CF Consultant to NIV Consultant using appropriate paperwork
- Initiation of home NIV on ward A900 requires the right skilled nursing staff available for ongoing monitoring
- Reduction in symptoms should be observed. Consider repeat early morning ABG/ V-check during admission as indicated to monitor.
- The provision of 2 ventilators and battery support is required for those using NIV for more than 16 hours out of 24 at home.
- NIV may be beneficial for specific admissions/disease episodes or exacerbations and can be withdrawn if not clinically indicated.

Nocturnal Hypoventilation

- Early morning ABG and overnight oximetry should be completed when patients demonstrate/report symptomatic sleep – (see page 2).
- Overnight NIV to be considered in all patients demonstrating nocturnal hypoventilation in the presence of raised PCO₂.

A service evaluation to explore whether the use of Thopaz chest drains reduced chest drain duration following thoracic surgery

Chloe Tait¹, Simon Hayward and Leanne McCarthy

Poster awarded second prize

Introduction

Chest drains are required following thoracic surgery but their prolonged duration can limit postoperative mobility and increase hospital length of stay (LOS). The use of portable Thopaz+™ drains may reduce drain duration and hospital LOS. Medela® Thopaz+™ drains were introduced in February 2017 for use with patients following thoracic surgery performed by one thoracic surgeon. Other surgeons continued to use under water seal (UWS) drains.

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Aims

To explore whether the use of Thopaz+™ drains reduced chest drain duration compared to UWS drains. To explore whether the use of Thopaz+™ drains reduced hospital LOS, time on physiotherapy caseload or earlier postoperative mobilisation.

Method

Data collection was for 6 months between February 2017 and July 2017 for all patients following thoracic surgery referred to physiotherapy. Data was analysed using descriptive statistics and statistical tests.

Results

Figure 1 shows the main findings of the service evaluation. Our data showed that Thopaz+™ drains did not result in a significant difference in drain duration or hospital LOS compared to UWS drains. They did however allow significantly earlier postoperative mobilisation and significantly reduced the time on physiotherapy caseload.

Figure 1: Table to show clinical outcomes for Thopaz+™ drain group and under water seal drain group.

Clinical outcomes	Thopaz+™ Chest drain (N=110)	Non- Thopaz+™ drain (N=82)	Mann Whitney results Median Difference (confidence interval CI)	P- Value
Median chest drain duration in days (upper and lower quartiles)	2 (1-4)	3 (1-4)	0 (CI: 0 to 0)	0.91
Median hospital LOS in days (upper and lower quartiles)	5 (4-7)	6 (4-8)	1 (CI: 0 to 1)	0.06
Median time on physiotherapy caseload in days (upper and lower quartiles)	4 (3-7)	5 (4-8)	1(CI: 1 to 2)	0.02
Median day first mobilised postoperatively (upper and lower quartiles)	1 (1-2)	3 (2-4)	1 (CI: 1 to 2)	0.0001

Conclusion

Using Thopaz+™ drains with patients following thoracic surgery does not appear to reduce hospital LOS or drain duration but does allow earlier mobilisation and discharge from physiotherapy caseloads. Analysis of 12 month data should be considered once available.

The implementation of locally-developed early rehabilitation guidance on Paediatric Intensive Care: a case study

Johanna Conroy¹, Charlotte Chew and Lucy Holland

Introduction

Early rehabilitation within adult Intensive Care Units is widely implemented and the benefits are well documented (Kress, 2009). A local retrospective study found that risk factors for weakness were different within Paediatric Intensive Care Unit (PICU) when compared to findings in adults. These findings were incorporated into guidance to identify barriers and opportunities for commencing rehabilitation in PICU.

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Aims

To apply locally developed rehabilitation guidance to a complex PICU patient.

Methods

The rehabilitation guidance (Figure 1) was used during weekly rehabilitation goal-setting meetings for all PICU patients.

Patient X was a one-year old girl transferred from another PICU with abdominal sepsis and laparostomy. She was identified as high risk: sepsis; inotropes on admission and >3 sedative agents (ketamine, clonidine, midazolam, fentanyl). The barriers identified to commencing rehabilitation were: high ventilatory requirement; open abdomen; and iatrogenic withdrawal requiring sedation cycling.

4 weeks after transfer, her abdomen was closed and rehabilitation was commenced. This started with cuddles with parents and the following day she sat in a reclining chair. Within 5 days the patient successfully extubated, after 7 days she was sitting independently and able to standing transfer.

Conclusions

The use of a locally-developed guidance for early rehabilitation on PICU successfully identified barriers to commencing activity for this patient. Active rehabilitation was started at the earliest opportunity which was important due to the risk factors identified in her presentation.

References

Kress, J.P. (2009). Clinical trials of early mobilization of critically ill patients. *Critical Care Medicine*; 37: S442-447.

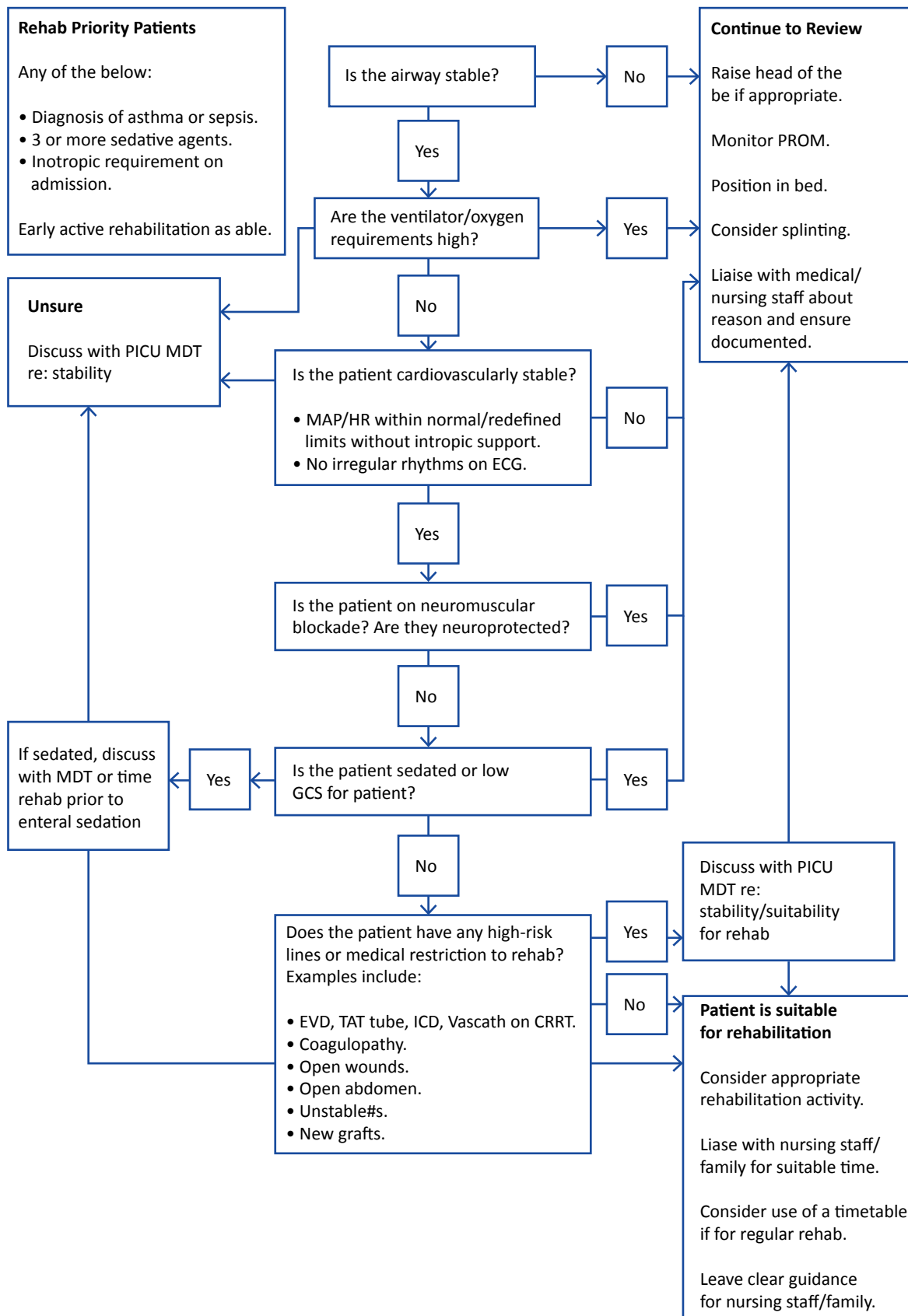


Figure 1: Rehabilitation on PICU flowchart.

Feedback following implementation of simulation training for on-call paediatric physiotherapists

Johanna Conroy¹, Charlotte Chew and Lucy Holland

Introduction

Simulation prioritises the learner's needs and increases reported confidence and competence in a number of disciplines (Blum et al, 2010; Berry et al, 2016). The Association of Chartered Physiotherapists in Respiratory Care (ACPRC) On-call Position Statement advises: 'competence should be ensured by the practical maintenance of clinical reasoning and clinical skills'. Previous on-call training of physiotherapists at this tertiary children's hospital included presentations and workshops targeting core respiratory skills and complex patients.

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Aims and objectives

To collate the opinions of on-call physiotherapists on the introduction of simulation training.

Methods

Simulation was integrated into a package based on previous programmes and areas of self-reported low confidence. The programme ran twice within the year to maximise attendance of the 33 on-call physiotherapists. Each session lasted one hour: a 30-minute simulation scenario then 30 minutes for a facilitated debrief. All attendees were provided with a feedback form after each session.

Results

Feedback was received from 16 out of 31 attendances over the two sessions. Emerging themes were: stress of participation; benefits of simulation and the debrief for learning; scenario feedback; ways to improve simulation use.

Conclusions

Simulation was reported to be stressful for participants, however this may be related to the introduction of a new teaching format. The advantages of applying clinical reasoning and skills in this harm-free environment were identified by attendees; this clear benefit should develop and maintain a competent and confident workforce.

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A review of CF patients' experience of receiving oxygen therapy beyond acute in-patient treatment in an adult Cystic Fibrosis centre

Tom Modzelewski¹, Martha Lipman¹, Peter Moran, Ema Swingwood, Philippa Warden, Dr Kathryn Bateman, Dr Nicholas Bell

Introduction

Cystic Fibrosis (CF) causes progressive lung disease, which can lead to an oxygen therapy (OT) requirement beyond acute hospital admission treatment. Evidence supports CF patients leading an active and highly functional lifestyle, and OT may be able to support this. Current guidelines advise when OT should commence, however, there is limited guidance around the ongoing use of OT in the CF population.

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Aims

This survey aimed to investigate the impact of oxygen prescription on CF patient's quality of life (QoL) and physical activity levels (PAL), and to explore patients' journey through the OT process.

Methods

Participants were identified using Bristol Adult Cystic Fibrosis Centre's (BACFC) database. All patients with an OT prescription were invited to participate in an online survey.

Results

Nine patients responded to the survey. Predominately participants have OT prescribed for nocturnal use or on exertion. 66% of participants report to follow their OT prescription. 44% of participant's reported a reduction in PAL since commencing OT, linked to 'patient's perception of disease progression and health decline'.

Barriers to OT utilisation highlighted by patients included 'heightened self-awareness and 'equipment limitations'. Additionally, results emphasised a lack of resources and peer support to address the emotional impact of OT.

Conclusions

This small survey provides preliminary insight into the experiences of OT in CF patients. OT may negatively influence PAL in CF due to potential links with negative emotional and social impact. This warrants further investigation. Education resources and strategies need to consider potential barriers to ensure optimal implementation of prescriptions.

Respiratory management of a Paediatric Anterior Myelitis Patient: a case study

Charlotte Chew¹, Johanna Conroy and Lucy Holland

Background

Over the last few months there have been a number of cases of acute flaccid paralysis secondary to enterovirus D68 reported to Public Health requiring admission to paediatric intensive care (PICU).

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Description

A 7 year old boy was admitted to hospital with a short history of chest infection. Shortly after admission suffered a rapid decline in respiratory function requiring intubation and ventilation and PICU admission (out of area due to bed shortages). The patient continued to have severe muscle weakness despite immunoglobulin and steroid treatment due to anterior myelitis at a high cervical level. The patient received a tracheostomy to continue ventilation as no recovery of respiratory function. Six weeks after admission, the patient was transferred to local PICU to establish long term ventilation and plans for ongoing care. Due to a weak cough the patient was requiring manual hyperinflation, saline instillations, expiratory vibrations and suction to effectively clear secretions, however, manual insufflation:exsufflation (MI:E) was commenced in view of longer term management.

Evaluation

Initially the patient was treated on manual mode to establish effective settings. Pressures were set based on ventilation requirements (+19cmH₂O:-10cmH₂O - approximately 20% above peak pressure of 16, and small exsufflation to assess tolerance and due to PEEP 8cmH₂O. Following trial and patient feedback established on timed auto programme with pressures of +19cmH₂O:-14cmH₂O at a 3:1 ratio, repeated × 5 with tracheostomy suction following as required.

Main conclusion

Effective secretion clearance programme established with MI:E increasing patient tolerance and empowering patient to become more actively involved in guiding treatment.

Face masks used with domiciliary Non-Invasive Ventilation (NIV): what do users and their carers say is most relevant in designing further research?

Christopher Boulding², Sarah Ewles¹, Sally Cozens¹, Peter Worsley², Jo Adams² and Joy Conway²

Introduction

We have previously identified an incidence of 12% for skin issues associated with mask use within our domiciliary NIV patients (n=278)¹. We now wish to design further research to improve our incidence of skin issues.

Aims and objectives

To ask a sample of our patients and their carers who use domiciliary NIV what is most relevant to them in order to guide the design of further research.

Methods

We invited 12 patients and their carers who use domiciliary NIV and have a diagnosis of MND or COPD to take part. We used a PPI focus group approach to explore issues for future research associated with NIV face masks.

Results

12 adult patients and their carers (3 MND, 9 COPD) using domiciliary NIV took part.

8 patients had previous skin issues associated with NIV mask use.

Recommendations for future research included:

- Clearer and innovative advice for skin care and mask cleaning.
- Improved comfort and fit for both masks and straps.
- Improve the ease of putting a mask on, particularly at night.
- A warm weather mask/straps design.
- Lack of peer support.

Conclusion

Our expert patient group identified a number of key areas for our future research.

References

¹Ewles S et al. *Eur Respir J* 2018 (52) suppl 62; PA2372.

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Common themes for delays to discharge for patients with Motor Neurone Disease when admitted to a specialist ventilation unit

Emma Flowers¹, Connor Moran, Andrew Bentley, Claire Somerton, Sophie Mennell, Kate Hall and Timothy Felton

Background

Non-Invasive Ventilation (NIV) is considered the standard of care for patients with Motor Neurone Disease (MND) with type II respiratory failure. Establishing patients on NIV may lead to a delay in hospital discharge due to increased complex care needs.

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Objective

To identify factors contributing to delays in discharge for patients with MND.

Methods

A retrospective service evaluation of patients admitted with a diagnosis of MND was performed over a six month period. Reasons for delay in discharge from hospital were identified. Demographics, length of stay and delay, reason for admission and delay and admitting location were collected for each patient. A comparison of groups was performed using Mann-Whitney Test and Fisher's exact test in SPSS v22.

Results

Forty two patients survived to hospital discharge. The mean age was 68 years and 60% were male. Median length of stay was five days with delays in discharge occurring in 13 (29%) patients. The delay in discharge was significantly longer in patients admitted to be established on NIV compared to those admitted for other reasons (e.g. REG insertion). Delays were predominantly related to social care issues. Patients transferred from another hospital had a significantly extended length of stay compared to those patients admitted from home. A greater proportion of patients transferred from another hospital had a delay in discharge, with a large number awaiting repatriation to their local hospital.

Conclusion

Early discharge planning should be focused on patients with MND admitted to be established on NIV or following transfer from another centre.

	All survivors	NIV set up/ optimisation during admission	No NIV set up	P	Admitted from home or clinic	IP transfer	p
Total number of patients	42/45	28	14		30	12	
Median total length of stay (range) [Days]	5 (2-108)	5.5 (2-108)	4 (2-26)	0.119	4 (2-108)	9.5 (2-26)	0.019*
Median length of stay till MFFD (if delayed) OR discharged (if not delayed) (range) [Days]	5 (2-54)	5 (2-54)	4 (2-21)	0.218	4 (2-54)	6 (2-21)	0.056
Number patients with delayed discharge	13 (29%)	9/28 (32%)	4/14 (29%)	not sig	5/30 (17%)	8/12 (67%)	0.003*
Median length of stay until fit for discharge (range) [Days]	7 (4-54)	6 (4-54)	9.5 (6-21)	0.330	7 (6-54)	7 (4-21)	0.833
Median length of delay in those delayed (range) [Days]	5 (1-54)	12 (1-54)	2 (1-5)	0.034*	19 (1-54)	5 (1-15)	0.093

Establishing a physiotherapy lead community tracheostomy service – the first 2 years

Hannah McDonald¹, Amanda Thomas and Cara Finnigan

Background

Prior to July 2016 there was no formal service for community tracheostomy patients within Tower Hamlets. These patients experienced long complex discharges from the acute service, and once home had to re-attend the hospital for monthly tube changes. Their community care was reliant on district nursing teams who lacked expertise. Commissioning appropriate care packages was challenging and ongoing ordering of consumables erratic. Medical (ENT) follow up was inconsistent.

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Service aim

To address the needs of patients with tracheostomy in the Tower Hamlets community and reduce dependence on acute services by employing a 0.4 WTE band 7 physiotherapist.

Service development

Service mapping, role promotion and service pathways were developed within relevant governance guidelines. A variety of data was collated to facilitate holistic service evaluation.

Service evaluation

Over the first 2 years of the service, 65 successful community tube changes within the 30 day standard were completed. 1 planned tube change was aborted due to safety concerns. A 55 day reduction in length of stay was observed comparing two similar discharges to different community localities. A 45% reduction in antibiotic use related to chest infection for one patient was observed. 2 community lead decannulations occurred and 1 community wean was initiated and progressed. 100% of patients have consumable prescriptions, order cycles and daily/emergency care plans appropriate to their needs. On-going formal links with ENT services have been established. Positive service user feedback including GPs, care providers and district nurses has been reported.

Service future

To commission the role within other Barts Heath community localities and to promote the importance of this role to the wider population.

A person centred approach to physiotherapy on intensive care to optimise outcome: a case study of a patient with Asperger Syndrome

Matthew Woods¹, Dr Denise Gibson^{1,2} and Zoe Van Willigen¹

Background

The concept of Asperger Syndrome (AS) was developed from a study in 1944 by Hans Asperger. People with AS perceive the world differently to people without and can have difficulties with understanding and processing language. Guidelines suggest that when treating patients with AS the best possible outcomes occur when a personalised treatment plan is implemented (NICE, QS51, 2014).

We present the case of a 26 year old male with AS who was admitted to USH for treatment of pneumonia. This case study aims to describe how this patient's complex needs required specific adaptations to physiotherapy treatments to achieve optimal clinical and patient outcomes.

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Methods

Treatments included: Incentive Spirometry, ACBT, Manual/Ventilator Hyper-Inflation, Trache weaning plan, Rehab plan. All aspects of treatment incorporated building rapport, through 'game play', singing and the inclusion of family and carers to enable 'buy-in' with therapy treatments. These adaptations to treatment were continued throughout the patient's journey within the hospital.

Results

Building rapport, having a personalised rehab programme, engaging the patient using their strengths and interests increased compliance with physiotherapy treatment.

Conclusion

Once buy-in to physiotherapy had been achieved, this patient was willing to engage with the relevant aspects of physiotherapy. This demonstrated the need for an individualised approach and support which optimised the outcome in this case.

Providing pulmonary rehabilitation for patients with Chronic Obstructive Pulmonary Disease requiring long-term Non-Invasive Ventilation: a case study

Amy Shaw¹, Lara Dickinson¹, Fiona Woodhead¹ and Emma Flowers¹

Introduction

Patients with Chronic Obstructive Pulmonary Disease (COPD) and exercise limitation due to breathlessness benefit from pulmonary rehabilitation (PR). Our experience suggests it is not common practice for patients with severe COPD requiring Long-Term Non Invasive Ventilation (NIV) to be referred into PR.

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Aims

1. To establish barriers/benefits for a patient with COPD attending a standard PR programme, using long term NIV during exercise.
2. To evaluate the risks to the PR service and further learning opportunities for staff.

Methods

A 70 year old female with severe COPD (FEV₁ 40% predicted) on long term NIV via nasal pillows (NIPPY 3+:PS mode, IPAP 22, EPAP 4, Ti 1.3, BPM 14) was referred to PR. To enable participation NIV training was provided by a tertiary centre to ensure PR staff were NIV competent. A bespoke risk assessment was developed by the PR service. The patient attended two exercise classes and one education class per week, over an 8 week period. The patient completed an Incremental Shuttle Walk Test (ISWT) and a validated health questionnaire (COPD Assessment Test (CAT)) before and after the programme.

Results

The patient used NIV throughout each exercise class and successfully completed the programme. ISWT distance was increased from 140m to 210m and CAT score was reduced from 24/40 to 21/40.

Conclusions

NIV should not be a barrier for patients with COPD to be referred to and successfully complete a PR programme. Further large-scale studies are required to establish the safety and benefit to patients with COPD receiving Long-Term NIV when attending PR programmes.

Avoiding a Trache Situation: A review of physiotherapy practice to minimise the use of tracheostomies on an adult Cardio-Thoracic Critical Care Unit

Dalia Barghouthy¹, Anna Makower and Laura Breach

Introduction

Tracheostomies are commonly used on adult intensive care units around the country. The most common reasons for tracheostomy are airway protection, bronchial hygiene and to facilitate weaning from mechanical ventilation (MV)¹. However, half of all airway related deaths were attributed to tracheostomy complications in a recent NCEPOD report². Therefore, could some tracheostomies be avoided?

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Aims and objectives

To find out whether pro-active evidence based physiotherapy interventions minimise the use of tracheostomies on an adult intensive care unit.

Method

Patients were screened via medical notes, handover and MDT discussion, between April and December 2018. Patients identified as requiring a tracheostomy for bronchial hygiene or to facilitate MV weaning were included. These patients received exercise (42%), rehab with endotracheal tube (17%), intermittent positive pressure breathing (24%), mechanical insufflation-exsufflation (2%) and non-invasive ventilation (13%).

Results

A total of 21 patients were identified as requiring a tracheostomy. Of these 21 patients, 19 did not receive a tracheostomy, with the use of physiotherapy and non-invasive ventilation. Therefore, 90% of patients that were identified as requiring a tracheostomy did not go on to receive one.

Conclusion

Physiotherapy intervention contributes to minimising the use of tracheostomies. Reducing the number of tracheostomies may reduce ICU length of stay, therefore having positive financial implications. This approach could be easily adopted within similar centres, with appropriate staff and equipment.

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²NCEPOD. (2014). Tracheostomy Care: On the Right Trach? Available at: <https://www.ncepod.org.uk/2014tc.html>.

Using a co-production approach to address sarcopenia in people with advanced thoracic cancers – a mixed methods study

Cathy Sandsund¹, Dr Richard Wagland, Dr Maggie Donovan-Hall, Dr Clare Shaw

Background

Reductions in physical performance and lean muscle mass (sarcopenia) are frequently seen at diagnosis in people with advanced lung cancer^{1,2}. Those with sarcopenia have worse rates of morbidity and mortality and experience higher symptom burdens³. Where the causal mechanisms are muscle disuse or malnutrition, evidence suggest that interventions of physical activity, nutrition or a combined approach are effective in improving physical performance and lean muscle mass^{4,5,6}. However, clinical implementation issues remain^{7,8}. This work aims:

- To understand the experiences of people with advanced lung cancer, their informal carers and their Health Care Professionals (HCPs) managing sarcopenia in clinic.
- To use that collective understanding to co-design the delivery and measurement of an intervention addressing sarcopenia.
- To test the feasibility of that intervention.

Methods

This prospective, single-site study at a UK cancer centre is underpinned by the Medical Research Council guidance for developing complex interventions⁹. Purposive sampling will be used to recruit ≥15 of each patient, informal carer and staff participants with experience of the treatment of advanced lung cancer. The first phase will use an experience-based co-design approach¹⁰. The exploratory stage will involve a combination of non-participant observations, face-to-face or telephone interviews and focus groups. A framework analysis will identify themes which will be prioritised by collective study participants for the group co-design stage.

Phase 2 will test this intervention for feasibility, estimating the recruitment and retention, testing and measurements procedures and determining future sample size. It will also testing for acceptability with patients, their informal carers and HCPs.

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