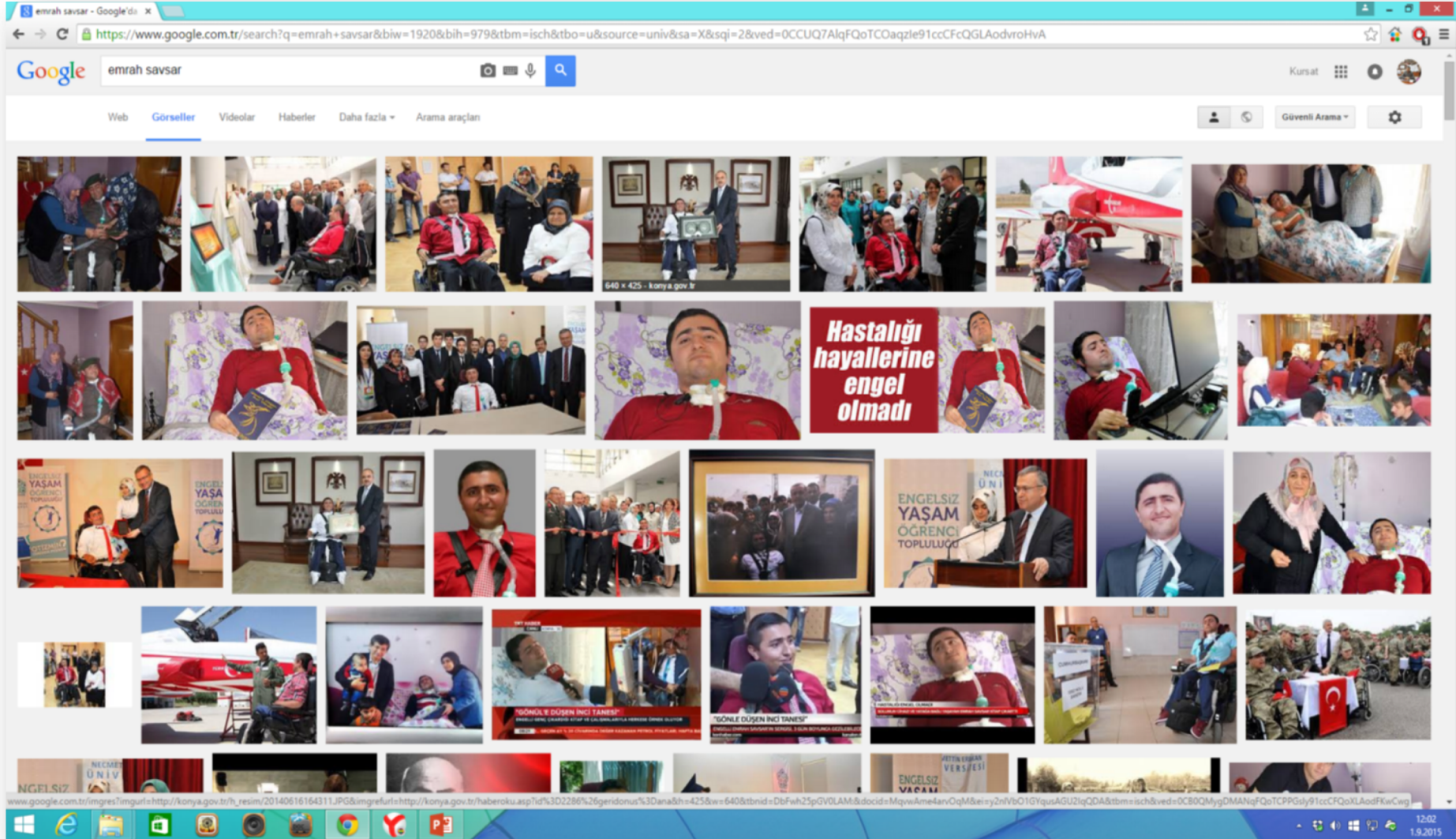


Nöromusküler Hastalıklarda Uzun Süreli Solunum Bakımı



Prof. Dr. Kürşat Uzun

Görseller



Köşe yazarı



ANA SAYFAKonyaDünyaGüncelSiyasetEkonomiEğitimTeknolojiSağlıkYaşam

Ana Sayfa / Yazarlar / Gönle dokunuş

Emrah SAVSAR



Gönle dokunuş

2

Yorum Yaz

Esselamualeyküm ve rahmetullahi ve berekatuhu Allahın selamı, rahmeti ve bereketi üzerinize olsun. Merhaba değerli okurlar. Siz değerli okurlara hitap edecek olmanın ve aranızda olmanın haklı gururu ile artık her hafta cuma günü 'Gönle Dokunuş' adlı yazım ile burada olacağım ve gönlümden geçenler ile gönlünüze dokunacağım. Öncelikle bu hafta ki yazıma sizlere kendimi tanıtmakla başlamak istiyorum. Ben Emrah Savsa, Savsar ailesinin en küçük ferdi olarak 1988 yılında Nisan ayı ve aynı zamanda on bir ayın sultanı Ramazan ayında Kars'ın Sankamış ilçesinde mütevazı bir evde bu geçici aleme, dünyaya gelmişim. 5 yaşına kadar normal bir çocukluk döneminin ardından hızla ilerleyen kas hastalığına yakalanmış ve 21 yıl sürecek imtihanım başlamıştı. 21 yıldır hastalığımın dolaylı yürüme engelliyim yani Rabbimin lütfettiği imtihanı 21 yıldır hamd edip göğüsliyorum. Ayrıca hastalığıma bağlı olarak yaklaşık 2 yıldan beri solunum cihazına bağlıyım ve yatağa bağımlıyım ama hamdolsun ki akülü tekerlekli sandalyeme kendim tasarladığım bir sistemle arada birde olsa dışarı çıkabiliyor ve Rabbim bağıştığı nimeti olan doğanın güzelliklerinden faydalanabiliyorum.

Nöromuskuler Hastalıklar

AKUT

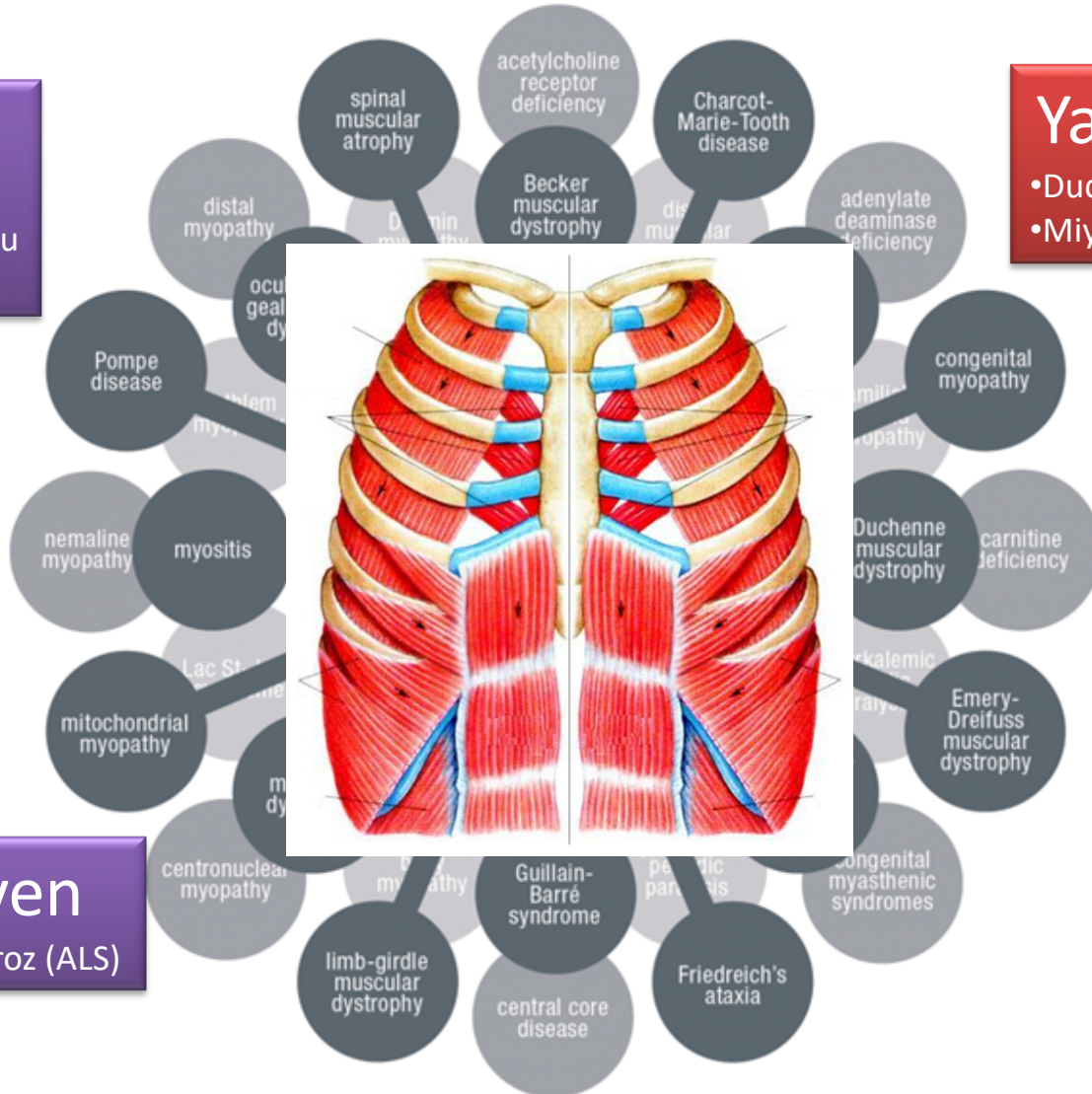
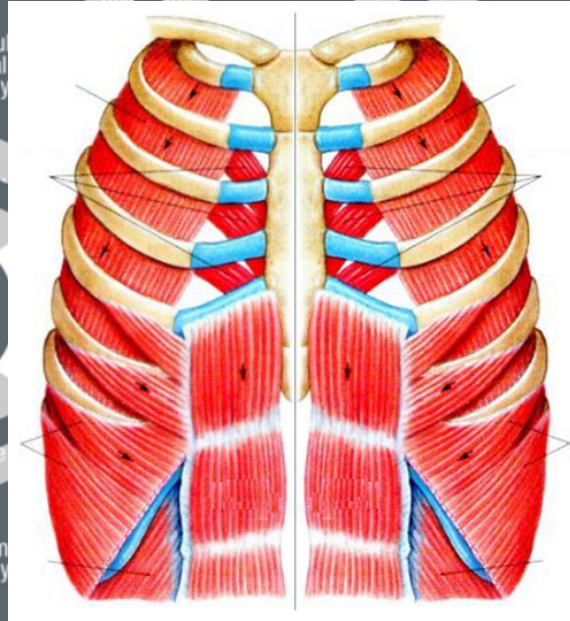
- Guillain Barre sendromu
- Myastinik kriz

Hızlı ilerleyen

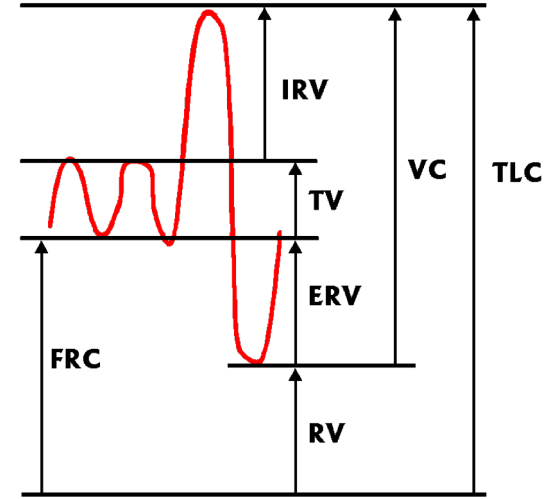
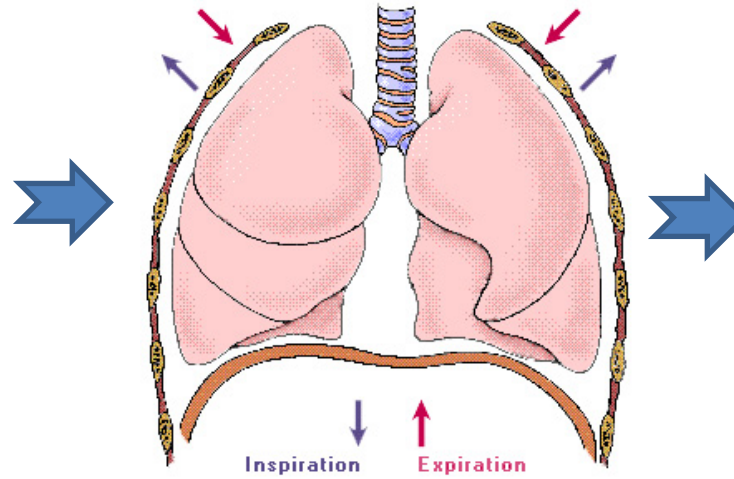
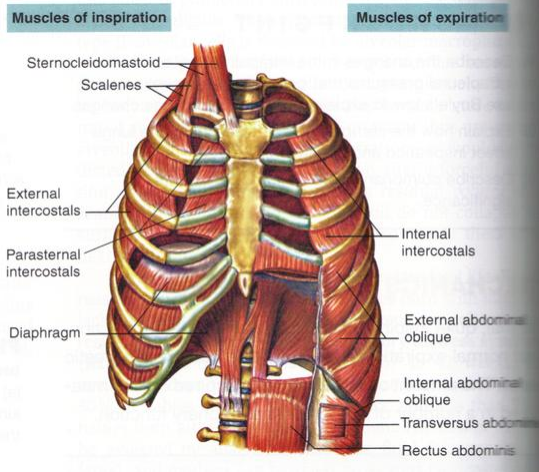
- Amyotrofik lateral skleroz (ALS)

Yavaş ilerleyen

- Duchenne
- Miyotonik distrofi

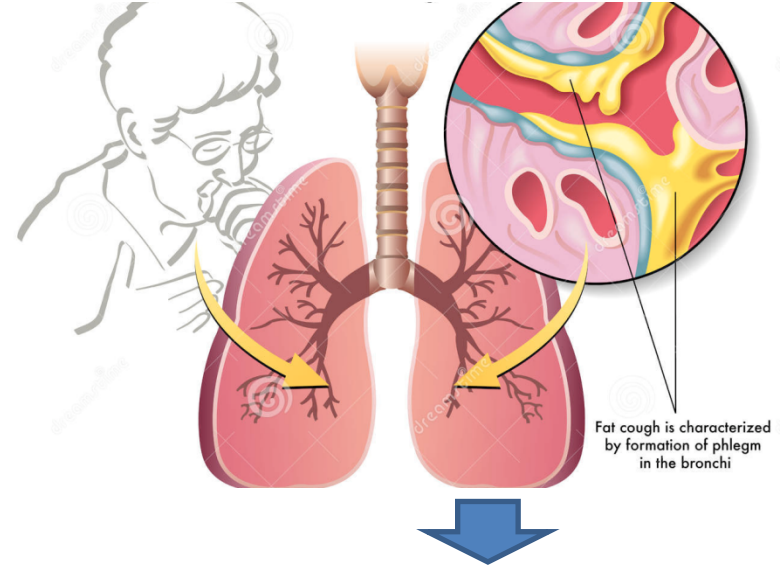
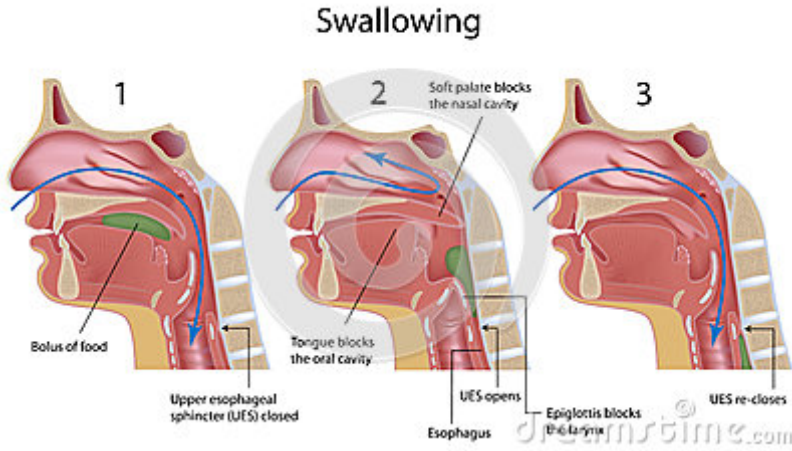


Solunum kasları

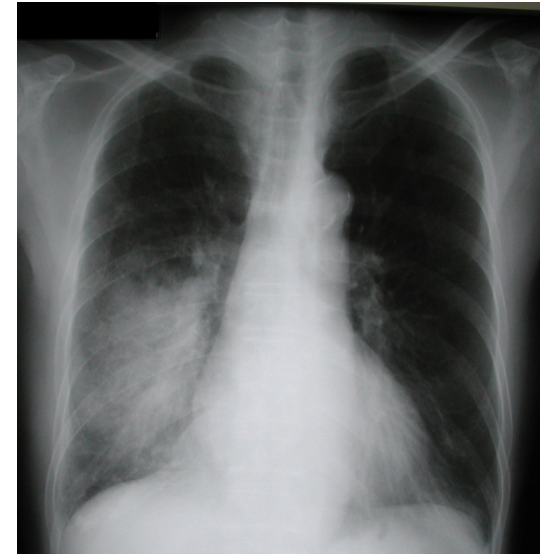


- Nefes darlığı
- Ortopne
- Hızlı yüzeyel solunum
- Hiperkapni
- Boğulma hissi
- Gündüz uyku hali
- Sabah baş ağrısı

Orofaringeal kaslar



- Yutkunma, konuşma, çigneme, nazal konuşma
- Yetersiz öksürük
- Sekresyon kontrolü
- Aspirasyon
- Pnömoni



ilk zamanlar



MV, NIMV ihtiyacı ve
komplikasyonları tespit
TEST ???

Yapılacaklar

- Solunum fonksiyon testleri
 - VC, FVC, FRC, TLC
 - VC
 - Normal: 60-70 mL/kg
 - <15-20 mL/kg (MV desteği)
 - %30-50 düşüş (bir önceki)
- MIP (≤ -80 cmH₂O), MEP ($\geq +90$ cmH₂O)
 - Yetersiz öksürük
 - MEP <60 cmH₂O
 - MV ihtiyacı
 - <-30 cmH₂O (MIP), < 40 cmH₂O (MEP)
- SNIF
- Peak Cough Flow
 - <160 L/dk (yetersiz öksürük)
 - 160-270 L/dk (enfeksiyon riski)
- Arter Kan Gazı
 - Hiperkapni
 - MIP
 - <-30 cmH₂O
 - Hipoksemi
 - pH, PaCO₂, PaO₂, HCO₃

Amaç

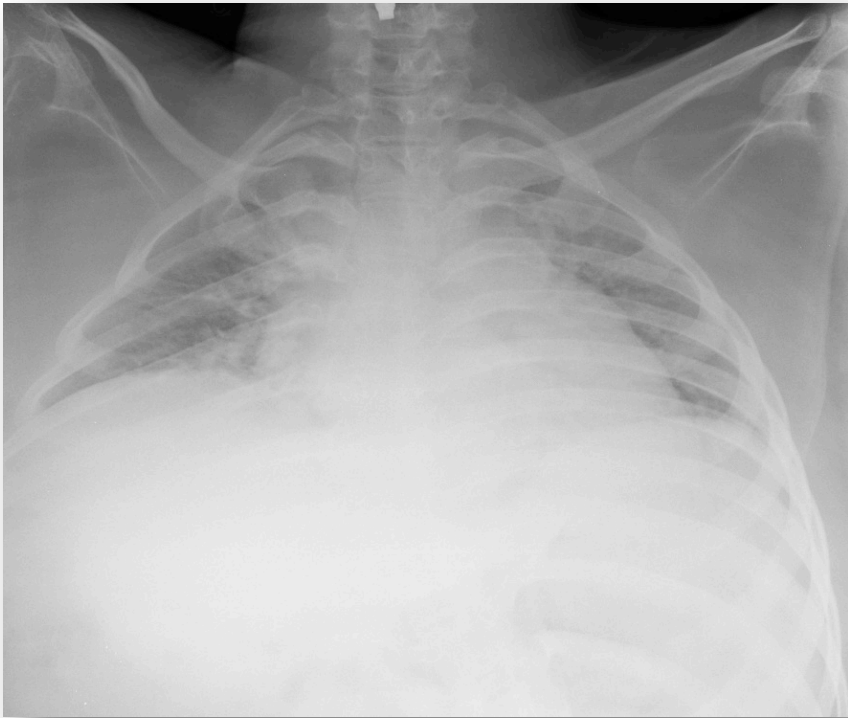
Hasta konforu
Hayat Kalitesi
Fiziksel aktivite
Psikososyal fonksiyonlar

Başlangıç



- 27y, E
- 14 yıl önce DMD
- İlk Geliş: 21.02.2011
 - 3 gün ateş, üşüme-titreme
- Pnömoni

PA Akciğer Grafisi ve Toraks BT



Kan Gazi

23.02.2011

- pH:7.34
- pCO₂: 73.7 mmHg
- PO₂: 102.2 mmHg
- HCO₃: 39.2 mmol/L
- SatO₂: %97.8

24.02.2011

- pH:7.39
- pCO₂: 61.7 mmHg
- PO₂: 109.1 mmHg
- HCO₃: 37.2 mmol/L
- SatO₂: %98.5



IPAP: 15 cmH₂O, EPAP: 5 cmH₂O

Noninvaziv ventilasyon

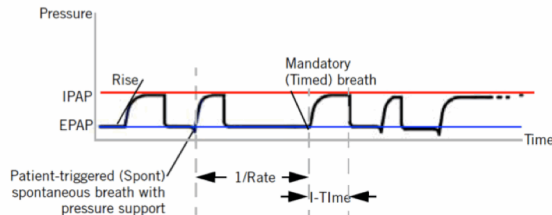
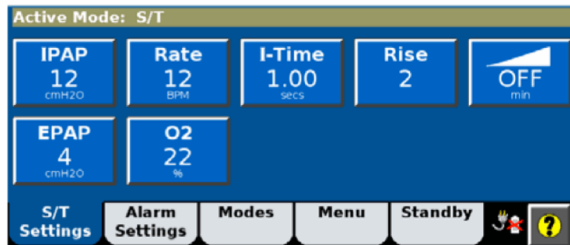
Solunum fonksiyonlarını düzeltir

Kan gazlarını normalleştirir

Yaşam Kalitesi artar

Uyku kalitesi artar

- Nazal maske
- Oronazal maske



NIV

Recommendations

- Consider daytime ventilation when measured waking P_{CO_2} exceeds 50 mm Hg (*see ROUTINE EVALUATION OF RESPIRATORY FUNCTION*) or when hemoglobin saturation remains $< 92\%$ while awake.
- In centers with appropriate expertise, consider mouthpiece intermittent positive pressure ventilation or other forms of noninvasive daytime ventilation. Consider tracheostomy when contraindications or patient aversion to noninvasive ventilation are present.
- Patients receiving noninvasive ventilation should have regular (at least annual) noninvasive monitoring of gas exchange, including oxygen saturation and end-tidal P_{CO_2} levels.



Mekanik Ventilasyon

Non invaziv MV

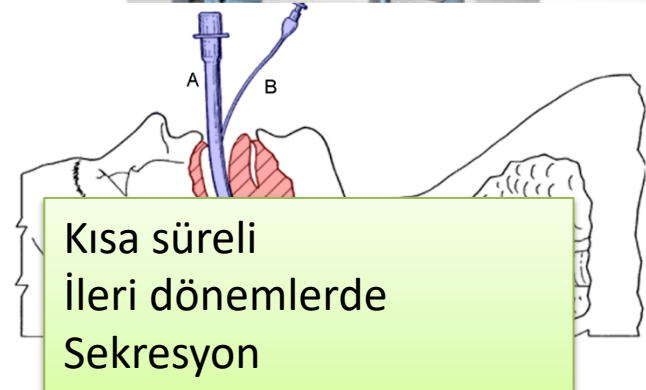
İnvaziv MV



Karar



Kısa ve uzun süreli ?
(Hastanın seçimi)
Fayda/risk
değerlendirmesi



Kısa süreli
İleri dönemlerde
Sekresyon

İnvaziv Ventilasyon

Continuous Invasive Ventilation

Daytime and nighttime ventilation can be provided in individuals with DMD using a tracheostomy, when other device interfaces are poorly tolerated or the patient lacks sufficient oromotor and/or neck control to use a mouthpiece interface during the daytime. Advantages of a tracheostomy include a more secure ventilator-patient interface, the ability to provide higher ventilator pressures in patients with intrinsic lung disease or severe reductions in chest wall compliance (for example, secondary to scoliosis), and the ability to perform direct airway suctioning during respiratory infections. However, tracheostomies have many potential complications, including generating more secretions, impairing swallowing and increasing the risk of aspiration, and the bypassing of airway defenses, likely increasing the risk of infection (62). There is a risk of airway occlusion by a mucus plug (63). Traditionally, tracheostomies also impair oral communication. For many patients, communication may be restored using a relatively small tracheostomy tube allowing a “leak” around the airway, and a speaking valve (64). Loss of ventilator tidal volume with a leaky system can be compensated for by increasing the tidal volume (65). Many patients are concerned about the cosmetic and potential communication implications of tracheostomy, and this needs to be addressed with sensitivity during discussions about continuous ventilation (66).



Nocturnal mechanical ventilation for chronic hypoventilation in patients with neuromuscular and chest wall disorders (Review)



Main results

The 10 eligible trials included a total of 173 participants. Roughly half of the trials were at low risk of selection, attrition or reporting bias, and almost all were at high risk of performance and detection bias. Four trials reported mortality data in the long term. The pooled risk ratio (RR) of dying was 0.62 (95% confidence interval (CI) 0.42 to 0.91, P value = 0.01) in favour of nocturnal mechanical ventilation compared to spontaneous breathing. There was considerable and significant heterogeneity between the trials, possibly related to differences between the study populations. Information on unplanned hospitalisation was available from two studies. The corresponding pooled RR was 0.25 (95% CI 0.08 to 0.82, P value = 0.02) in favour of nocturnal mechanical ventilation. For most of the outcome measures there was no significant long-term difference between nocturnal mechanical ventilation and no ventilation. Most of the secondary outcomes were not assessed in the eligible trials. Three out of the 10 trials, accounting for 39 participants, two with a cross-over design and one with two parallel groups, compared volume- and pressure-cycled non-invasive mechanical ventilation in the short term. From the only trial (16 participants) on parallel groups, there was no difference in mortality (one death in each arm) between volume- and pressure-cycled mechanical ventilation. Data from the two cross-over trials suggested that compared with pressure-cycled ventilation, volume-cycled ventilation was associated with less sleep time spent with an arterial oxygen saturation below 90% (mean difference (MD) 6.83 minutes, 95% CI 4.68 to 8.98, P value = 0.00001) and a lower apnoea-hypopnoea (per sleep hour) index (MD -0.65, 95% CI -0.84 to -0.46, P value = 0.00001). We found no study that compared invasive and non-invasive mechanical ventilation or intermittent positive pressure versus negative pressure ventilation.

Authors' conclusions

Current evidence about the therapeutic benefit of mechanical ventilation is of very low quality, but is consistent, suggesting alleviation of the symptoms of chronic hypoventilation in the short term. In four small studies, survival was prolonged and unplanned hospitalisation was reduced, mainly in participants with motor neuron diseases. With the exception of motor neuron disease and Duchenne muscular dystrophy, for which the natural history supports the survival benefit of mechanical ventilation against no ventilation, further larger randomised trials should assess the long-term benefit of different types and modes of nocturnal mechanical ventilation on quality of life, morbidity and mortality, and its cost-benefit ratio in neuromuscular and chest wall diseases.

We found that mechanical ventilation at night may relieve the symptoms of chronic hypoventilation and prolong survival. However, the quality of the studies was very low. The benefit of long-term mechanical ventilation should be confirmed in further trials.

Home Mechanical Ventilation in Childhood-Onset Hereditary Neuromuscular Diseases: 13 Years' Experience at a Single Center in Korea

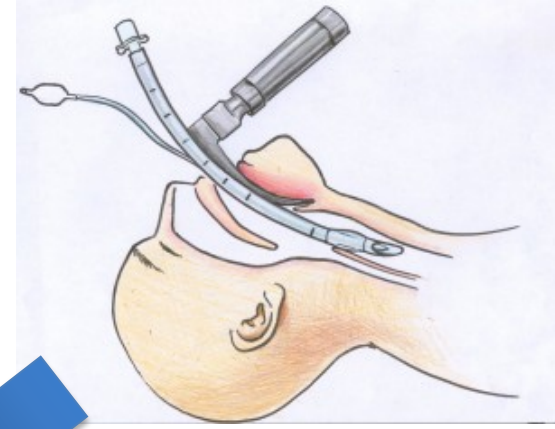
Young Joo Han¹, June Dong Park^{1*}, Bongjin Lee¹, Yu Hyeon Choi¹, Dong In Suh¹, Byung Chan Lim^{1,2}, Jong-Hee Chae^{1,2}

Conclusions

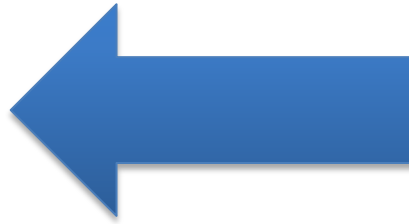
The application of HMV helped reduce respiratory morbidity in children with childhood-onset hereditary NMD. Patients with SMA type I can benefit from an early diagnosis and the timely application of HMV. The choice between invasive and noninvasive HMV should be based on the patient's age and NIV trial tolerance. Systematic follow-up guidelines provided by a multidisciplinary team are needed.



Süre
Yetersizlik
Komplikasyon
(pnömoni)



SEKRESYON KONTROLÜ



Trakeostomi ve MV (20.02.2013)

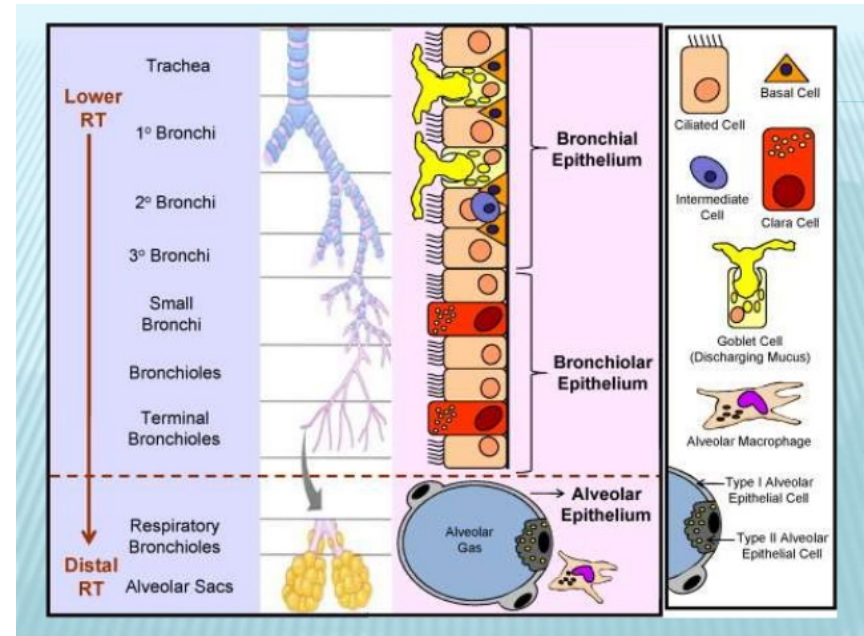
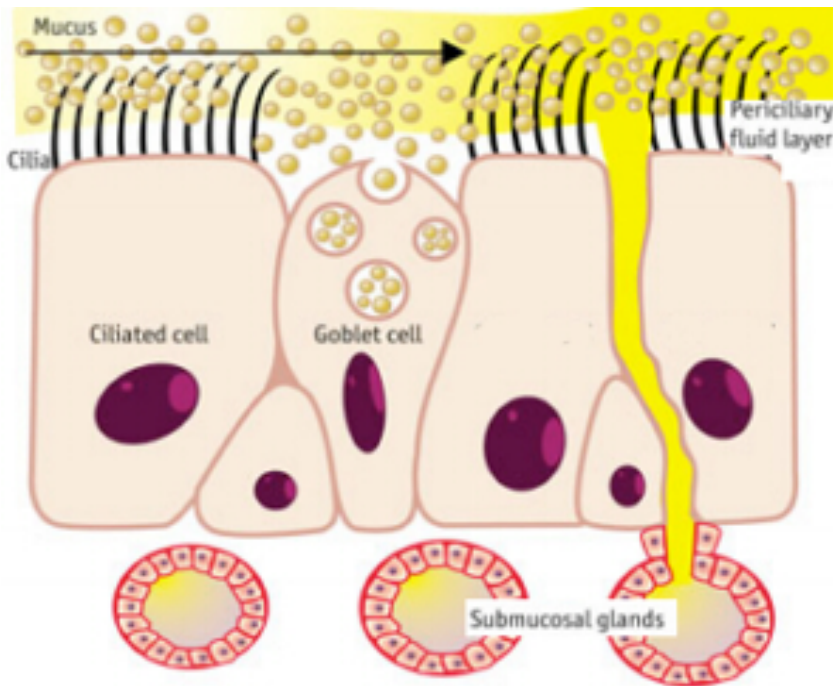
Ev tipi MV



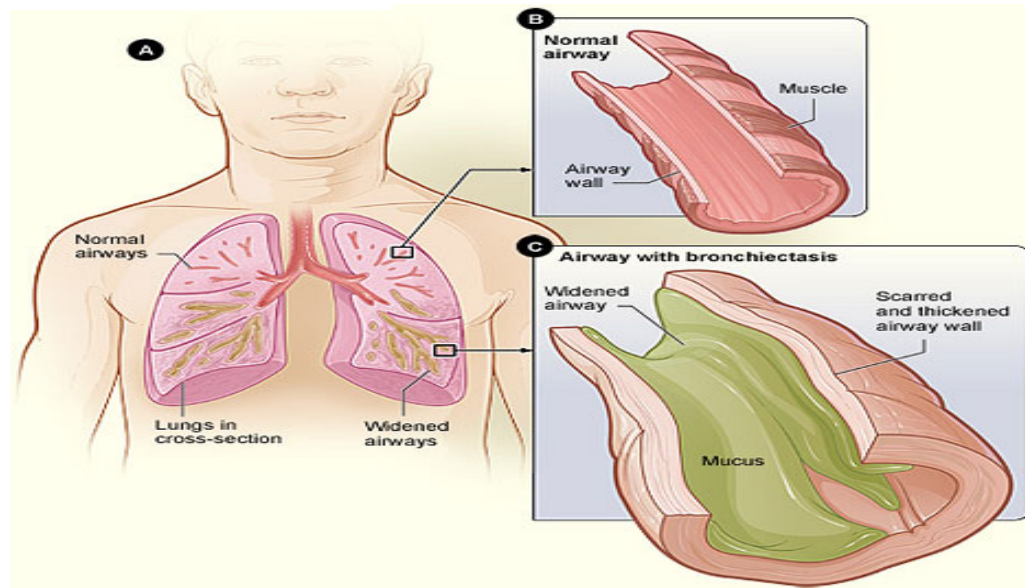
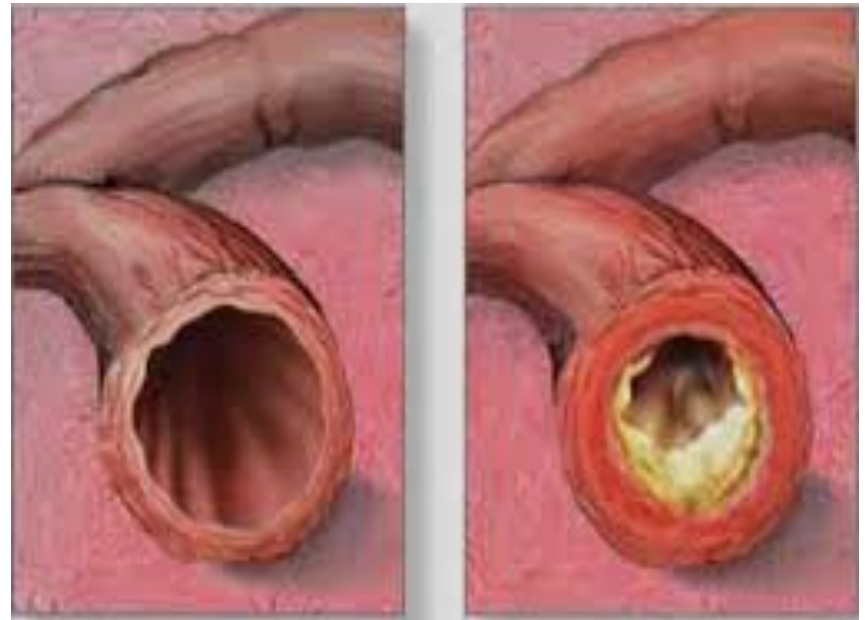
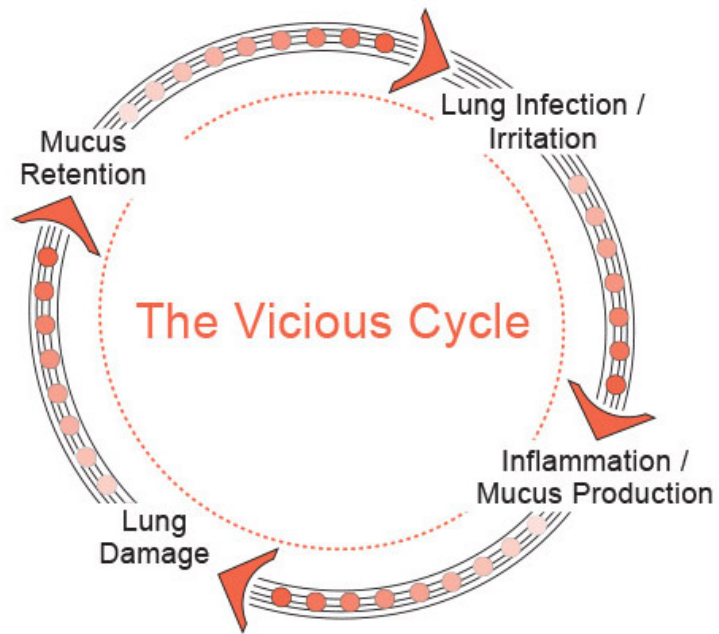
- Sekresyonlarını atamama
- Trakeostomi açıldı
- YBÜ



Akciğer ve sekresyon

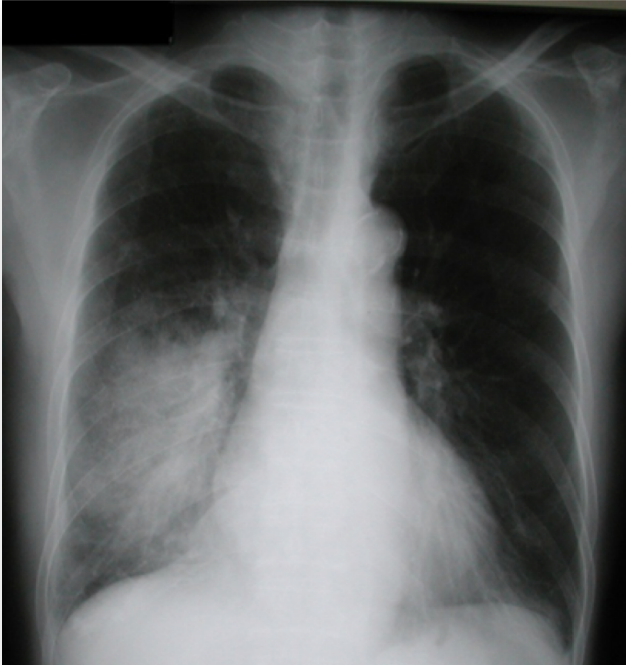


Mukus Yapısı

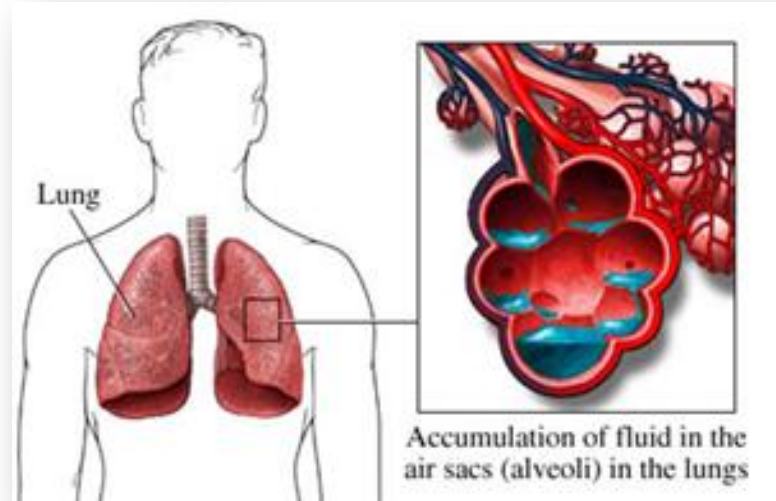


Öksürük yardımı

Aspirasyon pnömonisi



Solunum yetmezliği



Öksürük yardımı ve Sekresyon kontrolü



Hastalığın evresi
Öksürebilme şiddeti
Balgam çıkarabilme
Hastanın ihtiyacı
Hastanın konforu



Respiratory Care of the Patient with Duchenne Muscular Dystrophy

ATS Consensus Statement

THIS OFFICIAL STATEMENT OF THE AMERICAN THORACIC SOCIETY WAS APPROVED BY THE ATS BOARD OF DIRECTORS MARCH 2004.

Respiratory Care

- Patients should visit a physician specializing in pediatric respiratory care twice yearly after confinement to a wheelchair, fall in vital capacity below 80% predicted, and/or age 12 years.
- Children should have at least one visit with a physician specializing in pediatric respiratory care early in the course of the disease (between 4 and 6 years of age) and before confinement to a wheelchair to obtain baseline pulmonary function testing, for anticipatory medical guidance regarding the potential respiratory complications of the disease, and to assess the need for intensified therapy.
- Individuals who require mechanically assisted airway clearance therapy or mechanically assisted ventilation should see a pulmonologist every 3 to 6 months or as indicated for routine follow-up.

MANAGEMENT

Airway Clearance

Effective airway clearance is critical for patients with DMD to prevent atelectasis and pneumonia. Ineffective airway clearance can hasten the onset of respiratory failure and death, whereas early intervention to improve airway clearance can prevent hospitalization and reduce the incidence of pneumonia (8). Assessment of cough effectiveness includes measurements of maximal inspiratory and expiratory pressures, peak cough expiratory flow, and either inspiratory or vital capacity. Cough peak flows correlate directly to the ability to clear secretions from the respiratory tract (23), and values below 160 L/min have been associated with ineffective airway clearance (24). Baseline peak cough expiratory flow rate measurements above 160 L/min, however, do not guarantee adequate airway clearance, because respiratory muscle function can deteriorate during respiratory infections (25). For this reason a peak cough expiratory flow rate of 270 has been used to identify patients who would benefit from assisted cough techniques (8). Another study found that the ability to generate adequate flow for effective coughing correlated with a maximum expiratory pressure (MEP) of 60 cm H₂O and above, and was absent at levels below 45 cm H₂O (26). Pulse oximetry has been used to screen for lower airway complications of respiratory tract infections and help caregivers know when to intensify airway clearance therapy (8). Various techniques have been developed to overcome ineffective cough in patients with neuromuscular weakness.

Solunum egzersizleri balgam ıkarma yntemleri



01.02.2015



RESEARCH

Open Access

Use of mechanical airway clearance devices in the home by people with neuromuscular disorders: effects on health service use and lifestyle benefits

Trinity Mahede¹, Geoff Davis², April Rutkay², Sarah Baxendale¹, Wenxing Sun¹, Hugh JS Dawkins^{1,3,4,5}, Caron Molster¹ and Caroline E Graham^{1*}

Abstract

Background: People with neuromuscular disorders (NMD) exhibit weak coughs and are susceptible to recurrent chest infections and acute respiratory complications, the most frequent reasons for their unplanned hospital admissions. Mechanical insufflation-exsufflation (MI-E) devices are a non-invasive method of increasing peak cough flow, improving cough efficacy, the clearance of secretion and overcoming atelectasis. There is limited published evidence on the impact of home use MI-E devices on health service utilisation. The aims of the study were: to assess the self-reported health and lifestyle benefits experienced as a result of home use of MI-E devices; and evaluate the effects of in-home use of MI-E devices on Emergency Department (ED) presentations, hospital admissions and inpatient length of stay (LOS).

Methods: Individuals with NMD who were accessing a home MI-E device provided through Muscular Dystrophy Western Australia were invited to participate in a quantitative survey to obtain information on their experiences and self-assessed changes in respiratory health. An ad-hoc record linkage was performed to extract hospital, ED and mortality data from the Western Australian Department of Health (DOHWA). The main outcome measures were ED presentations, hospital separations and LOS, before and after commencement of home use of an MI-E device.

Results: Thirty seven individuals with NMD using a MI-E device at home consented to participate in this study. The majority (73%) of participants reported using the MI-E device daily or weekly at home without medical assistance and 32% had used the machine to resolve a choking episode. The survey highlighted benefits to respiratory function maintenance and the ability to manage increased health care needs at home. Not using a home MI-E device was associated with an increased risk of ED presentations (RR = 1.76, 95% CI 1.1–2.84). The number of hospital separations and LOS reduced after the use of MI-E device, but not significantly. No deaths were observed in participants using the MI-E device at home.

Conclusions: Home use of a MI-E device by people living with NMD may have a potential impact on reducing their health service utilisation and risk of death. Future research with greater subject numbers and longer follow-up periods is recommended to enhance this field of study.

Keywords: Neuromuscular disorder, Cough, Respiratory clearance, Mechanical in-exsufflation, Muscular dystrophy

Original Article

Mechanical insufflation/exsufflation improves vital capacity in neuromuscular disorders

Florian Stehling¹, Anastasios Bouikidis¹,
Ulrike Schara² and Uwe Mellies¹

Abstract

Inherited neuromuscular disorders inevitably result in severe lung volume restriction associated with high morbidity and mortality. The aim of this retrospective study was to evaluate the long-term effects of the regular use of mechanical insufflation/exsufflation on the course of the vital capacity. This retrospective data analysis included 21 patients (16.1 ± 6.5 years) with neuromuscular disorders and severe lung volume restriction using nocturnal noninvasive ventilation. The patients were advised to regularly use the mechanical insufflation/exsufflation twice a day for 10 minutes applying sets of three insufflation/exsufflation breath via face mask irrespective of respiratory tract infection. Data on the course of vital capacity were collected 2 years prior and 2 years after the introduction of regular use of mechanical insufflation/exsufflation. Before the introduction of mechanical insufflation/exsufflation vital capacity decreased from 0.71 ± 0.38 L to 0.50 ± 0.24 L in the last year and from 0.88 ± 0.45 L to 0.71 ± 0.38 L in the next to last year. In the first year, after regular use of mechanical insufflation/exsufflation vital capacity significantly increased by 28% (from 0.50 L to 0.64 L)—after the second year the vital capacity increase remained stable (0.64 vs. 0.65 L). These data suggest that the regular use of mechanical insufflation/exsufflation improves vital capacity in patients with neuromuscular disorders and severe lung volume restriction.

Keywords

Neuromuscular disorders, lung function, vital capacity, mechanical insufflation/exsufflation

Chronic
Respiratory
Disease

Chronic Respiratory Disease
2015, Vol. 12(1) 31–35
© The Author(s) 2014
Reprints and permission:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1479972314562209
crd.sagepub.com
SAGE

Hastaneye Yatışları

10.12.2014

- Pnömoni tanısı ile YBÜ

12.12.2013

- Ateş, öksürük
- A:38° C
- Aspirasyon ile sekresyon kontrolü sağlanıyor
- YBÜ

24.08.2015

- Servise kontrol amaçlı
- Pnömoni yok
- 1 gün yatış sonrası taburcu

Hastane Müracaatları

Tarih	İst.Bölüm	Modalite	Açıklama	Toplam Resim	Rapor	Erişim-No	İst.Doktor	
20.08.2015 20:10	GOGUS HASTALIKLARI SER...	CR		1	Yeni	103119897	UZUN^KURSAT	...
15.08.2015 21:32	ACIL SERVİS	CR		1	Yeni	103085576	ERGIN^MEHMET	...
05.08.2015 11:56		CR		1	Yeni	5625081		...
15.12.2014 09:18		CR		1	Yeni	4128807		...
10.12.2014 14:41		CR		1	Yeni	4108312		...
07.08.2014 15:33		CR	W Akciger pa	1	Yeni			...
07.08.2014 15:14	GOGUS HASTALIKLARI POLI...	CR		2	Yeni	3351936	UZUN^KURSAT	...
04.07.2014 14:06	GOGUS HASTALIKLARI POLI...	CR		1	Yeni	3169762	GOKTEPE^MUSTAFA	...
10.06.2014 16:37	ACIL SERVİS	CR		1	Yeni	3012270	CANDER^BASAR	...
28.04.2014 12:04	GOGUS HASTALIKLARI POLI...	CR		1	Yeni	2726804		...
06.02.2014 22:38	ACIL SERVİS	CR		1	Yeni	2190015		...
12.12.2013 09:04		CR		1	Yeni	1796928		...
10.12.2013 21:03	GOGUS HASTALIKLARI YOG...	CR		1	Yeni	1788640		...
14.11.2013 08:40		CR		1	Yeni	1610630		...
13.11.2013 08:39	GOGUS HASTALIKLARI YOG...	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	208509028-1	UZUN^KURSAT	...
12.11.2013 10:37	ACIL SERVİS	CR		1	Yeni	1596243	GIRISGIN^ABDULLAH SADIK	...
02.09.2013 16:13		CR		1	Yeni			...
09.08.2013 04:41	GOGUS HASTALIKLARI YOG...	CT	HRCT	23	Ks	208509441-1	K ARABACI	...
09.08.2013 02:39	ACIL SERVİS	CR		1	Yeni	1015053	ERGIN^MEHMET	...
19.06.2013 10:40	ACIL SERVİS	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	720475	KOCAK^SEDAT	...
09.04.2013 09:58	ACIL SERVİS	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	278242	GUL^MEHMET	...
12.03.2013 09:32	GOGUS HASTALIKLARI YOG...	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	208509471-1	UZUN^KURSAT	...
04.03.2013 09:29	GOGUS HASTALIKLARI YOG...	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	208509296-1	UZUN^KURSAT	...
25.02.2013 09:38	GOGUS HASTALIKLARI YOG...	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	208509149-1	TEKE^TURGUT	...
22.02.2013 09:26	GOGUS HASTALIKLARI YOG...	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	208509136-1	TEKE^TURGUT	...
18.02.2013 09:33	GOGUS HASTALIKLARI YOG...	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	208509045-1	TEKE^TURGUT	...
15.02.2013 09:26		CR		1	Yeni			...
11.02.2013 09:37	GOGUS HASTALIKLARI YOG...	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	208508958-1	UZUN^KURSAT	...
08.02.2013 09:28	GOGUS HASTALIKLARI YOG...	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	208508936-1	UZUN^KURSAT	...
06.02.2013 13:58	ACIL SERVİS	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	336403284-1	ERGIN^MEHMET	...
21.01.2013 11:03	ACIL SERVİS	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	336402829-1	GUL^MEHMET	...
01.03.2012 19:37	ACIL SERVİS	CR	DUZ KARIN GRAFISI (A...	1	Yeni	306405215-1	GIRISGIN^A.SADIK	...
27.02.2012 21:23	INTANIYE SERVİSİ	CR	W Akciger lateral	1	Yeni	216002310-1	KANDEMİR^BAHAR	...
27.02.2012 21:23	INTANIYE SERVİSİ	CR	W Akciger pa	1	Yeni	216002310-1	KANDEMİR^BAHAR	...
26.02.2012 16:15	ACIL YATAKLI UNITE	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	2379010606-1	CANDER^BASAR	...
31.01.2012 10:27	ACIL SERVİS	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	2804026670-1	GUL^MEHMET	...
26.12.2011 14:23	GOGUS HASTALIKLARI YOG...	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	208505070-1	TEKE^TURGUT	...
15.12.2011 08:49	GOGUS HASTALIKLARI YOG...	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	208504970-1	UZUN^KURSAT	...
15.12.2011 01:31	ACIL YOGUN BAKIM UNİTESİ	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	306401895-1	CANDER^BASAR	...
14.10.2011 14:59	GOGUS HASTALIKLARI (KO...	CR	W Akciger pa	1	Yeni	1792047939-1	ZAMANI^ADIL	...
14.10.2011 14:20	GOGUS HASTALIKLARI (KO...	CR	AKCIGER GRAFISI P.A. ...	1	Yeni	1792047940-1	ZAMANI^ADIL	...
07.03.2011 14:18	GOGUS HASTALIKLARI SER...	CR		1	Yeni	1792040085-1	İMECİK^OKTAY	...
02.03.2011 07:45	GOGUS HASTALIKLARI SER...	CR		1	Yeni	1792039791-1	İMECİK^OKTAY	...
22.02.2011 14:39	GOGUS HASTALIKLARI SER...	CR		1	Yeni	1792039402-1	İMECİK^OKTAY	...
21.02.2011 12:01	ACIL SERVİS	CT	TORAKS CT	309	Yeni	268406260-1	ALI	...

Uzun süreli kontrollerde



Oksijenasyon
Kan gazı
Pulseoksimetre
Enfeksiyon kontrolü (trakeostomi)
Beslenme
Sosyal yaşama katkısı





Sonuç



Teşekkürler



«Hastalığı Hayallerine Engel Olmadı»