ÖZEL DURUMLARDA MEKANİK VENTİLASYON YÖNTEMLERİ

Dr. Y Kemal GÜNAYDIN

SBÜ Ankara SUAM Acil Tıp Kliniği

Kaynaklar

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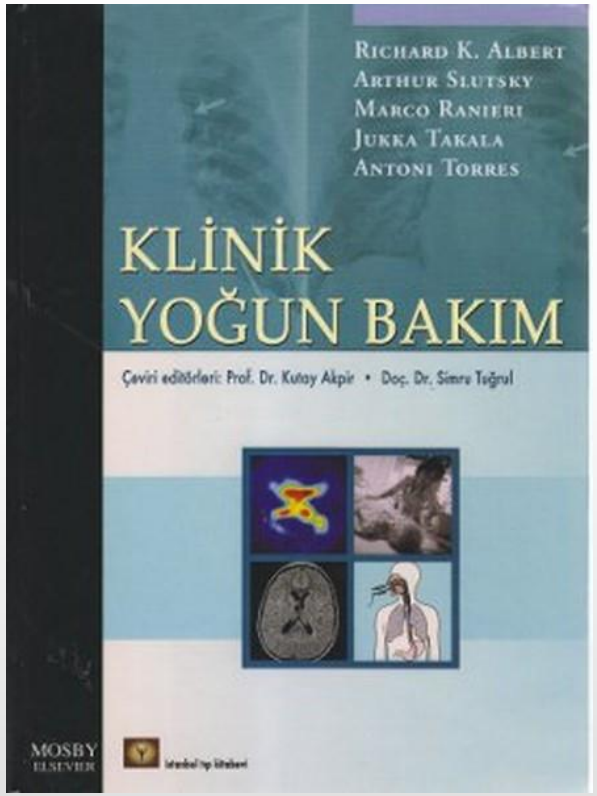
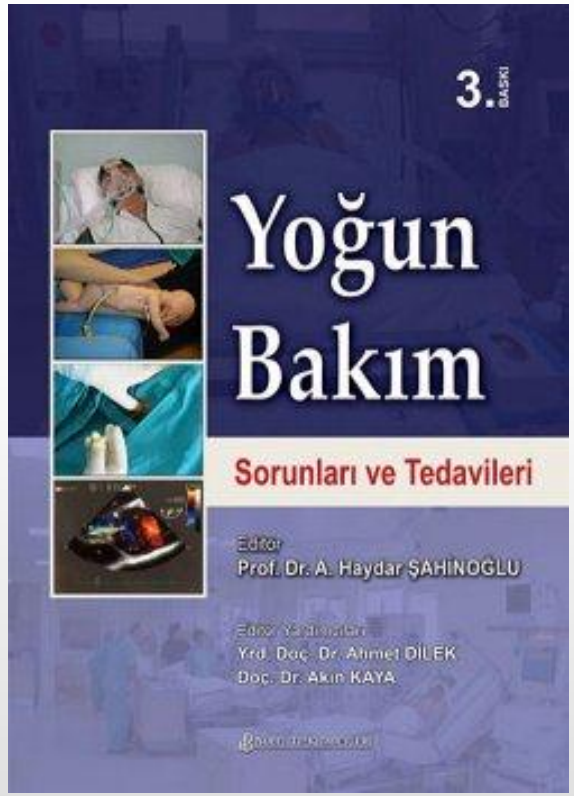


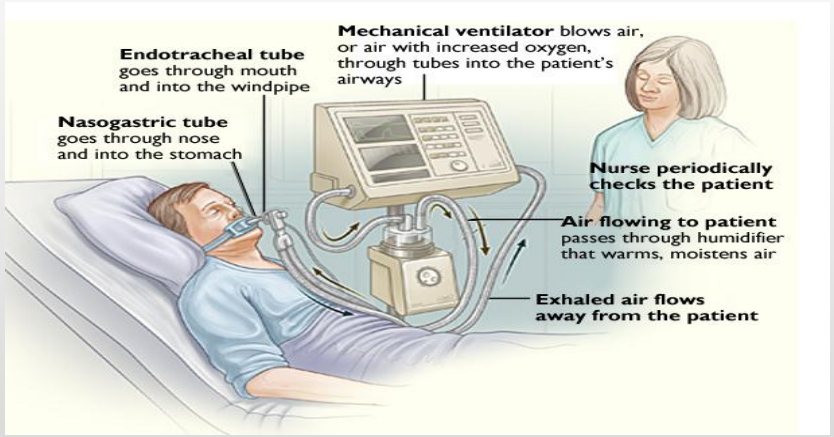


SUNUM PLANI

- **Temel Kavramlar ve Amaçlar**
- **KOAH alevlenmede MV**
- **Astım atakta MV**
- **ARDS'de MV**
- **Pnömonilerde MV**
- **KİBAS durumunda MV**
- **Şok durumunda MV**
- **Pediyatrik hastalarda MV**

Temel Kavramlar

- Mekanik ventilasyon solunum işlevinin yapay olarak mekanik ventilatör adı verilen bir cihaz yardımı ile sağlanması işlemidir.
- Basınç kavramları
- Kompliyans
- Volüm / Hacim
- Akım
- MV siklusları
- Modlar



MV Amaçları

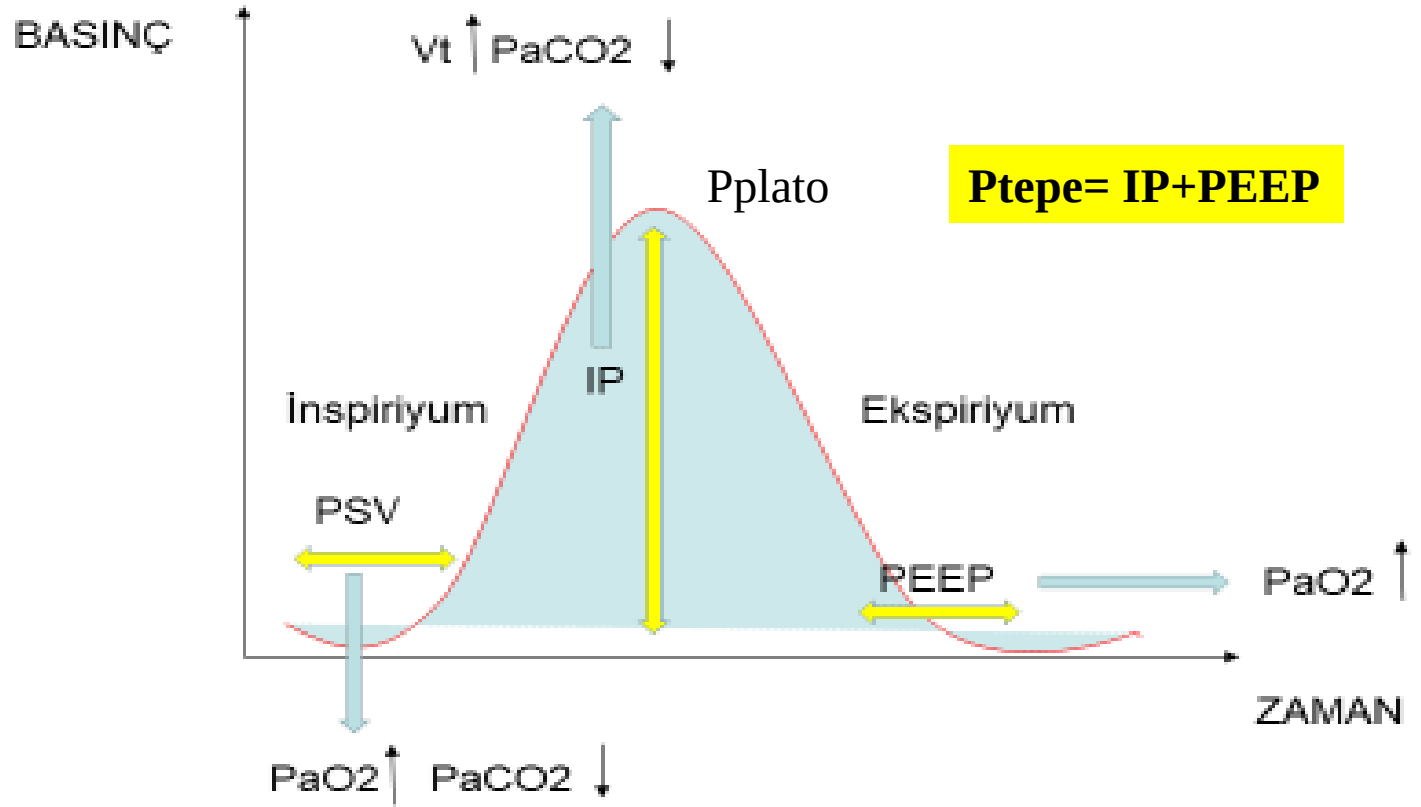
- Alveoler ventilasyonu sağlamak
- Yeterli oksijenizasyonu sağlamak
- Alveoler açıklığı sürdürmek
- Solunum işini azaltmak
- Sistemik oksijen tüketimini azaltmak
- İntrakraniyal basıncı azaltmak

MV Endikasyonları

2 temel endikasyon

- ***Alveoler hipoventilasyon*** (solunum pompası bzkl, obstrüktif akciğer hastalıkları)
  - *Hipoksi*
  - *Hiperkapni ve asidoz*
- ***Dağılım hipoksisi***
  - *Ventilasyon / perfüzyon bozuklukları (ör: p.emboli)*
  - *Patolojik şantlar (kan yeterince oksijenenize olmadan akciğerden kalbe döner)*
  - *Hiperventilasyon, hipoksemi, hipokapni ve alkaloz*

Basınçlar


BASINÇ
Vt ↑ PaCO2 ↓
Pplato
Ptepe= IP+PEEP
IP
İnspiriyum
Ekspiriyum
PSV
PEEP
PaO2 ↑
ZAMAN
PaO2 ↑ PaCO2 ↓

Kompliyans (C)

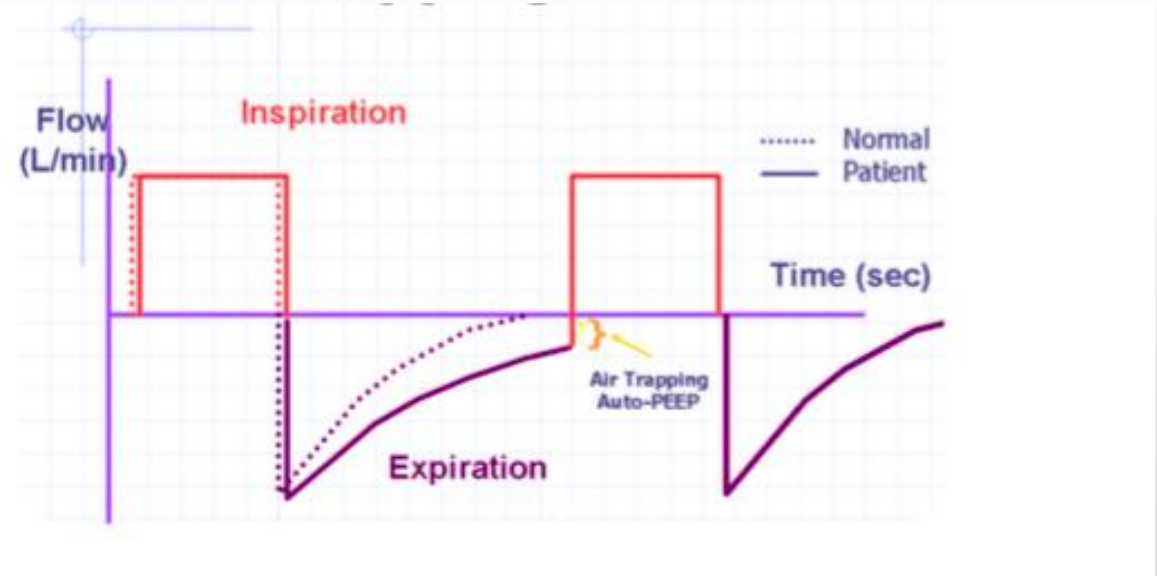
- İnspirium sırasında akciğerin genişlemesine karşı koyan elastik kuvvetler kompliyans olarak adlandırılır.
- Kompliyansı hem akciğerin kendi elastik yapısı hem de göğüs duvarının direnci birlikte oluşturur.
- Statik ve dinamik kompliyans
  - *Statik kompliyans hava akımının olmadığı anda ölçülür*
    - $C_{statik:}$ Vt / P_{plato} – PEEP
  - *Dinamik kompliyans hava akımı varlığında ölçülür*
    - $C_{dinamik:}$ Vt / P_{peak} – PEEP

Volüm

- Mekanik ventilatör tarafından hastaya verilen hava akımının hacmine volüm denilir.
- Volüm hastaya uygulanan basınç miktarına, kompliyansa ve iletici hava yollarının çapına bağlı olarak değişkenlik gösterebilir.
- Volüm yapılan inspiriumun süresine de bağlıdır.

Akım

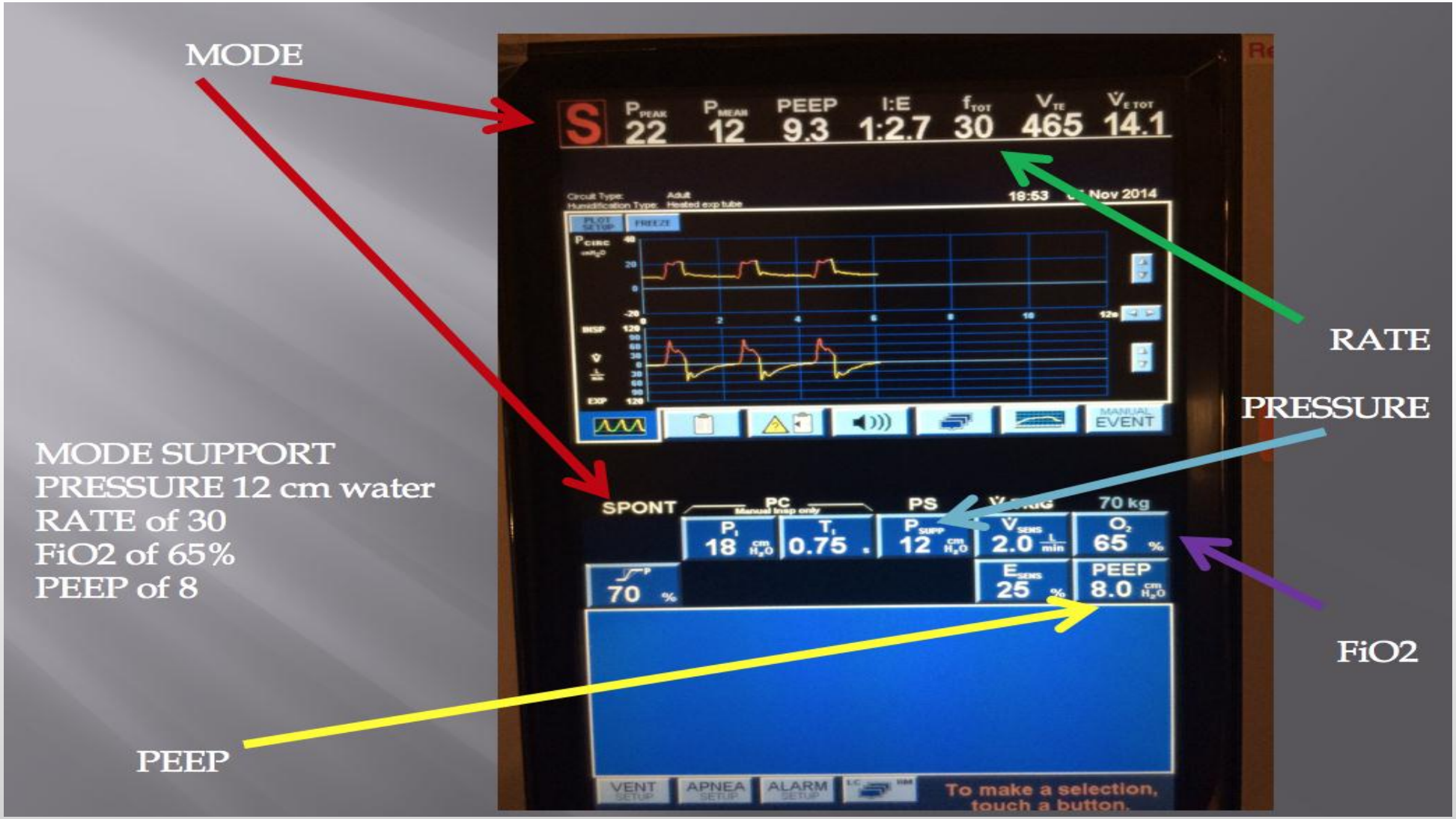
- Her bir inspirasyon zaman birimine denk gelen volüm olarak ölçülür.
- Akım : V / T



MV siklusları

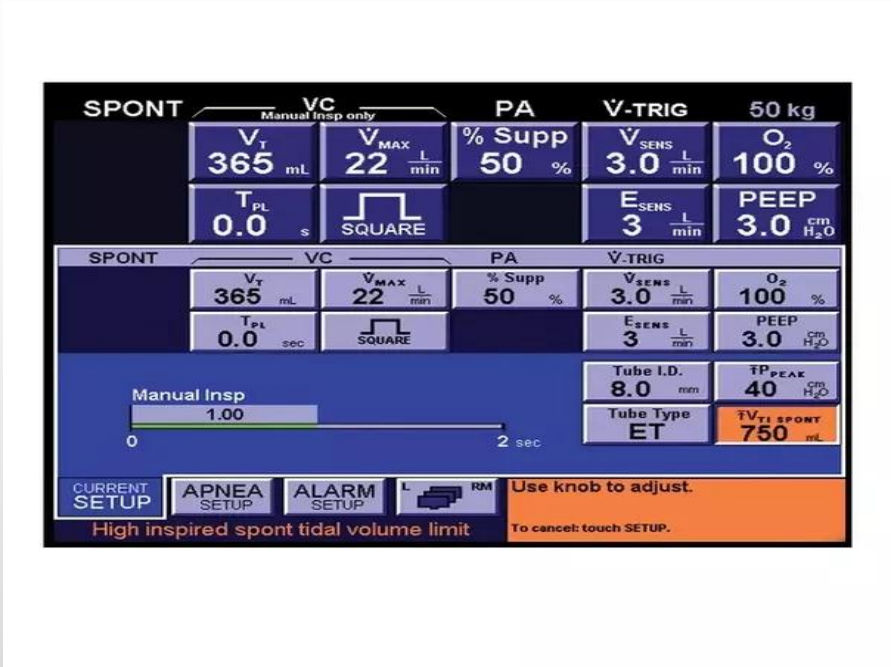
- Basınç, akım ve volüm kavramlarına göre mekanik ventilasyon tipleri oluşturulmuştur.
  - ***Basınç sikluslu MV (basınç kontrollü)***
  - ***Volüm sikluslu MV (volüm kontrollü)***
  - *Akım sikluslu MV*
  - *Zaman sikluslu MV*

Temel ayarlar



MV Temel Modları

- Mekanik ventilasyon pratiğinde inspirasyonun başlama şekli genel olarak **MOD** olarak isimlendirilir.



MV Temel Modları

- ***Zorunlu (Mandatory) solunum***
  - *Solunum ventilatör tarafından başlatılır, sınırlandırılır ve sonlandırılır.*
  - *Ventilatör solunumun tüm evreleri boyunca solunum işinin tümünü üstlenir.*
- ***Yardımlı (Asiste) solunum***
  - *Solunum hasta tarafından tetiklenir, ventilatör tarafından sınırlandırılır ve sonlandırılır.*
- ***Destekli (Support) solunum***
  - *Solunum hasta tarafından tetiklenir, ventilatör tarafından sınırlandırılır ve hasta tarafından sonlandırılır.*
  - *İnspiratuar basınçlı spontan solunum hastanın kendi solunumundan daha büyüktür.*
- ***Spontan solunum***
  - *Solunum hasta tarafından başlatılır, sınırlandırılır ve sonlandırılır.*
  - *Hasta solunumun tüm evreleri (faz) boyunca solunum işinin tümünü üstlenir.*

KOAH ALEVLENME

KOAH alevlenme

ORIGINAL RESEARCH

- **Hospital Patterns of Mechanical Ventilation for Patients with Exacerbations of COPD**

Peter K. Lindenauer[1,2,3,4], Mihaela S. Stefan[1,2,3,4], Meng-Shiou Shieh[1], Penelope S. Pekow[1,5], Michael B. Rothberg[6], and Nicholas S. Hill[7]

[1]Center for Quality of Care Research and [2]Division of General Internal Medicine, Baystate Medical Center, Springfield, Massachusetts; [3]Tufts Clinical and Translational Science Institute, and [4]Division of Pulmonary and Critical Care Medicine; [5]Tufts University School of Medicine, Boston, Massachusetts; [5]School of Public Health and Health Sciences, University of Massachusetts, Amherst, Massachusetts; and [6]Department of Medicine, Medicine Institute, Cleveland Clinic, Cleveland, Ohio

- KOAH hastalarında NIMV uygulanması entübasyon ve İMV ihtiyacını azaltır.
- Ayrıca mortalite oranlarında önemli düşüş sağlar.

Objectives: To describe patterns of mechanical ventilation use for patients with COPD across a large sample of hospitals, and to analyze the relationship between use of NIV and other outcomes.

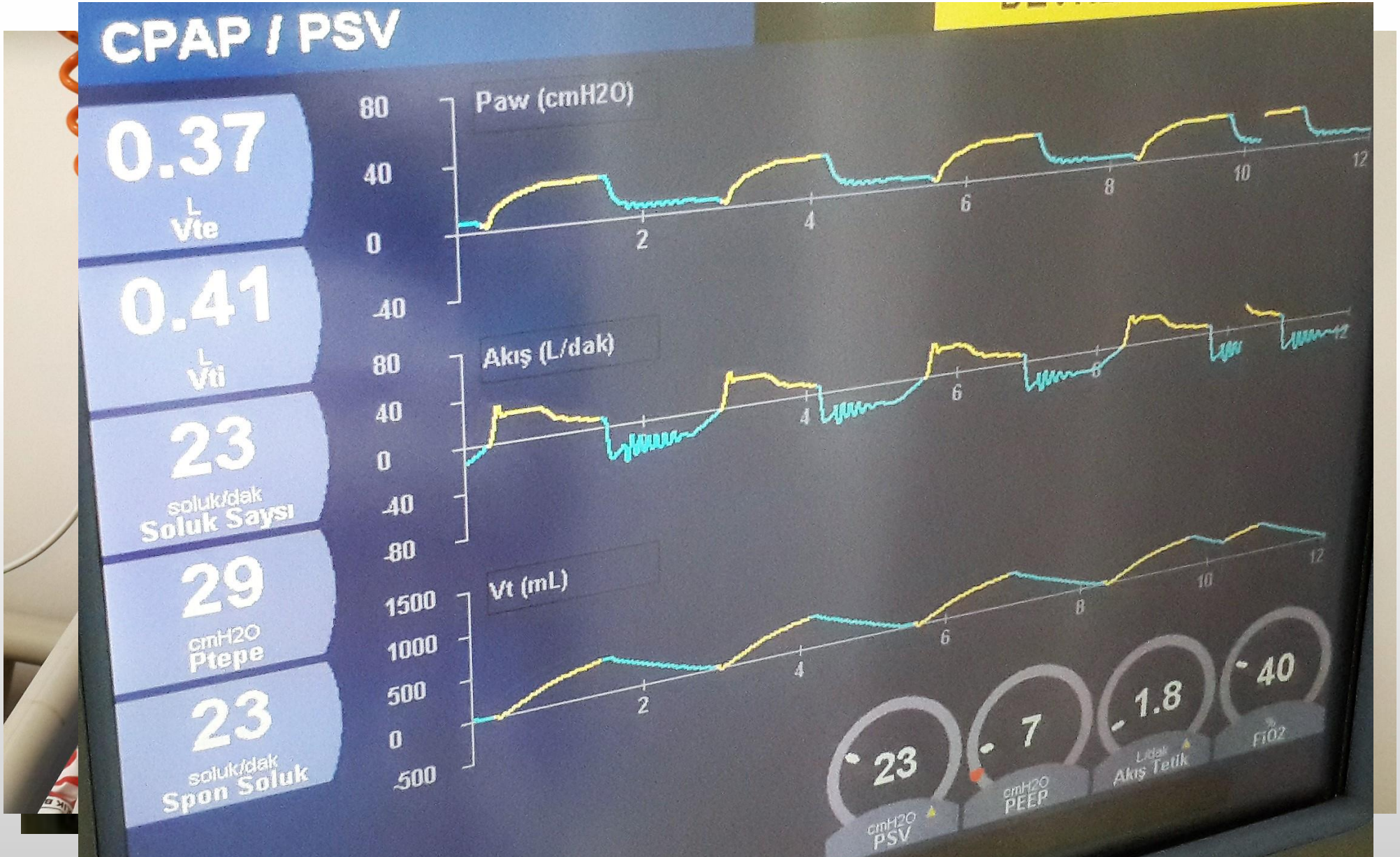
Methods: Cross-sectional analysis of 77,576 patients hospitalized for COPD between June 2009 and June 2011 at 386 U.S. hospitals.

Measurements and Main Results: Using hierarchical modeling, we estimated hospital risk-standardized percentages of ventilator starts that were noninvasive (RS-NIV%). We examined the association between RS-NIV% and other outcomes, including risk-standardized rates of invasive ventilation and NIV failure, total ventilation, in-hospital mortality, length of stay, and costs. At the hospital level, the median RS-NIV% was 75.1% (range: 9.2–94.1%). 9.0%, $P = 0.01$) and marginally lower mortality rates among all patients with COPD (Q4 vs. Q1: 2.2% vs. 2.3%, $P = 0.03$) compared with hospitals with the lowest RS-NIV%. Higher RS-NIV% was associated with lower hospital costs (Q4 vs. Q1: $11,148 vs. $14,032, $P < 0.001$), shorter length of stay (Q4 vs. Q1: 5.5 vs. 6.8 d, $P < 0.001$), and lower NIV failure rates (Q4 vs. Q1: 12.8 vs. 32.5%, $P < 0.001$).

Conclusions: Use of NIV as the initial ventilation strategy for patients with COPD varies considerably across hospitals. Institutions with greater use of NIV have lower rates of invasive mechanical ventilation and better patient outcomes.

Keywords: COPD; costs and cost analysis; cross-sectional analysis; length of stay; outcomes research

KOAH alevlenme



KOAH alevlenme

- **İnvaziv MV**
  - ***“ Temel problem alveoler hipoventilasyon sonucu hiperkapni ve hipoksi “***
  - ***Ek sorun bu hastalarda ekspirium kısıtlı olduğu için artmış otoPEEP***
- Genelde hacim sikluslu mod seçilir
- Hipoventilasyonu düzeltmek için V_t 6-8 ml/kg şeklinde ayarlanmalı.
- Daha yüksek değerler - otoPEEP ‘i arttırır
- f değeri 14 -16 gibi ayarlanır. Solunum sayısı arttırılarak CO_2 atılımı arttırılır.
- İ/E oranı ekspirium lehine uzatılır. Yani 1/3, 1/4 gibi
- Mevcut otoPEEP ‘i aşmak için normalden biraz daha yüksek PEEP - 6 – 8 cmH_2O
- FiO2 SaO2 88 – 92 arasında olacak şekilde ayarlanır
- Trigger -1 ile -2 lt/dk ayarlanmalı

KOAH alevlenme

ASTIM ATAK

Journal of Critical Care 29 (2014) 586–593

Official Journal of the Asian Pacific Society of Respirology
Respirology

ORIGINAL ARTICLE

Is non-invasive ventilation safe in acute severe asthma?

MICHAEL PALLIN, MARK HEW AND MATTHEW T. NAUGHTON

Department of Allergy, Immunology and Respiratory Medicine, Alfred Hospital and Monash University, Melbourne, Victoria, Australia

ABSTRACT

Background and objective: **The effect of non-invasive ventilation (NIV) in acute severe asthma is unclear and there are concerns regarding its safety.**
Methods: **We undertook a 5-year case–control review of mortality and morbidity associated with NIV use in acute severe asthma and compared this with asthma requiring invasive mechanical ventilation (IMV) and a control group with less severe asthma without ventilatory support.**
Results: **Eight hundred seventy-three patients had acute severe asthma of whom 30 were treated with NIV, 17 with IMV and 90 served as controls. The mean duration of NIV was 9.5 ± 7.3 h with inspiratory positive airway pressure and expiratory positive airway pressure of 11.9 ± 1.4 and 5.8 ± 1.2 cmH_2O respectively. Mortality was zero in the NIV and control groups, compared with 41% in the IMV group. None of the NIV or control groups required escalation to invasive ventilation. There were no instances of haemodynamic compromise in the NIV or control groups. Length of hospital stay was 121 ± 96 h in the NIV group and similar to the severe IMV group (136 ± 99 h, $P > 0.05$) and significantly longer than the control group (42 ± 40 h, $P < 0.05$).**
Conclusions: **NIV can be safely used in acute severe asthma although further work is needed to delineate the precise patient selection process.**

Key words: asthma, mechanical ventilation, morbidity, mortality, non-invasive ventilation.

SUMMARY AT A GLANCE

The role of non-invasive ventilation in acute asthma is not well described and there are concerns about its safety. Over a 5-year period, non-invasive ventilation was used without significant complications in patients with moderate acute severe asthma.

agement,[2,3] asthma still causes 1 in every 250 deaths.[4] Acute exacerbations of asthma requiring hospital admission are associated with a mortality of between 0.4% and 0.9%.[5,6] However, in the setting of a severe exacerbation necessitating intensive care unit admission, often with invasive mechanical ventilation (IMV), mortality may approach 10%.[2]

Despite standard care in the management of acute asthma,[7] some patients fail to improve and require endotracheal intubation for IMV. Although lifesaving in dire circumstances, IMV should also be used with caution, as it is associated with significant complications in asthmatics. Mortality is estimated to be three times as high in those patients receiving IMV compared with non-ventilated asthmatics;[8] barotrauma occurs in 2–6% of patients;[9,10] ventilator-associated pneumonia may occur as often as 7%;[9,10] generalized, including respiratory muscle weakness occurs in up to 13% of patients[9] and intensive care unit/hospital

Noninvasive v

Michael Pallin, MB

Department of Allergy, Immuno

ARTICLE INF

Keywords:
Noninvasive ventilation

exacerbation of chronic obstructive
, however, remains controversial. In

ements in important physiological
upport to further study in this field.
rway pressure or an indirect effect
rved in respiratory rate and dyspnea
ce suggestive of any improvement in
however, is lacking. Studies to date
meaningful clinical outcomes. Data
f stay/admission should be sought in

Astım hastal

kalış süresi ü

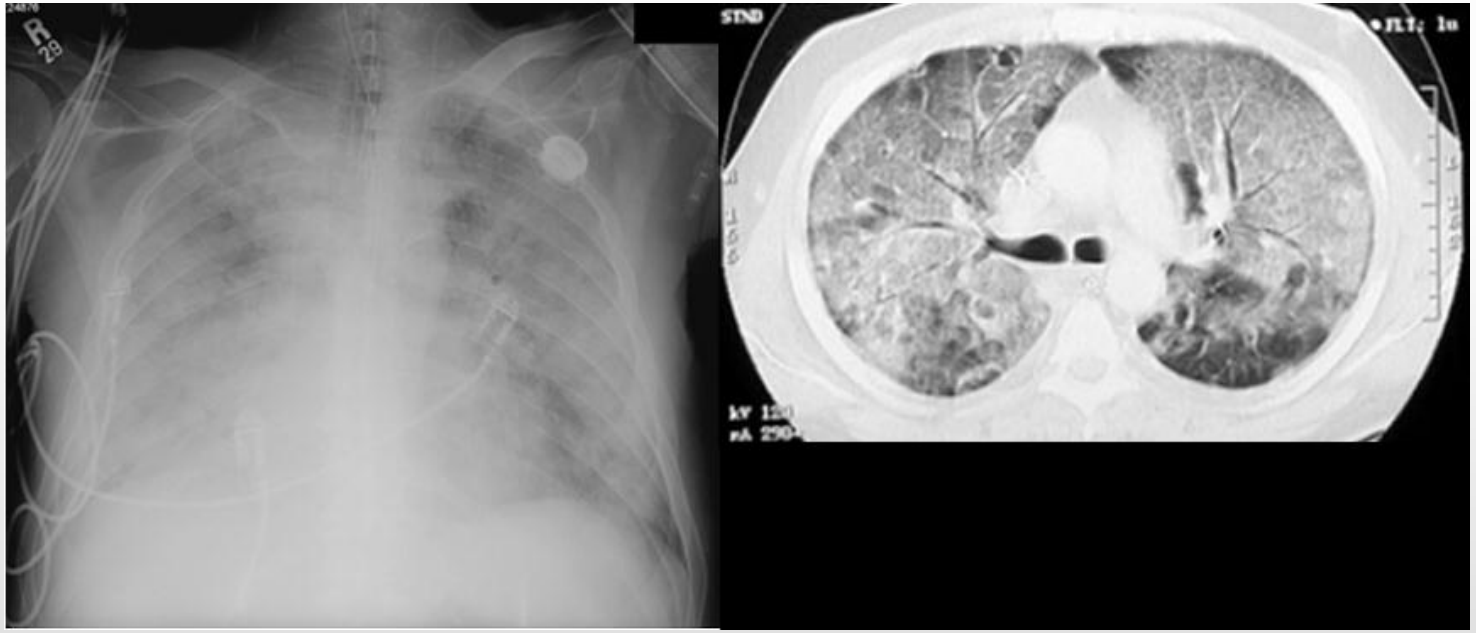
arı ve hastanede

yoktur.

Astım Atak

- **İnvaziv MV**
  - ***Temel problem hava yolu obstrüksiyonu ve ekspirium kısıtlılığı - hiperinflasyon***
- Genelde hacim sikluslu mod seçilir
- V_t 6-8 ml/kg şeklinde ayarlanmalı
- Azaltılmış tidal volüm ve solunum sayısı - permissive hypercapnia
- f değeri 10 -12 gibi ayarlanır. İ/E oranı ekspirium lehine uzatılır. Yani 1/3, 1/4 gibi
- PEEP ortalama 5 cmH_2O – otoPEEP'in %80'i kadar arttırılabilir.
- Trigger -2 lt/dk ayarlanmalı
- FiO2 SaO2 88 – 92 arasında olacak şekilde ayarlanır

ARDS



Journal of Critical Care 32 (2016) 226

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Journal of Critical Care

journal homepage: www.jccjournal.org

Noninvasive ventilation in acute respiratory distress syndrome: Primum non nocere☆

ARDS olgularında sadece seçilmiş vakalarda NIMV denenebilir.
1- Hafif şiddette ARDS
2- Organ yetmezliği ya da şok tablosunda olmayan
NIMV 1-3 saat denenir ve şayet başarısız ise İMV geçilmeli

We read w… improve
authors descri… e intuba-
with acute r…
conclude that…
a high Acute…
predicted NIV…
has several ma…

The authors do not provide any data on the trends of clinical and blood gas parameters after the initiation of NIV. No details have been provided on the inspiratory and expiratory positive airway pressure administered during NIV. Furthermore, the study included patients even with hypotension and severe hypoxemia. The current evidence does not support the use of NIV in patients with hemodynamic instability, multiorgan dysfunction, and severe hypoxemia ($Pao_2/Fio_2 < 100$), mak-

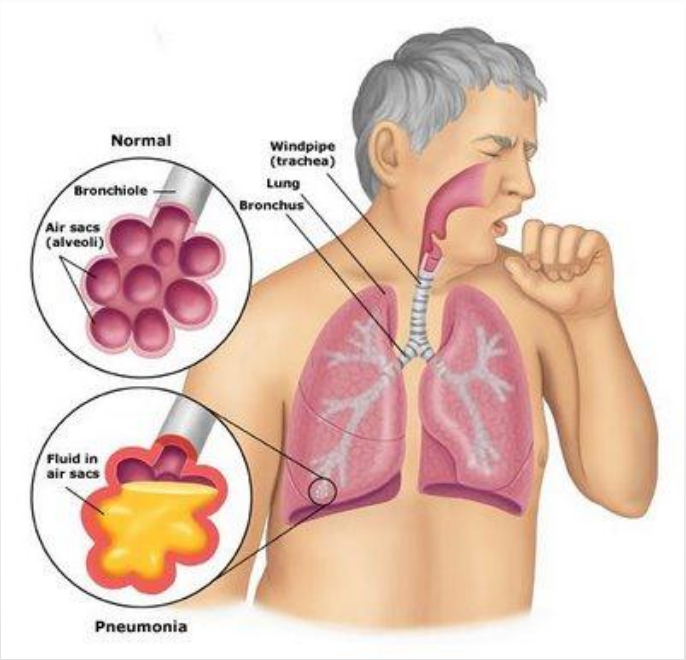
…, MD, DM
Sahajal Dhooria, MD, DM
Ashutosh N. Aggarwal, MD, DM
Dhruva Chaudhry, MD, DM
Ritesh Agarwal, MD, DM
Department of Pulmonary Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh, India
Department of Pulmonary and Critical Care Medicine, Postgraduate Institute of Medical Sciences, University of Health Sciences, Rohtak, Haryana, India

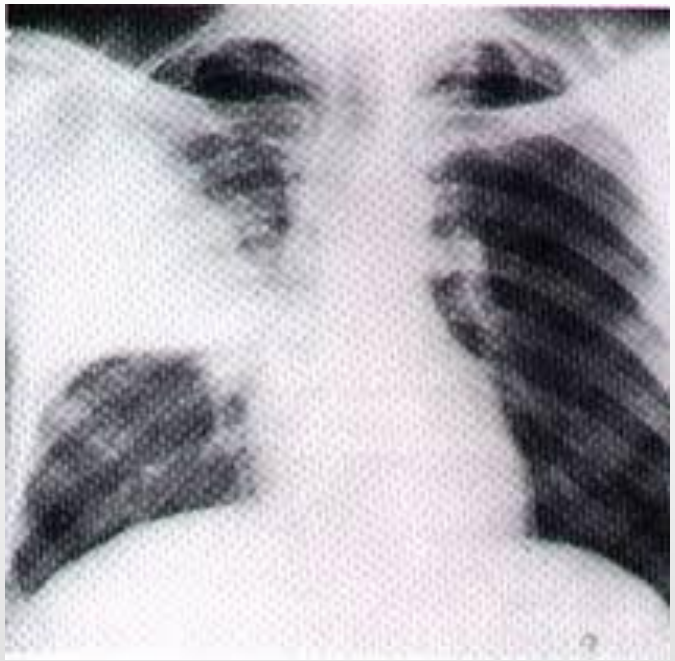
ARDS

- ilatör
-


P-CMV
Adult
Patient
Additions
Modes
26
Ppeak
cmH2O
6.4
ExpMinVol
l/min
429
VTE
ml
15
fTotal
b/min
1:1.0
I:E
Paw
cmH2O
26.1
9.56
Flow
l/min
Rinsp
12
cmH2O/l/s
Cstat
29.5
ml/cmH2O
Oxygenation
CO2 elimination
Spont/Activity
Oxygen
100
%
PEEP
10
cmH2O
MinVol
6.4
l/min
Rinsp
15
cmH2O
RSB
%Spont
1 / 7
15
b/min
Rate
15
cmH2O
Pcontrol
10
cmH2O
PEEP/CPAP
100
%
Oxygen
Controls
Alarms
Monitoring
Graphics
Tools
Events
System
INT
AC

PNÖMONİ


Normal
Bronchiole
Air sacs
(alveoli)
Fluid in
air sacs
Pneumonia
Windpipe
(trachea)
Lung
Bronchus



European Journal of Internal Medicine 23 (2012) 420–428
Journal of Critical Care 30 (2015) 49–54

Contents lists available at ScienceDirect

Journal of Critical Care

journal homepage: www.jccjournal.org

Review

The role of noninvasive positive pressure ventilation in community-acquired pneumonia☆,☆☆,★

A. Murad, MD [a], P.Z. Li, MSc [b], S. Dial, MSc [b], J. Shahin, MSc [b,c,*]

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[b] Respiratory Epidemiology Clinical Research Unit, Montreal Chest Institute and Critical Care Medicine, SMBD-Jewish General Hospital, McGill University, Montreal, Quebec, Canada
[c] Department of Critical Care, Department of Medicine, Respiratory Division, Respiratory Epidemiology Clinical Research Unit, McGill University Health Centre, Montreal, Quebec, Canada

Akut solunum yetmezliği gelişen toplum kaynaklı pnömoni olgularında NIMV yüksek oranda başarısızlıkla sonuçlanmaktadır.

Outcomes

intensive care units from January 2007 to January 2012 with the principal diagnosis of CAP and requiring positive pressure ventilation was carried out. The primary outcome was acute hospital mortality. Univariable and multivariable analysis were performed to assess the association between mode of ventilation and death as well as factors associated with failure of NIV.

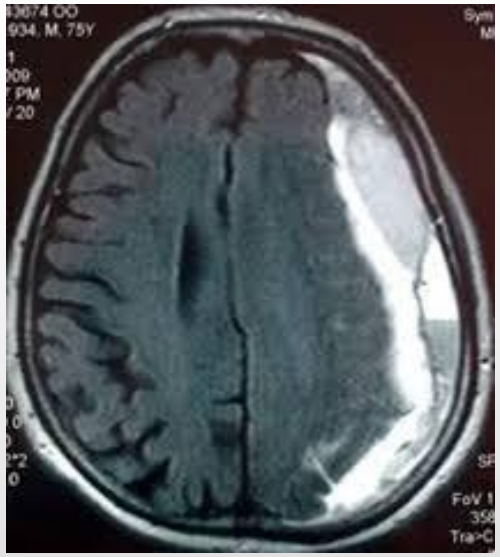
Results: A total of 229 patients were admitted, with 20 patients excluded from the analysis because of do-not-resuscitate orders. Fifty-six percent of patients were initially treated with NIV. Of those, 76% failed NIV and required intubation and invasive ventilation. After adjusting for confounders, no difference in mortality was seen between patients who received NIV as first-line therapy in comparison with patients who received invasive ventilation (odds ratio [OR], 1.63; 95% confidence interval [CI], 0.81-3.28; $P = .17$). Multivariable analysis demonstrated a trend toward increased NIV failure for the patients who had higher Acute Physiology and Chronic Health Evaluation II scores ($P = .07$) and vasopressor use at 2 hours after initiation of positive pressure ventilation (OR, 7.5; 95% CI, 1.8-31.3, $P = .006$). In an adjusted analysis, patients who failed NIV had an increased odds of death when compared with patients who were treated with invasive ventilation (OR, 2.2; 95% CI, 1.0-4.8; $P = .03$).

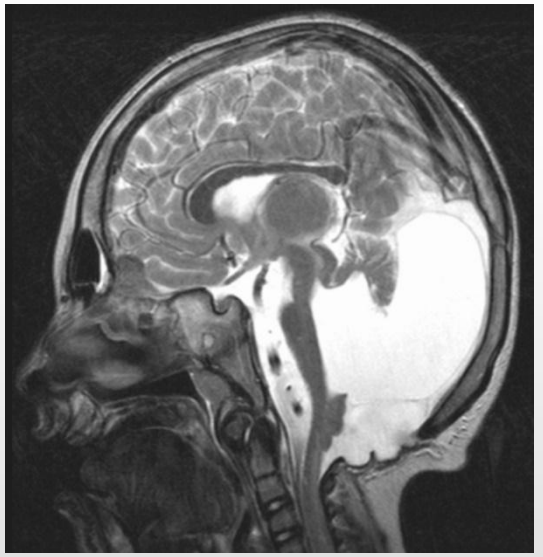
Conclusion: Noninvasive pressure ventilation is frequently used in CAP but is associated with high failure rates. Mortality was not improved in the group of patients who received NIV as first-line therapy despite clinical characteristics that might have suggested a more favorable prognosis. Given the high rates of NIV use, high failure rates, and the hypothesis generating nature of the data in this study, further randomized studies are needed to better delineate the role of NIV in CAP.

Pnömoni


BASINÇ SIMV
ANA
0.56
L
Vti
0.54
L
Vte
25
soluk/dak
Soluk Sayısı
15
cmH2O
Ptepe
9
soluk/dak
Spon Soluk
Paw (cmH2O)
Akış (L/dak)
Vt (mL)
16
Sol. Sayısı
8
Soluk Basıncı
1.12 san
2.63 san
1:2.3
1.12
Soluk Süresi
10
PSV
4
PEEP
1.2
Akış Tetik
30
FiO2

KİBAS

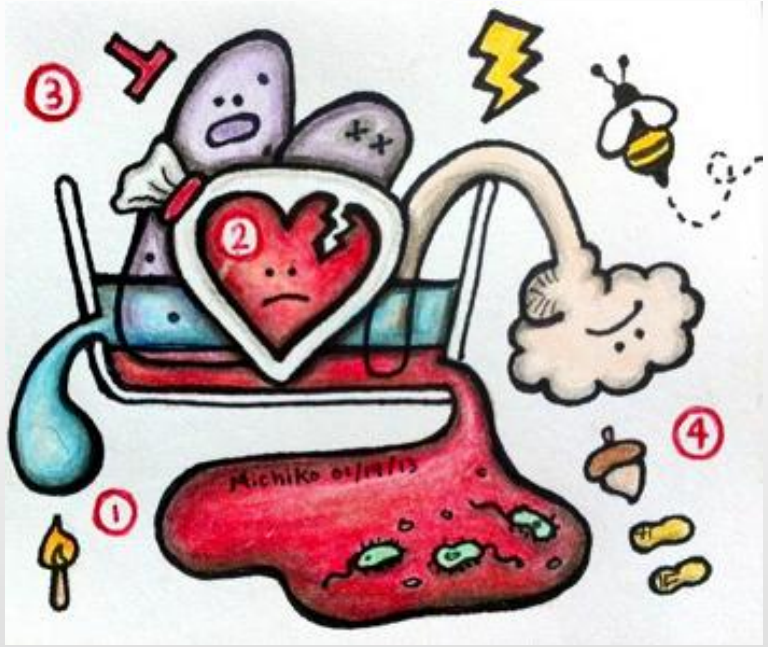


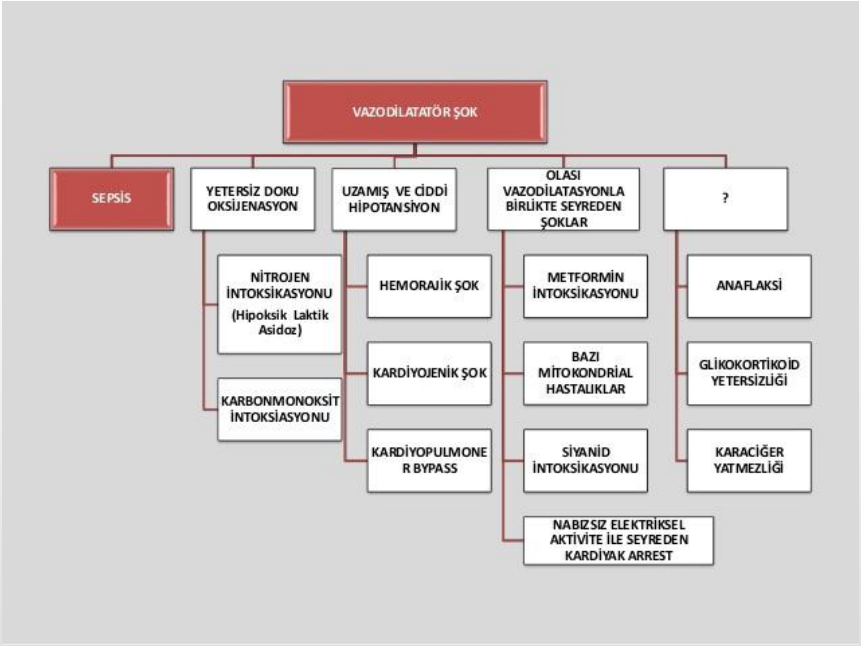


KİBAS

- Herniasyon bulguları ya da akut nörolojik kötüleşme varsa **hiperventilasyon akut dönemde kısa süreli uygulanabilir.** PaCO2 < 25 mmHg olmamalı **(ATLS - Class 2B öneri)**
  - ***F: 14 – 18 /dk***
  - ***Vt 8-10 ml / kg***
- **DİKKAT !!!**
  - ***Artan intratorasik basınç kafa içi basıncını arttırır.***
  - ***Hipotansiyon*** ⇒ ***OAB (80–100)–KİB (10-15)= SPB (70-80)***
  - *PaCO2 düşmesi* ⇒ ***serebral damarlarda VK / iskemi ve serebral perfüzyon bozulur***

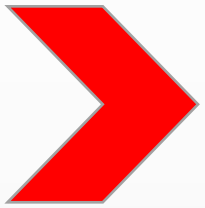
ŞOK


3
2
4
1


VAZODİLATATÖR ŞOK
SEPSİS
YETERSİZ DOKU OKSİJENASYON
UZAMIŞ VE CİDDİ HİPOTANSİYON
OLASI VAZODİLATASYONLA BİRLİKTE SEYREDEN ŞOKLAR
?
NİTROJEN İNTOKSİKASYONU (Hipoksik Laktik Asidoz)
KARBONMONOKSİT İNTOKSİASYONU
HEMORAJİK ŞOK
KARDİYOJENİK ŞOK
KARDİYOPULMONER BYPASS
METFORMİN İNTOKSİKASYONU
BAZI MİTOKONDRİAL HASTALIKLAR
SİYANİD İNTOKSİKASYONU
NABIZSIZ ELEKTRİKSEL AKTİVİTE İLE SEYREDEN KARDİYAK ARREST
ANAFLAKSİ
GLİKOKORTİKOİD YETERSİZLİĞİ
KARACİĞER YATMEZLİĞİ

ŞOK

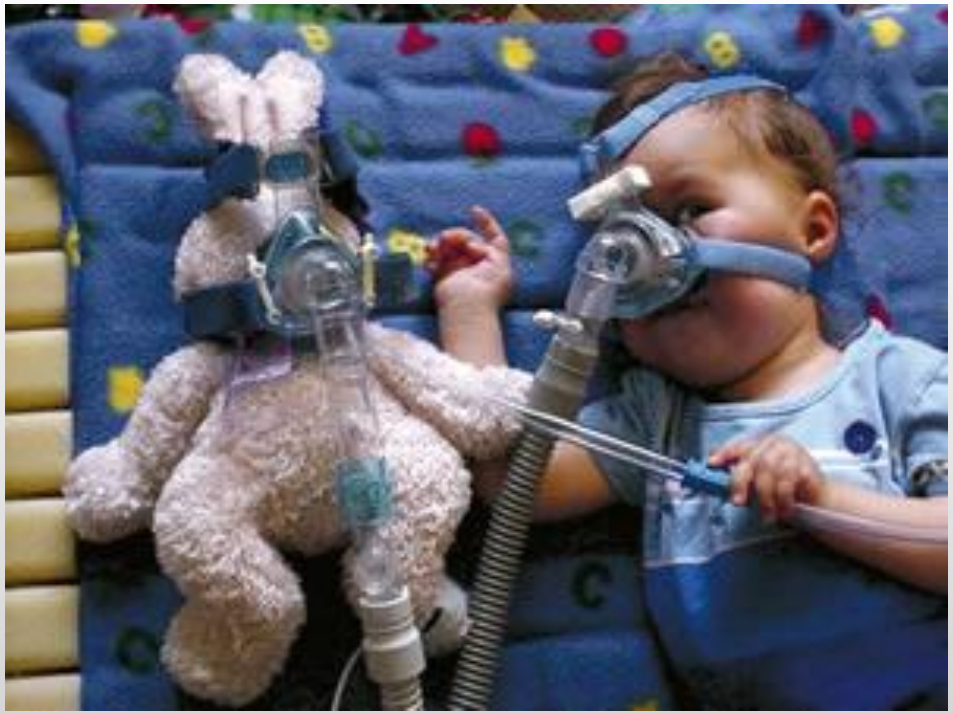
- İMV sırasında yüksek Vt ya da basınç intratorasik basıncı arttırır.
- Yüksek PEEP
- Yüksek IP
- Yüksek Vt



Hipotansiyon

- Bu nedenle OAB düzelene kadar ya da inotropik ilaçlar etkisini gösterene kadar,
  - ***Düşük PEEP***
  - ***Düşük IP***
  - ***Düşük Vt***

PEDİYATRİK HASTALARDA MV

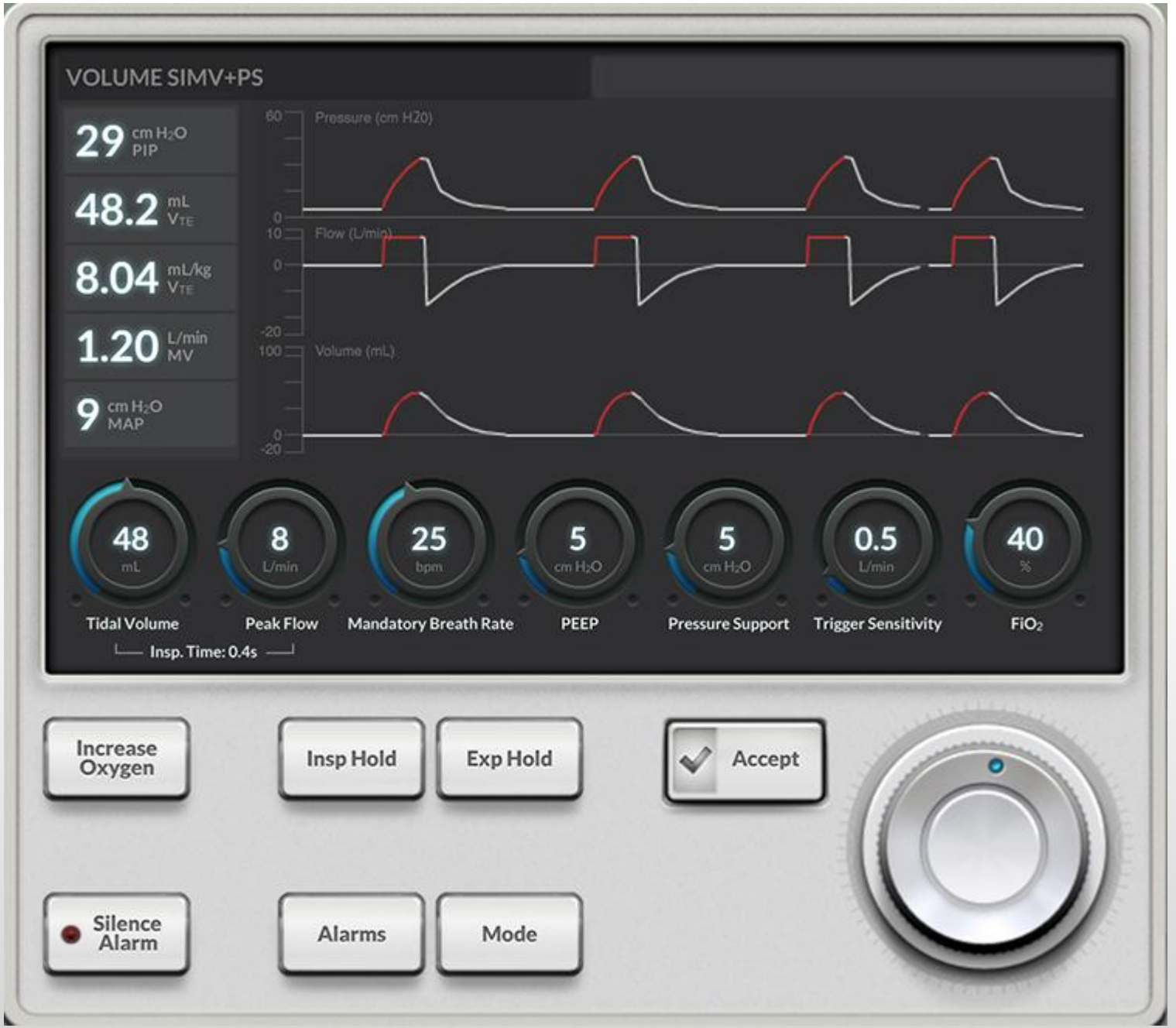


Pediyatrik hastalarda ilk ayarlar

Lung protection strategy for patients with inadequate oxygenation (eg, PARDS)
•PIP: Adjust for target tidal volume 4 to 6 mL/kg (maximum 10 mL/kg); higher PIP (up to 30 to 40 cm H_2O) required for poor lung compliance
•PEEP: Increase for hypoxemia, atelectasis, may be >10 cm H_2O
•SpO_2: Target 88 to 92%/55 to 88 mmHg
•PaO_2: Target 88 to 92%/55 to 88 mmHg
Obstructive airway disease causing inadequate ventilation (eg, status asthmaticus or bronchiolitis)
•RR: Near or below physiologic to prevent breath-stacking and dynamic hyperinflation
•I_T: Low/normal, goal I:E of 1:3 to 1:5 or greater
•PIP: >Plateau pressure and <40 cm H_2O
•$PaCO_2$: Permissive hypercapnia, goal pH >7.20
Airway protection
•Minimize settings to maintain adequate oxygenation and ventilation and avoid ventilator-associated lung injury

Volüm Kontrollü

VC	Infant (<1 year of age)	Toddler/child (1 to 12 years)	Adolescent (>12 years)
Tidal volume (mL)	5 to 8 mL/kg (healthy lungs)	5 to 8 mL/kg (healthy lungs)	5 to 8 mL/kg (healthy lungs)
	3 to 6 mL/kg (lung protective strategy)	3 to 6 mL/kg (lung protective strategy)	3 to 6 mL/kg (lung protective strategy)
Rate (breaths/minute)	20 to 30	15 to 25	12 to 20
PEEP (cm H_2O)	3 to 8	3 to 8	3 to 8
Pressure support (cm H_2O)[¶]	Minimum 6 to 10	Minimum 6 to 10	Minimum 6 to 10
Peak inspiratory flow (L/minute)	Adjusted to fit desired inspiratory time	Adjusted to fit desired inspiratory time	Adjusted to fit desired inspiratory time
Inspiratory time (seconds) Targeted, based upon changes to inspiratory flow	0.4 to 0.6	0.7 to 0.9	0.9 to 1.2
FiO_2 (%)[Δ]	Start with 1.0, rapidly wean to ≤0.6	Start with 1.0, rapidly wean to ≤0.6	Start with 1.0, rapidly wean to ≤0.6
Flow trigger (L/minute)	0.25 to 0.5	0.8 to 2	0.8 to 2
Pressure support cycle	10 to 25% of peak flow rate	10 to 25% of peak flow rate	10 to 25% of peak flow rate


VOLUME SIMV+PS
29 cm H2O PIP
48.2 mL VTE
8.04 mL/kg VTE
1.20 L/min MV
9 cm H2O MAP
60
Pressure (cm H20)
0
10
Flow (L/min)
0
-20
100
Volume (mL)
0
-20
48 mL
8 L/min
25 bpm
5 cm H2O
5 cm H2O
0.5 L/min
40 %
Tidal Volume
Peak Flow
Mandatory Breath Rate
PEEP
Pressure Support
Trigger Sensitivity
FiO2
Insp. Time: 0.4s
Increase Oxygen
Insp Hold
Exp Hold
Accept
Silence Alarm
Alarms
Mode

Basınç Kontrollü

PC	Infant (<1 year of age)	Toddler/child (1 to 12 years)	Adolescent (>12 years)
PIP (cm H_2O)[¶]	16 to 25	16 to 25	16 to 25
PEEP (cm H_2O)[¶]	3 to 7	3 to 7	3 to 7
Rate (breaths/minute)	20 to 30	15 to 25	12 to 20
Inspiratory time (seconds)	0.4 to 0.6	0.7 to 0.9	0.9 to 1.2
Pressure support (cm H_2O)[Δ]	Minimum 6 to 10	Minimum 6 to 10	Minimum 6 to 10
FiO_2 (%)[◊]	Start with 1.0, rapidly wean to ≤0.6	Start with 1.0, rapidly wean to ≤0.6	Start with 1.0, rapidly wean to ≤0.6
Flow trigger (L/minute)	0.25 to 0.5	0.8 to 2	0.8 to 2
Pressure support cycle	10 to 25% of peak flow rate	10 to 25% of peak flow rate	10 to 25% of peak flow rate


PRESSURE SIMV+PS
20 cm H2O PIP
38.2 mL VTE
1.91 mL/kg VTE
0.77 L/min MV
9 cm H2O MAP
60
Pressure (cm H20)
0
30
Flow (L/min)
0
-30
300
Volume (mL)
0
-60
15 cm H2O
Delta Pressure
0.80 sec
Insp. Time
20 bpm
Mandatory Breath Rate
5 cm H2O
PEEP
5 cm H2O
Pressure Support
1.0 L/min
Trigger Sensitivity
100 %
FiO2
Increase Oxygen
Insp Hold
Exp Hold
Accept
Silence Alarm
Alarms
Mode