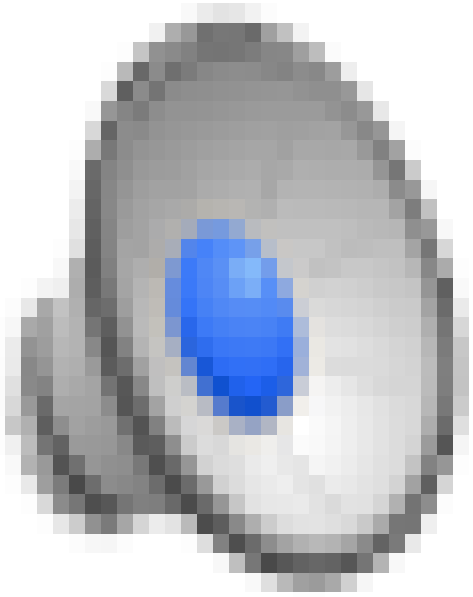
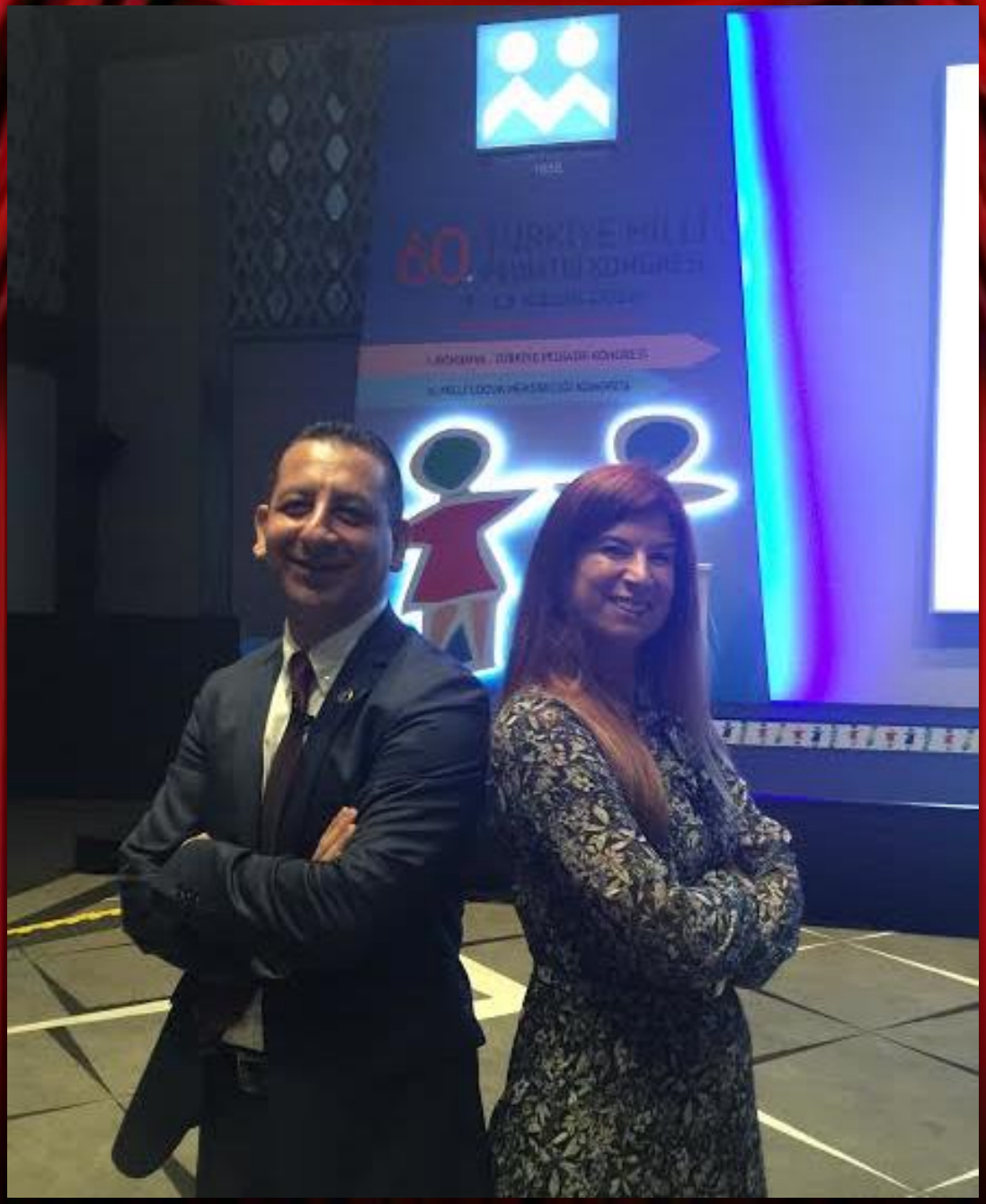
TERM YENİDOĞANDA SOLUNUM SIKINTISI

DR. CANAN AYGÜN DR. ÖMER ERDEVE

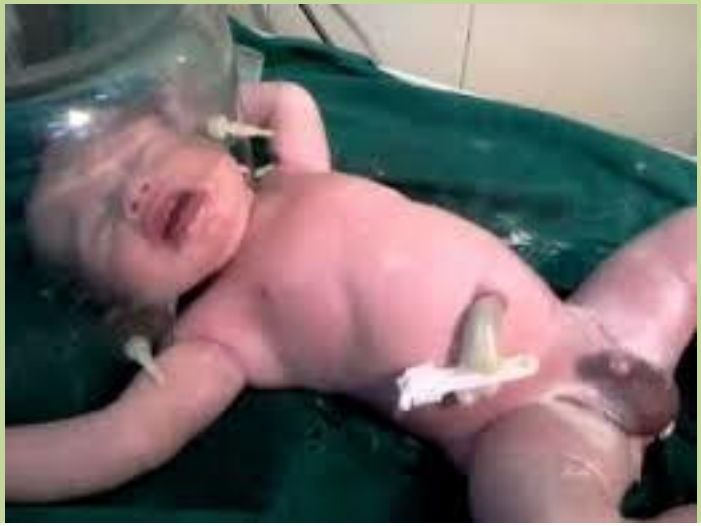




AKIŞ

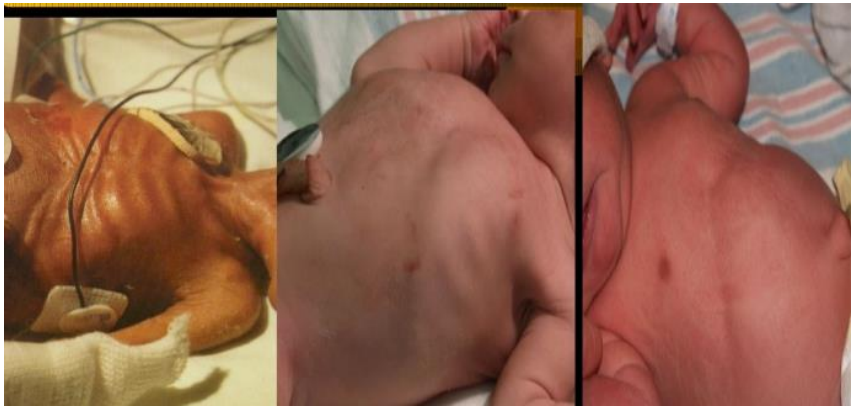
Solunum sıkıntısı

- Tanım
- Nedenler
- Yaklaşım
- Yenilikler

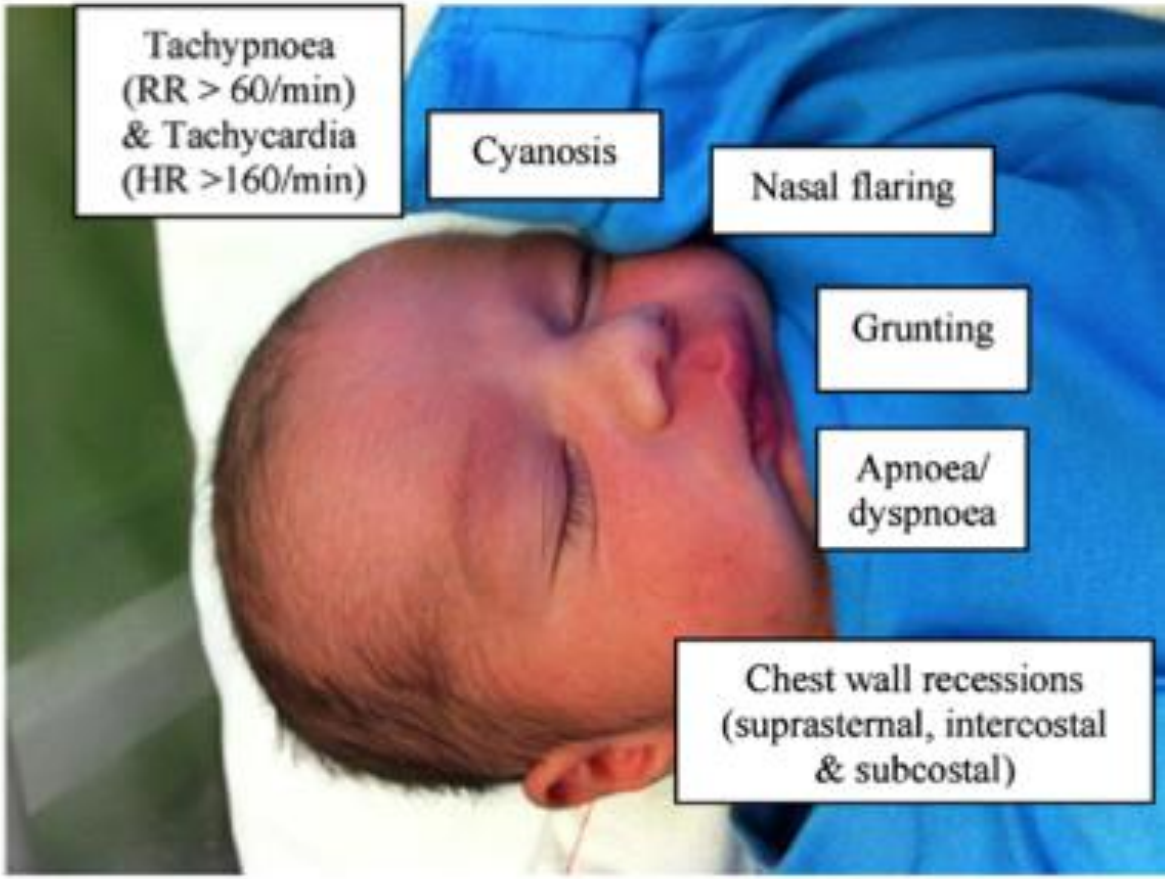


SOLUNUM SIKINTISI- TANIM

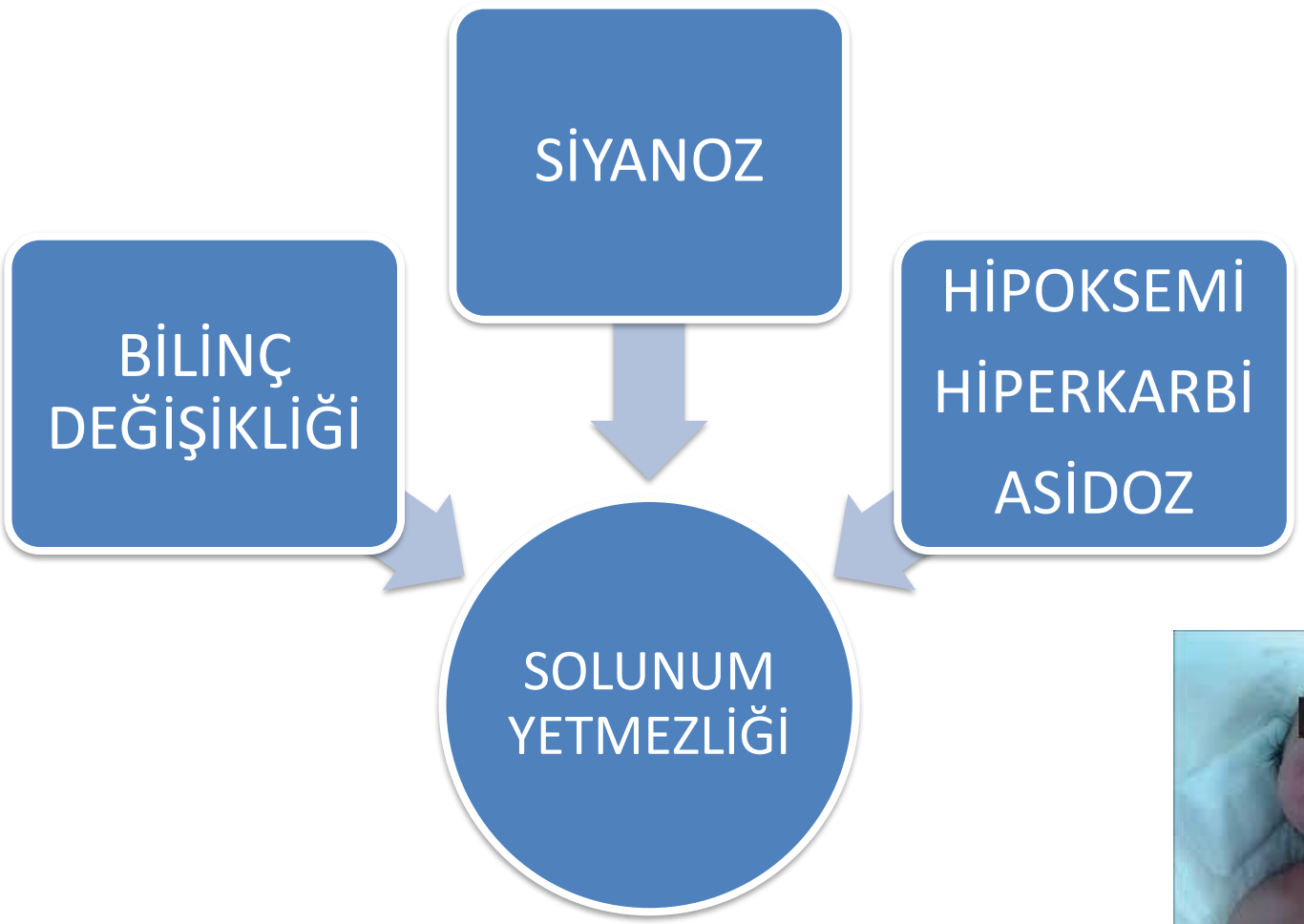
- Zorlu soluma
- Solunum sayısında artış (Takipne)
- Taşikardi (>160/dakika)
- İnleme
- Burun kanatlarının solunuma katılması
- Yardımcı solunum kaslarının solunuma katılması : İnterkostal, subkostal ve suprasternal çekilmeler



SOLUNUM SIKINTISI- TANIM



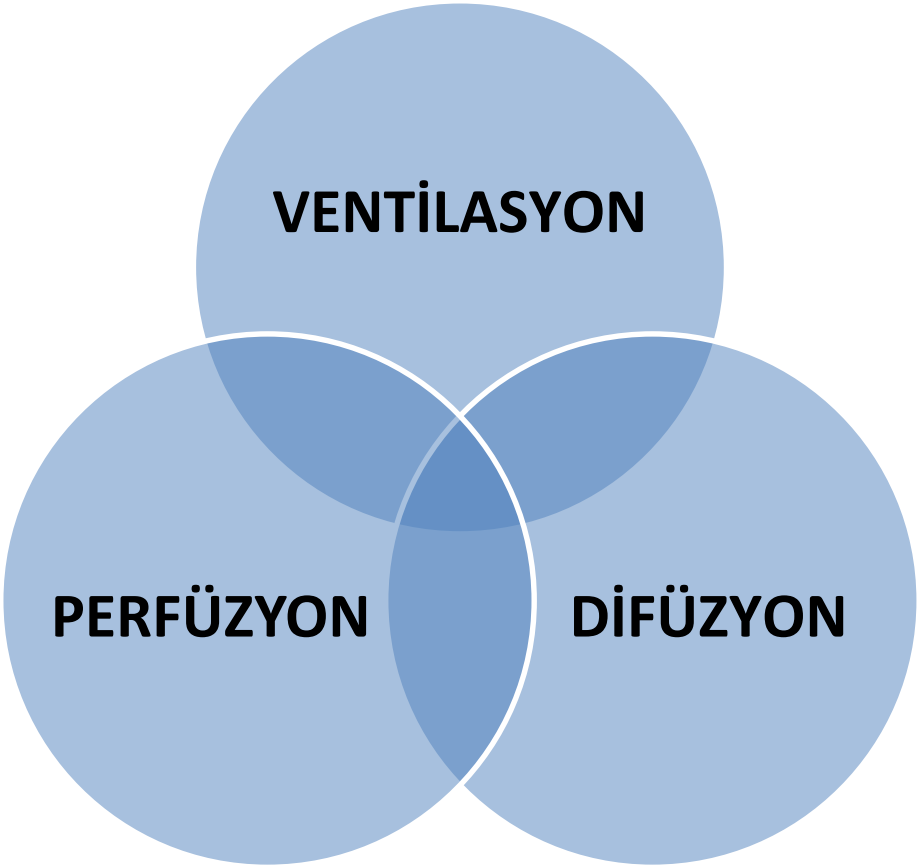
SOLUNUM SIKINTISI +

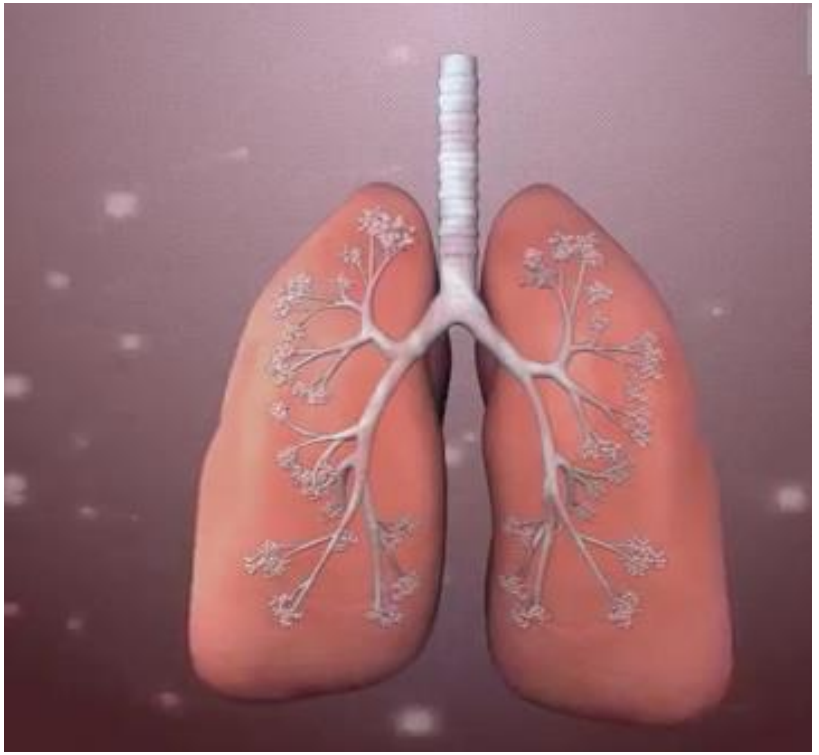


DOĞUMUN HEMEN SONRASI YÜKSEK RİSKLİ

- Alveoller kısmen FAS ile dolu
- Uniform havalanma yok
- Tüm doğumların %1- 7'sinde solunum sıkıntısı

SOLUNUM YETMEZLİĞİ NEDENLERİ





YAKLAŞIM

1. Kardiyak mı solunumsal mı?
2. Başka sorun? **Metabolik**, renal, nörolojik
3. Solunum sıkıntısının şiddeti:

   Ağır: RDS, MAS, PPH

   Hafif: YGT

4. Bilinen konjenital anomali? KDH, kistik adenomatoid malformasyon
5. Doğum şekli: Planlı sezaryen: YGT
6. Amniotik sıvı: Yeşil: MAS
7. Oksijene yanıt? Yanıt yoksa KKH /PPH
8. Oligohidramnios: Hipoplastik akciğerler
9. Polihidramnios: TÖF
10. EMR, annede ateş, GBS kolonizasyonu: Pnömoni
11. Retraksiyon: Parankimal AC hastalığı
12. Stridor: Üst hava yolu obstrüksiyonu

Erkenden bunun için mi uyandırdınız?

YENİLİKLER VAR MI?

İLK YAKLAŞIM

- Durum bizi mi ilgilendiriyor, cerrahları mı?
- Kardiyak sorun?
- Nabız oksimetresi
- Akciğer grafisi
- CBC, CRP, kan gazı ve kan kültürü

ÖZENLİ FİZİK MUAYENE

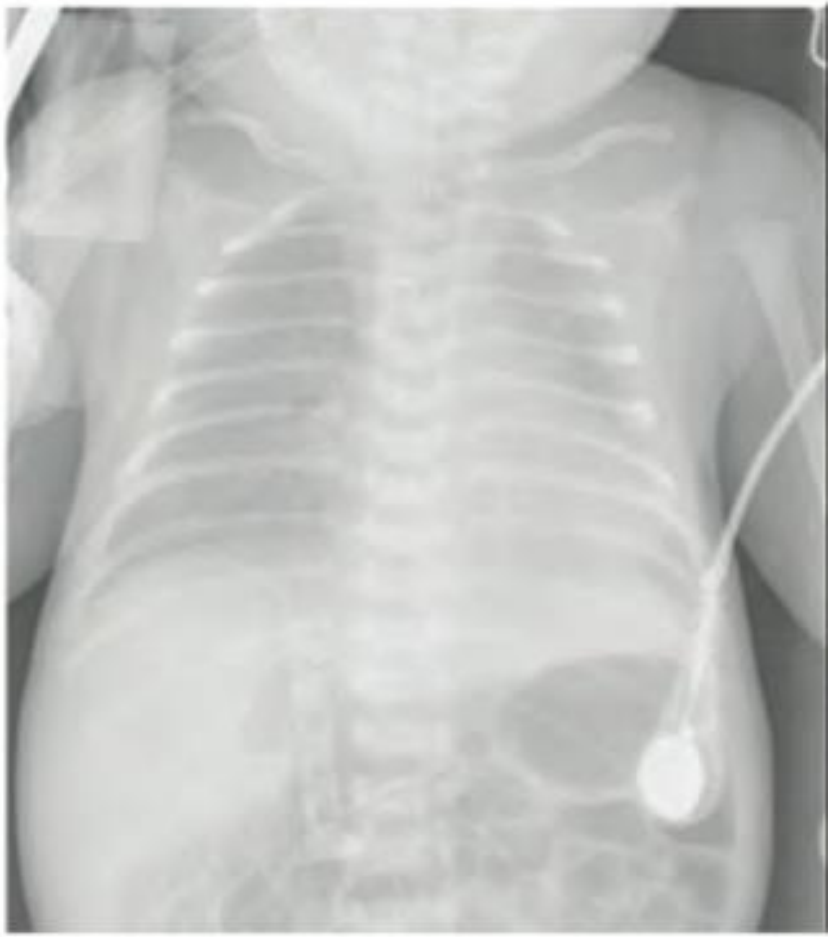
SIK

- YENİDOĞANIN GEÇİCİ TAKİPNESİ
- MEKONYUM ASPİRASYON PNÖMONİSİ
- NEONATAL PNÖMONİ (GBS, VİRAL)
- KONJENİTAL KALP HASTALIKLARI

NADİR

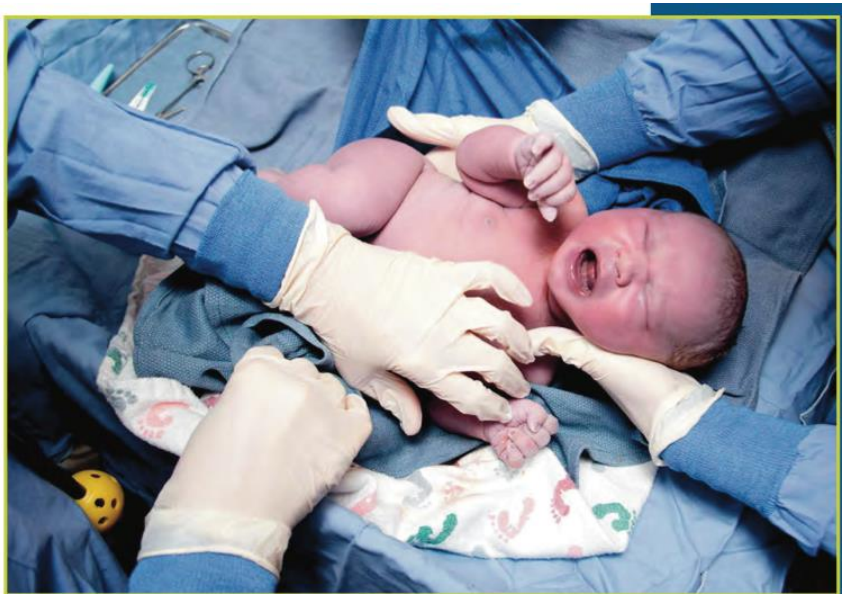
- PNÖMOTORAKS
- CERRAHİ SORUNLAR (KDH, KAM)
- AKCİĞER DIŞI: POLİSTEMİ, AĞIR ANEMİ, HİPOGLİSEMİ, METABOLİK, ÜST HAVA YOLU OBST

- 38 haftalık, 2750 g
- Sezaryenle doğum
- Doğumdan hemen sonra ilerleyen solunum sıkıntısı



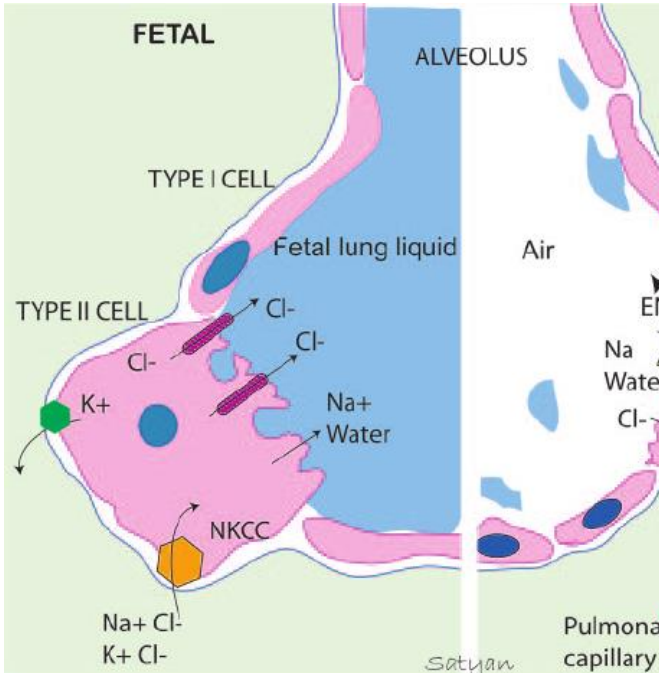
YENİDOĞANIN GEÇİCİ TAKİPNESİ

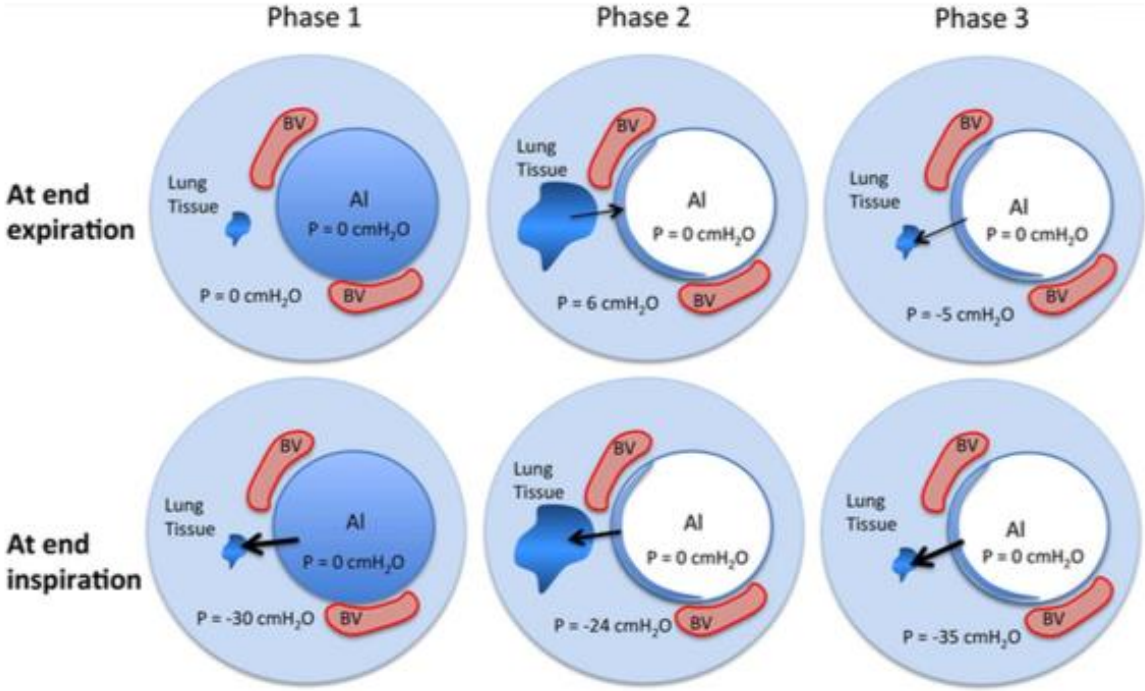
- Geç preterm/ Erken term bebekler (<39 hafta!)
- En önemli belirti: Takipne
- Solunum sıkıntılı bebeklerin 1/3- 1/2'si



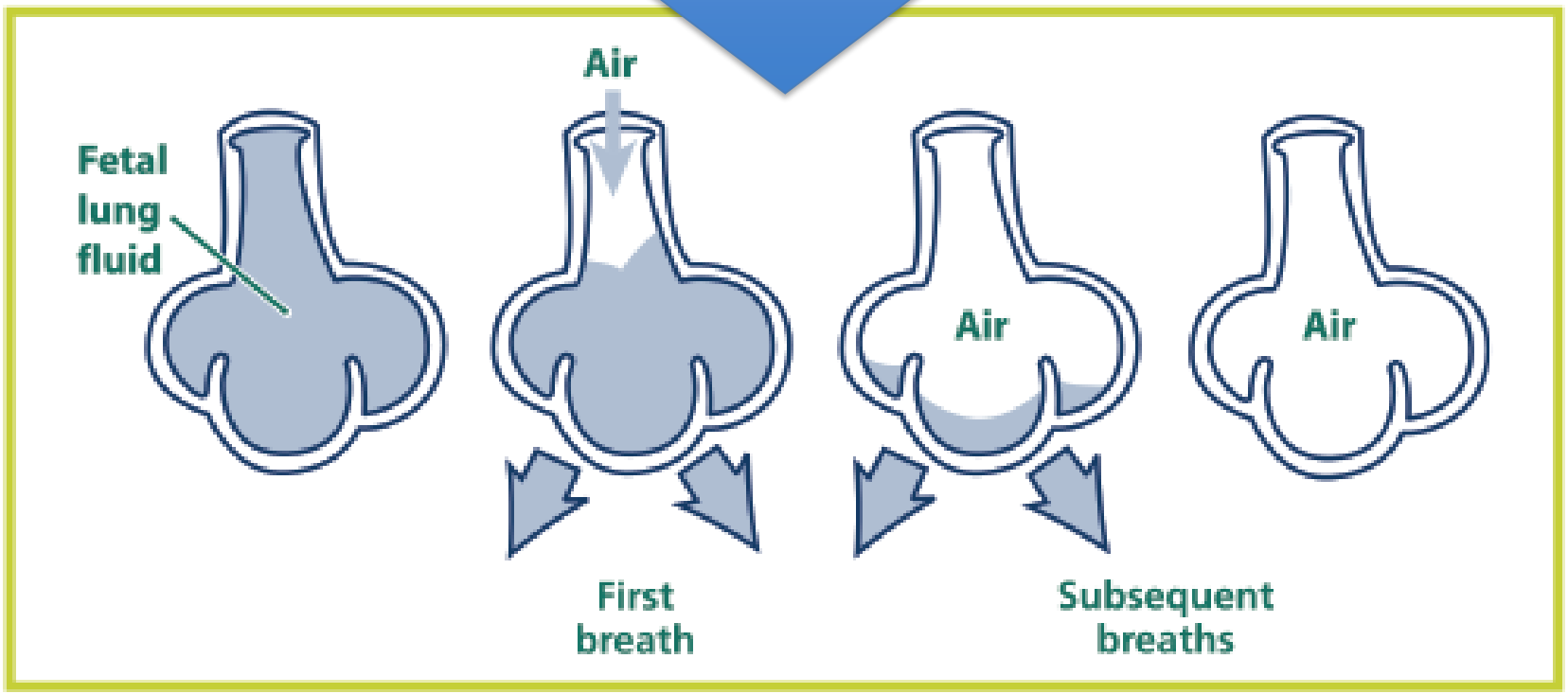
FETAL ALVEOLAR SIVI?

- 1940'lar: Amniotik sıvı değil, fetal alveolar sıvı
- Üretim yeri: Tip I ve II alveolar hücreler
- Cl'dan zengin (>150 meq/ l), proteinsiz
- Fetal akciğer gelişimi açısından önemli

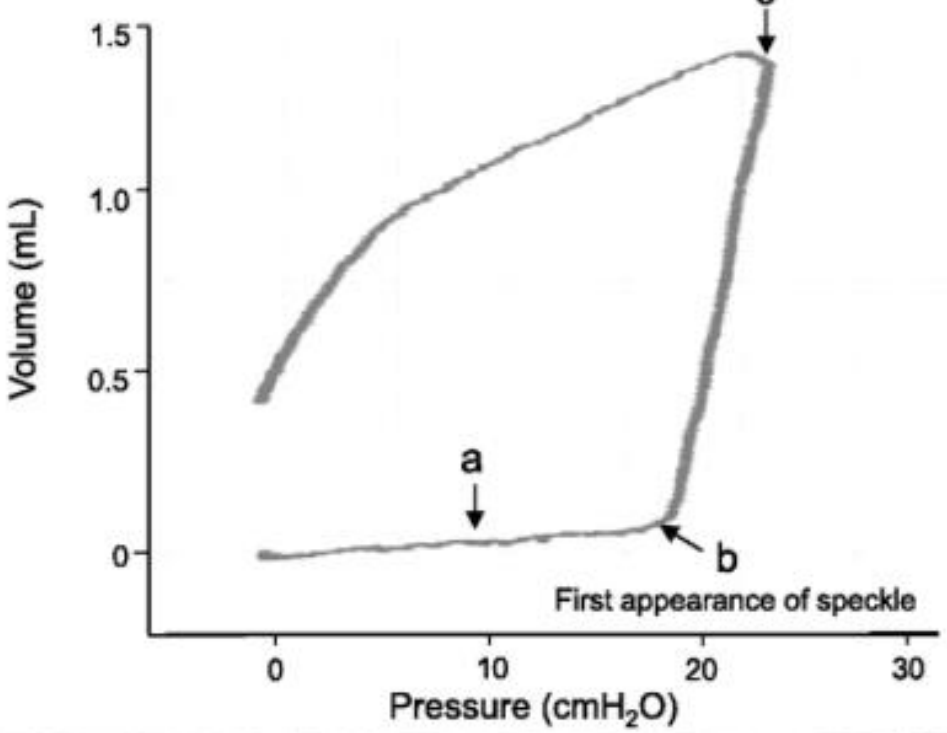


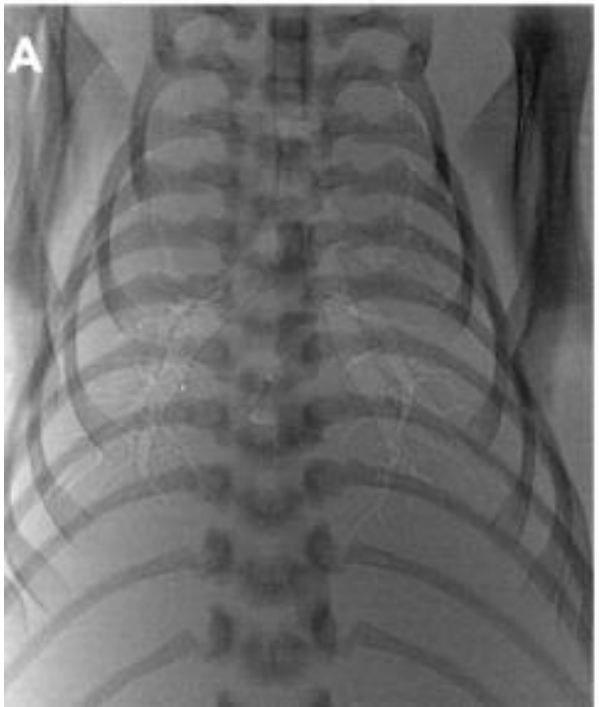


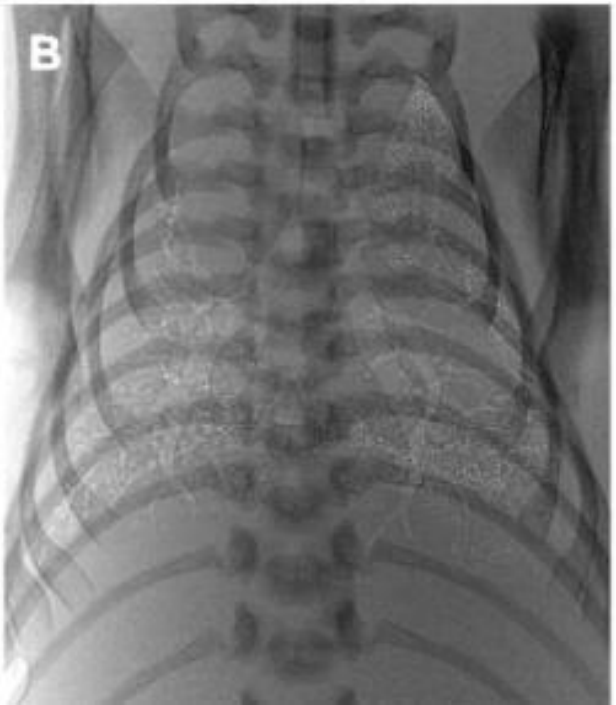
İNSPİRASYON

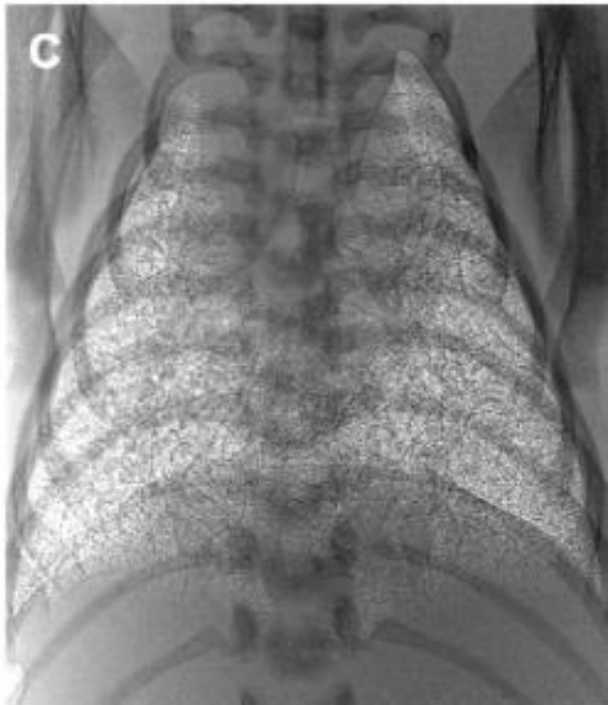


Siew, J App Physiol, 1985&Ped Res, 2013

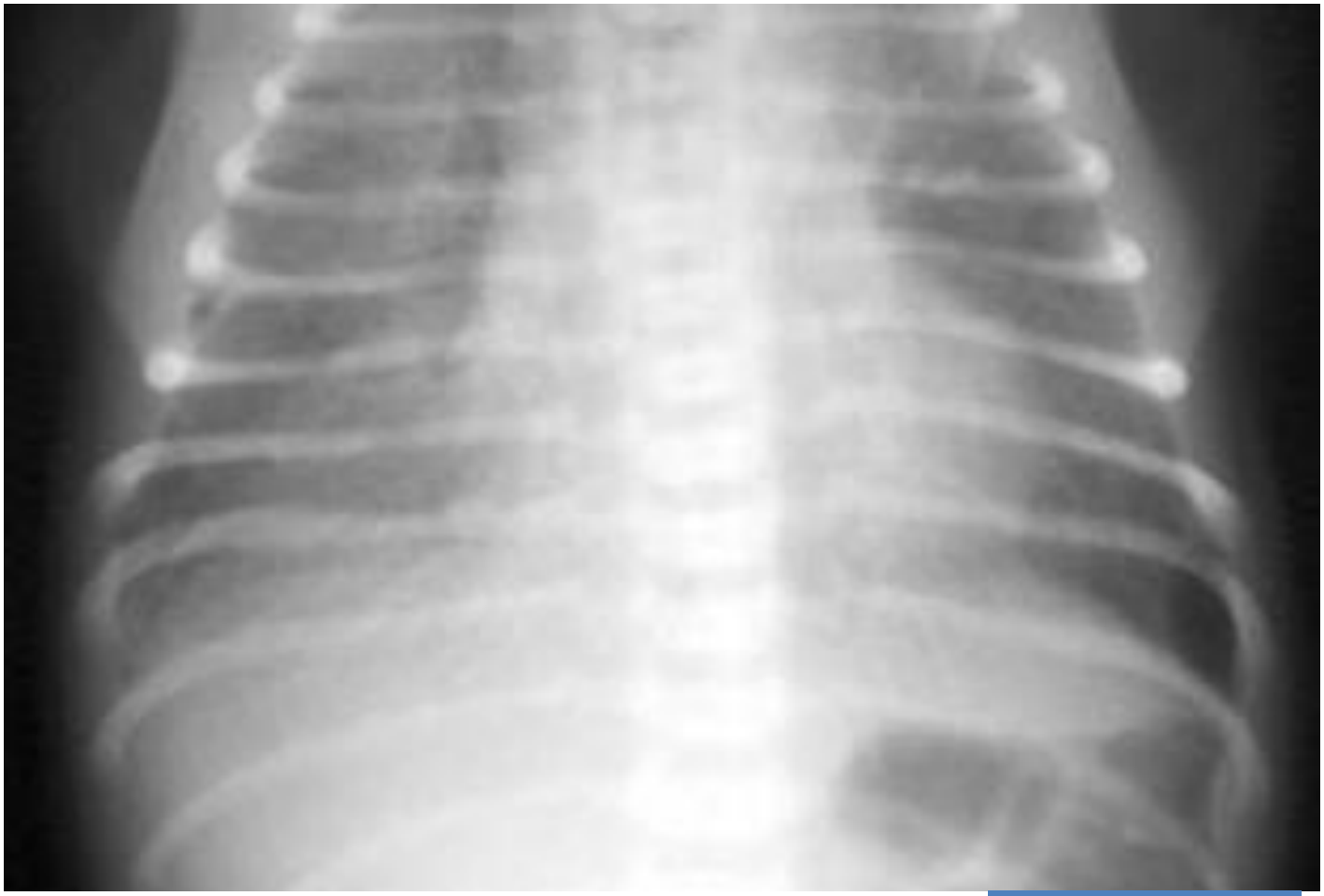

1.5
1.0
0.5
0
Volume (mL)
a
b
First appearance of speckle
0
10
20
30
Pressure (cmH2O)


A

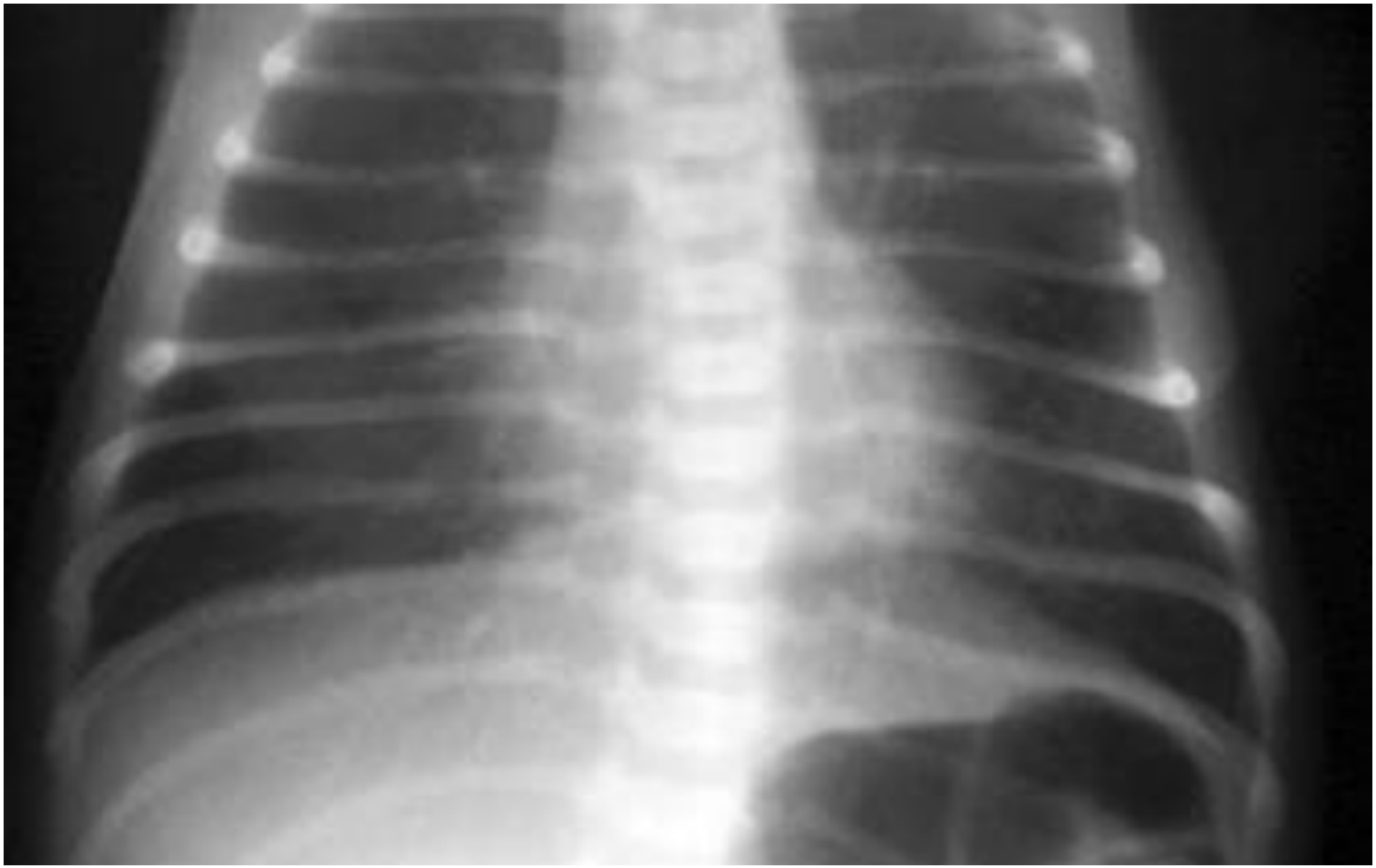

B


C

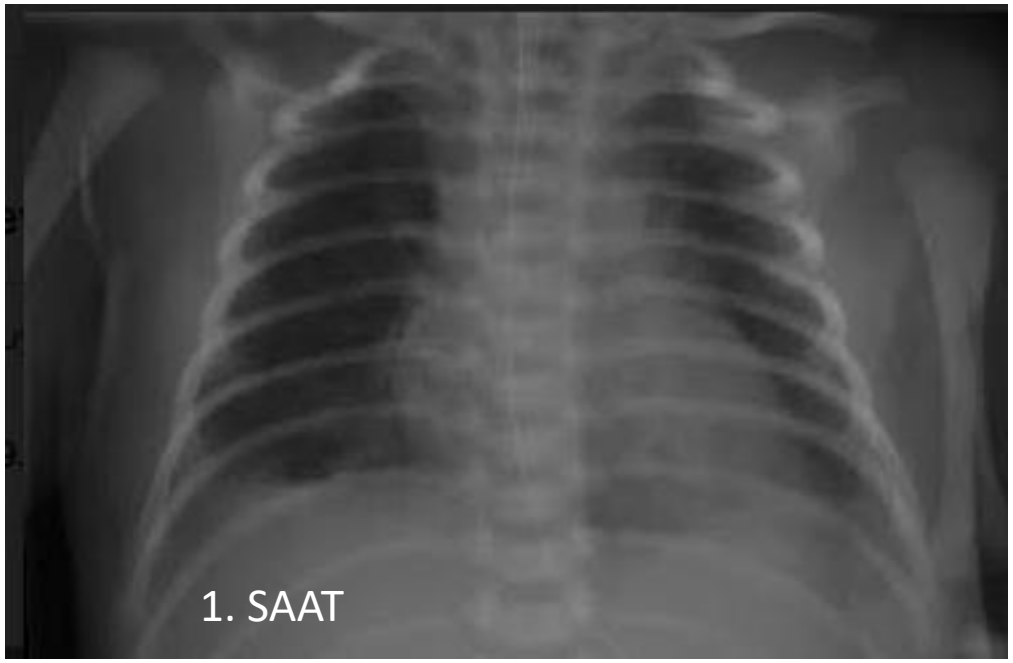
YENİDOĞANIN GEÇİCİ TAKİPNESİ

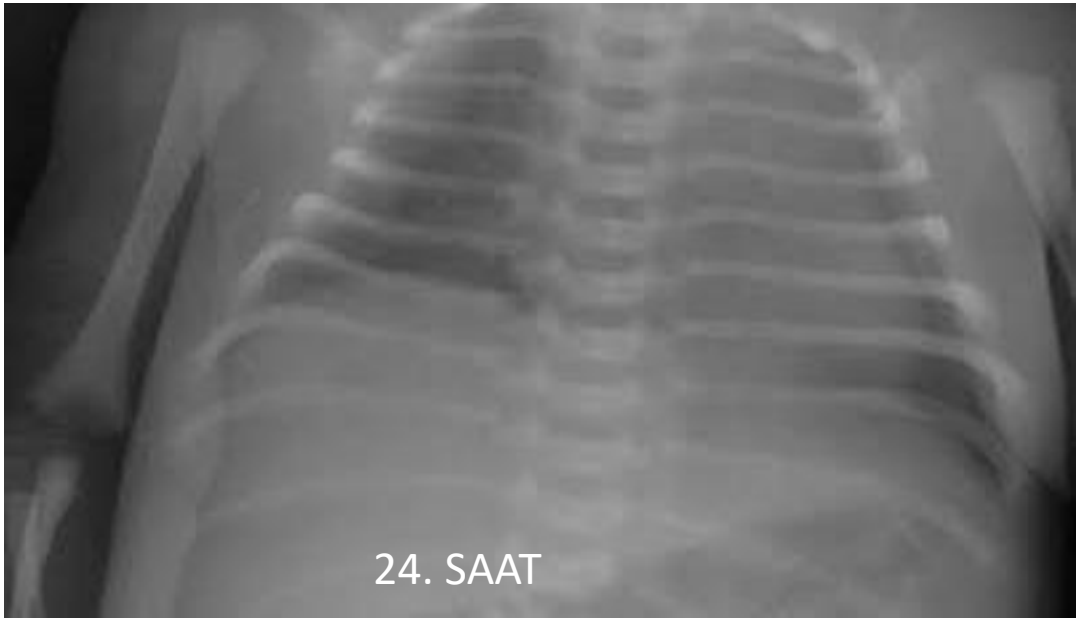


6. SAAT



48. SAAT


1. SAAT


24. SAAT

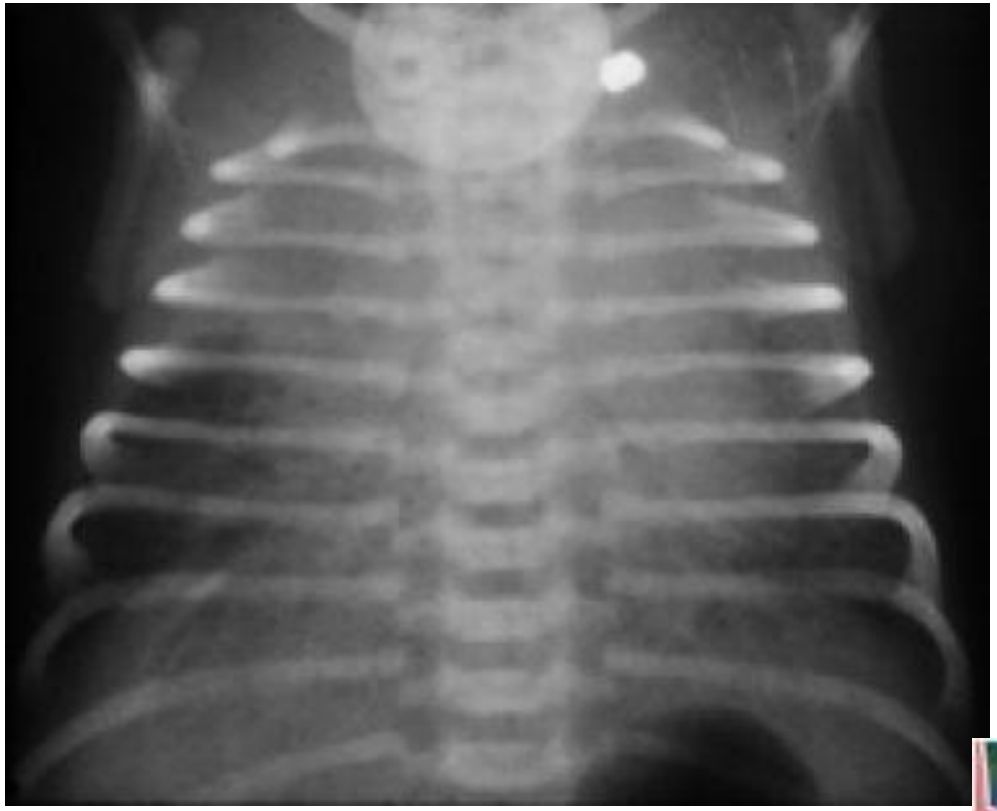
YGT DIŞLAMA TANISI

DOĞUMUN İLK 6 SAAT İÇİNDE TAKİPNE, İNLEME, BURUN KANADI SOLUNUMU, RETRAKSİYONLAR

TAKİPNENİN EN AZ 12 SAAT SÜRMESİ

AC GRAFİSİ PERİHİLER DOLGUNLUK, İNTERLOBAR FİSSÜRDE SIVI, HAVALANMA FAZLALIĞI, PLEVRAL EFFÜZYON

RDS, MAS GİBİ DURUMLARIN EKATRE EDİLMESİ

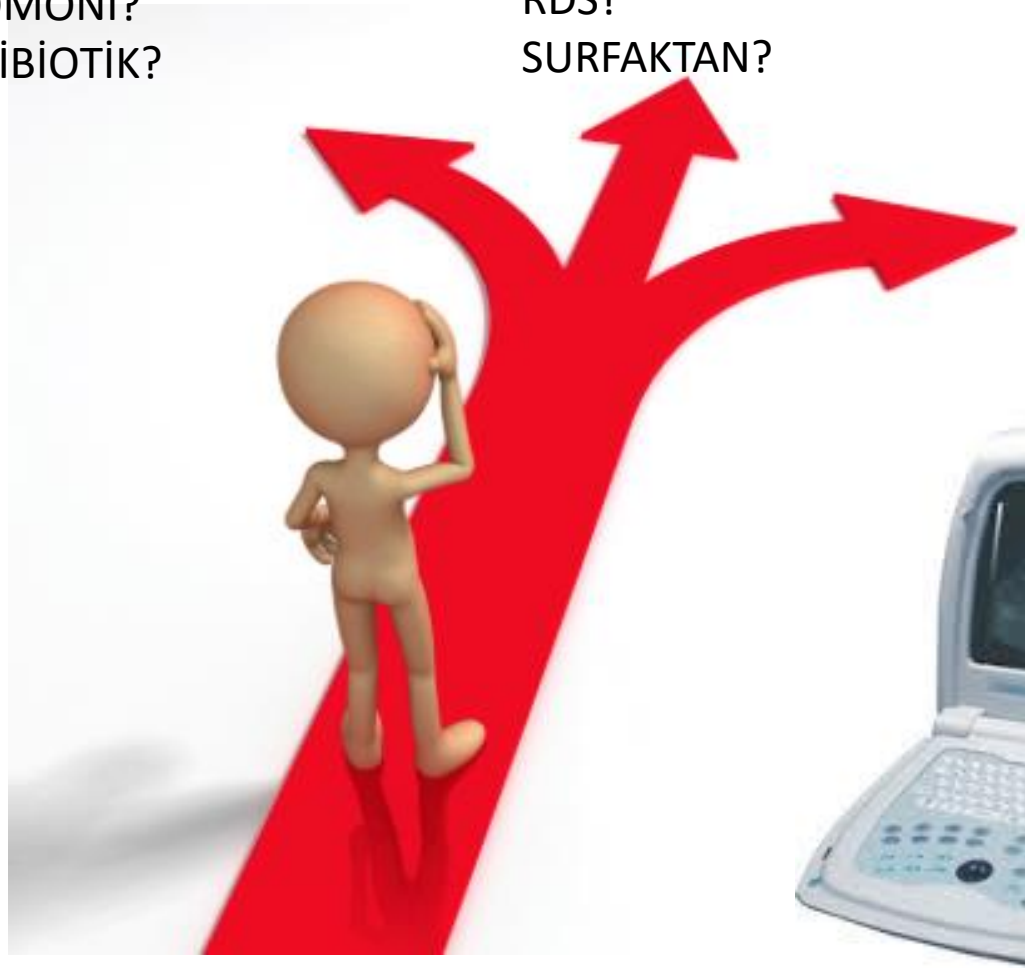


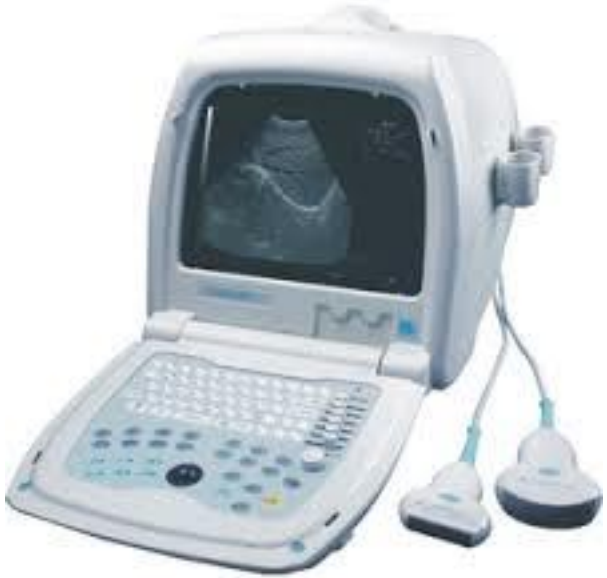
GEBELİK HAFTASI

YGT TANISI SONRASI?

PNÖMONİ?
ANTİBİOTİK?

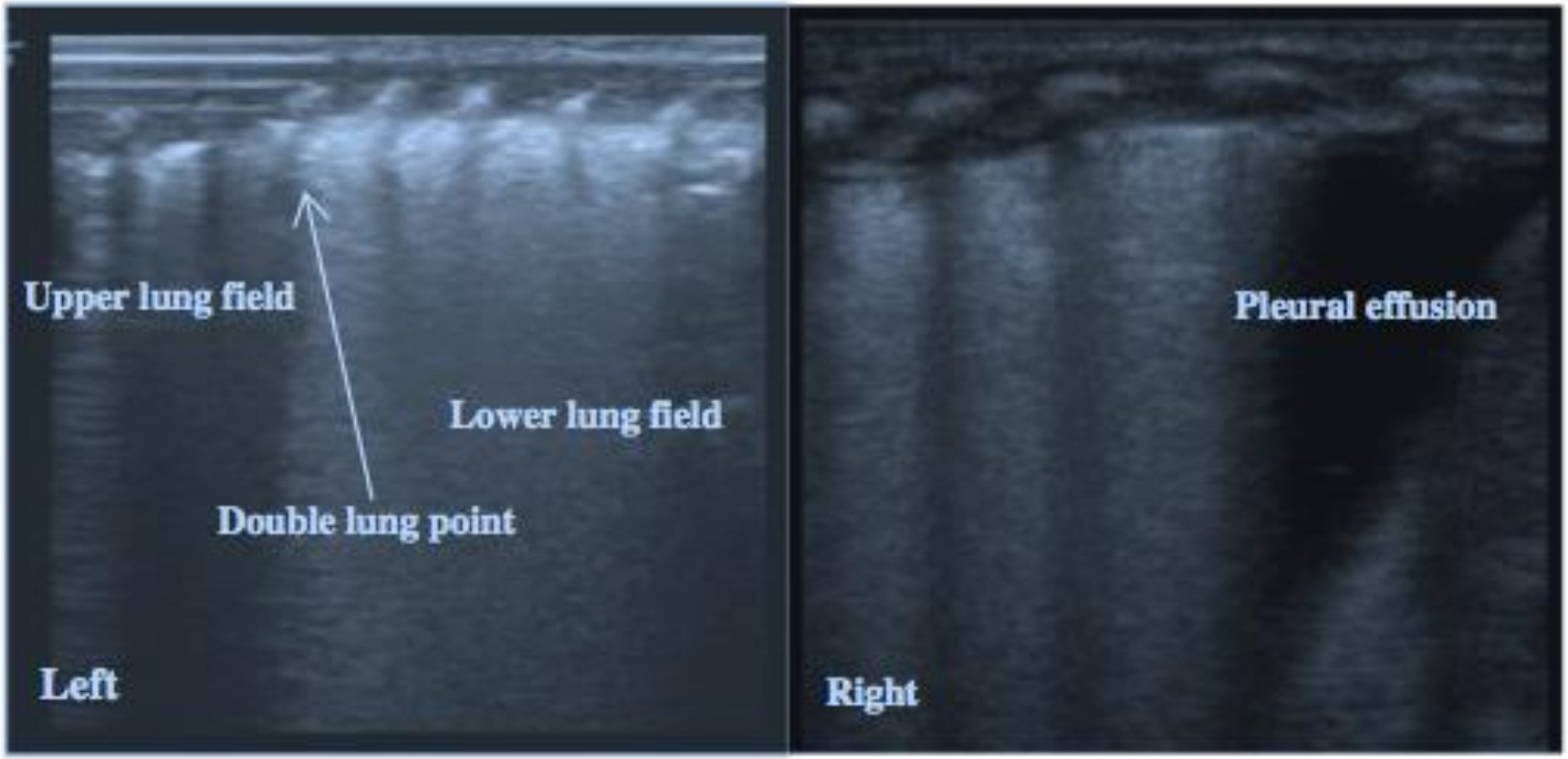
RDS?
SURFAKTAN?

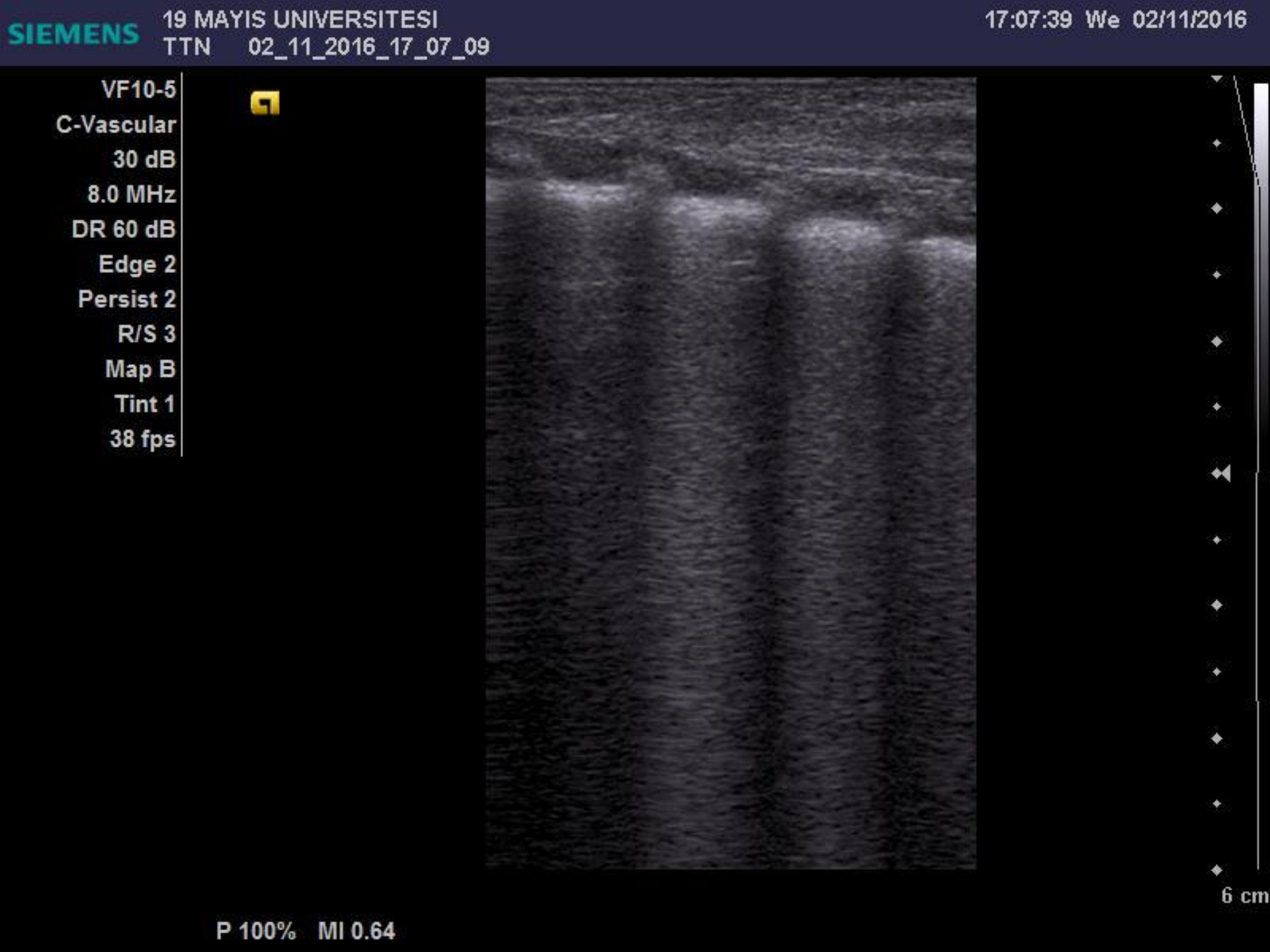


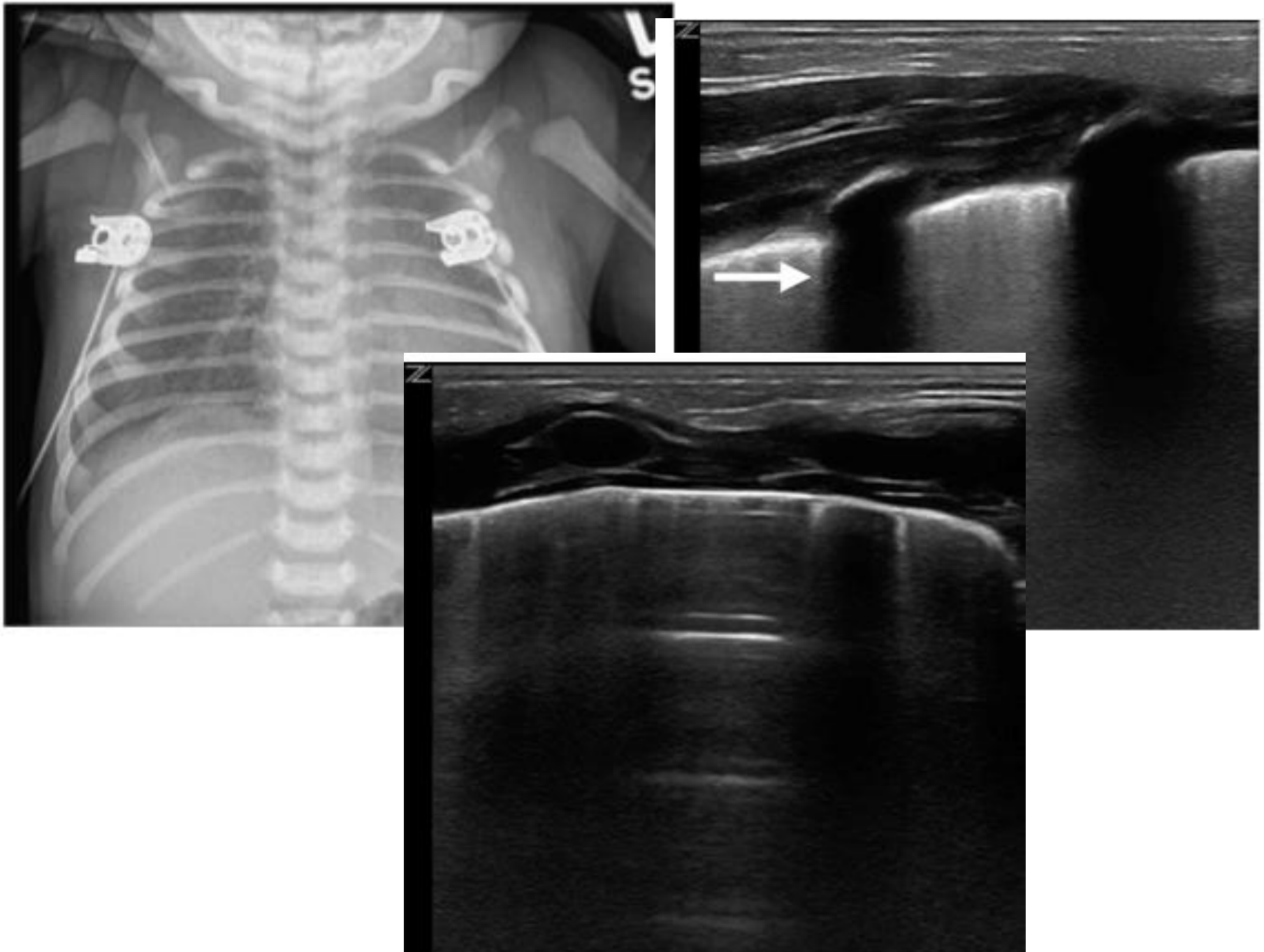


TORAKS ULTRASONOGRAFİSİ
NORMAL AKCİĞER

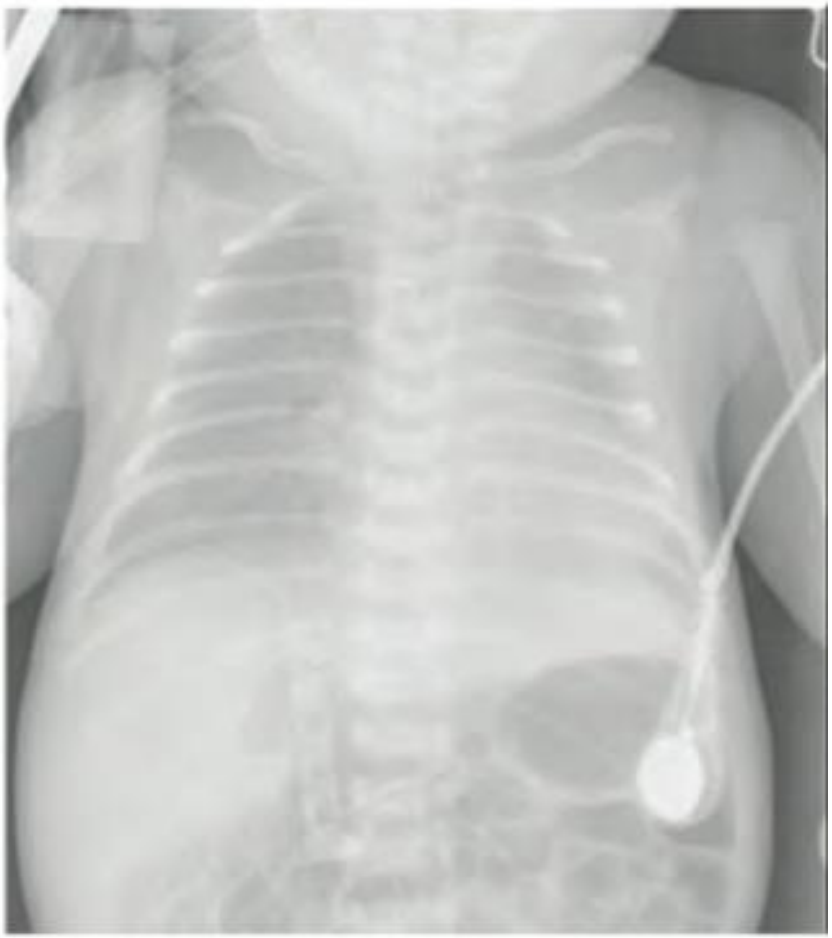
TORAKS ULTRASONOGRAFİSİ- YGT



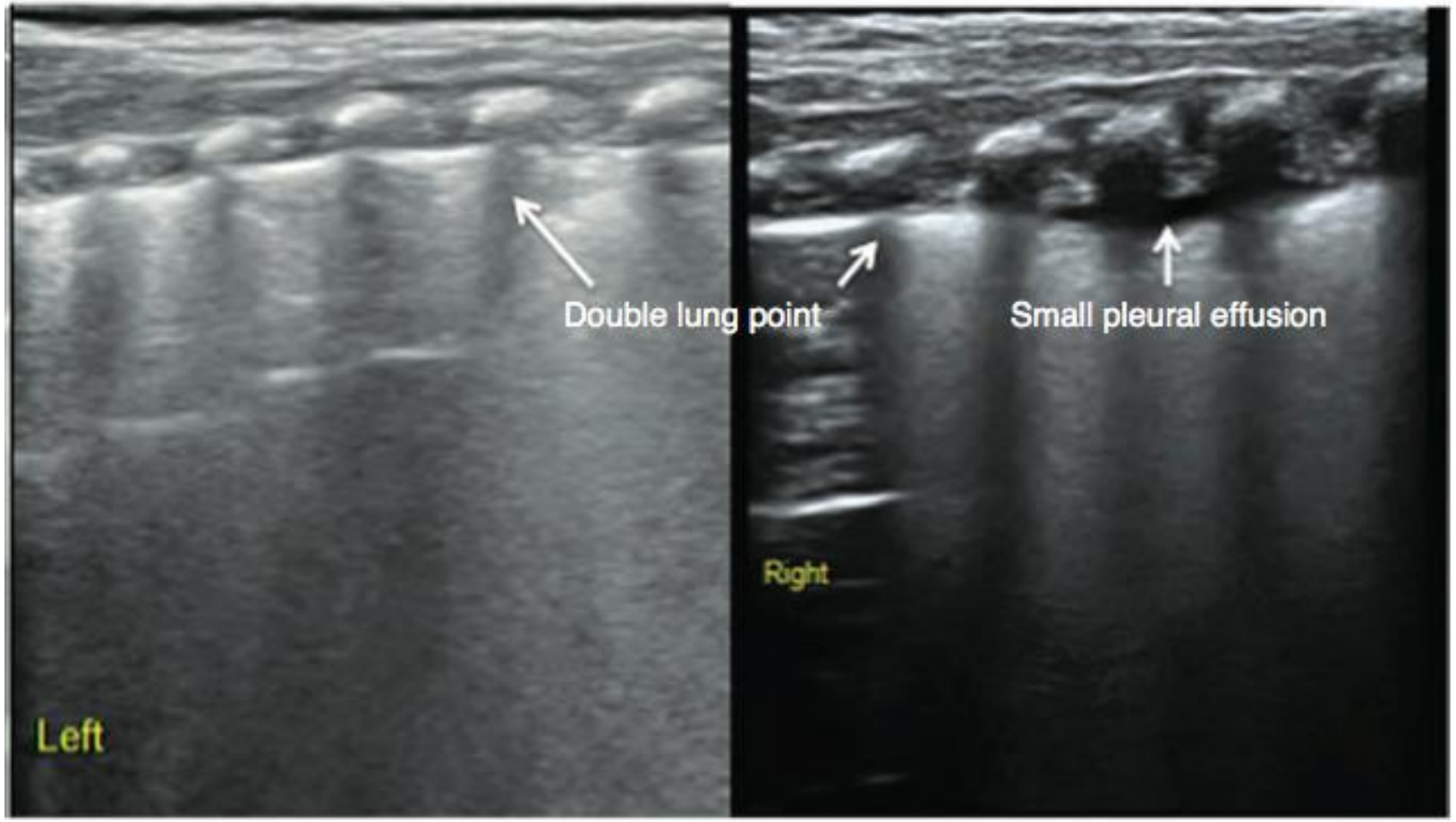

SIEMENS
19 MAYIS UNIVERSITESI
TTN 02_11_2016_17_07_09
17:07:39 We 02/11/2016
VF10-5
C-Vascular
30 dB
8.0 MHz
DR 60 dB
Edge 2
Persist 2
R/S 3
Map B
Tint 1
38 fps
6 cm
P 100% MI 0.64



TANINIZ NEDİR?



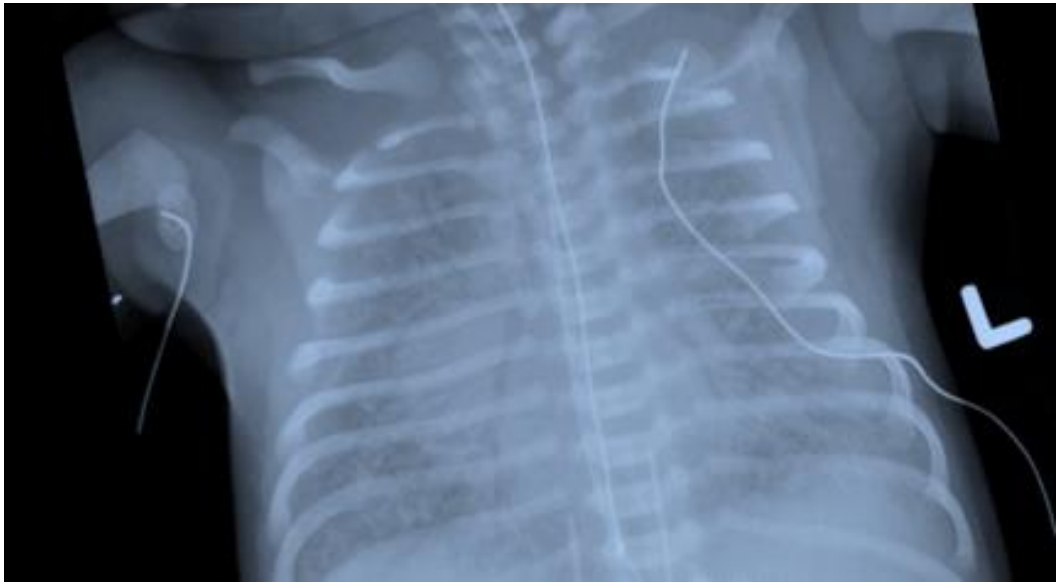
RDS?

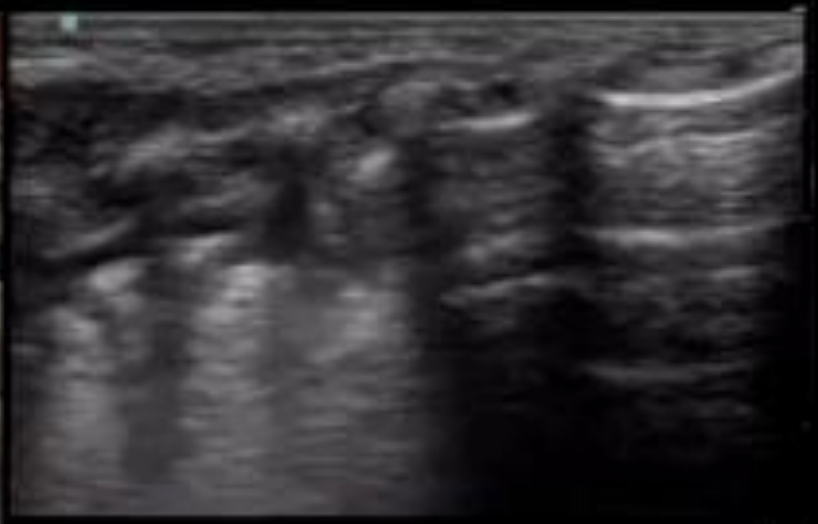


RDS DEĞİL YGT

NO SURFAKTAN

TANINIZ NEDİR?

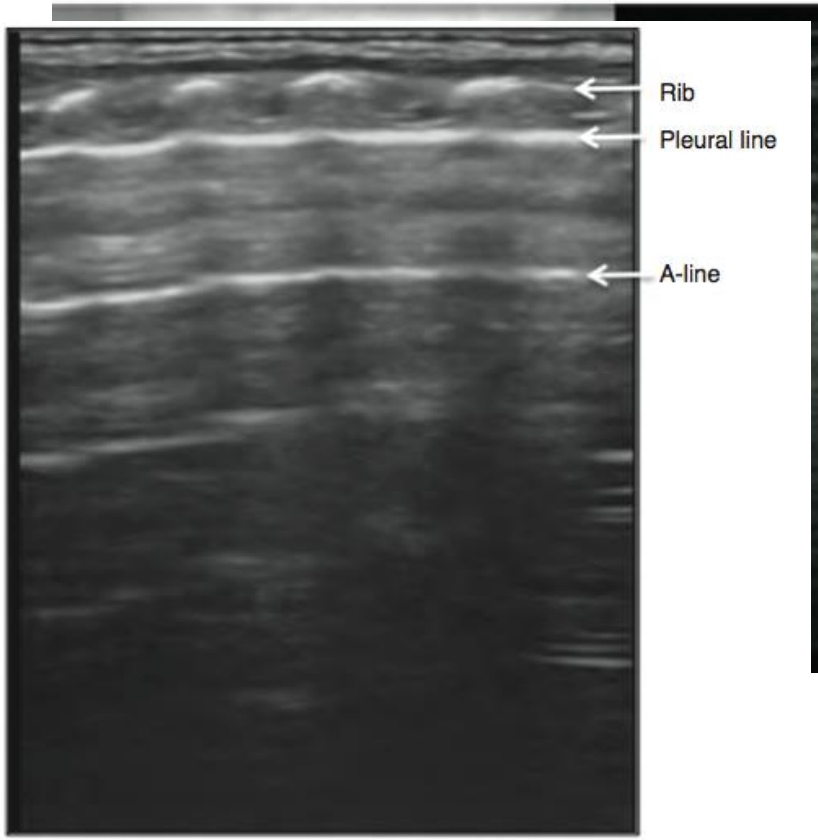


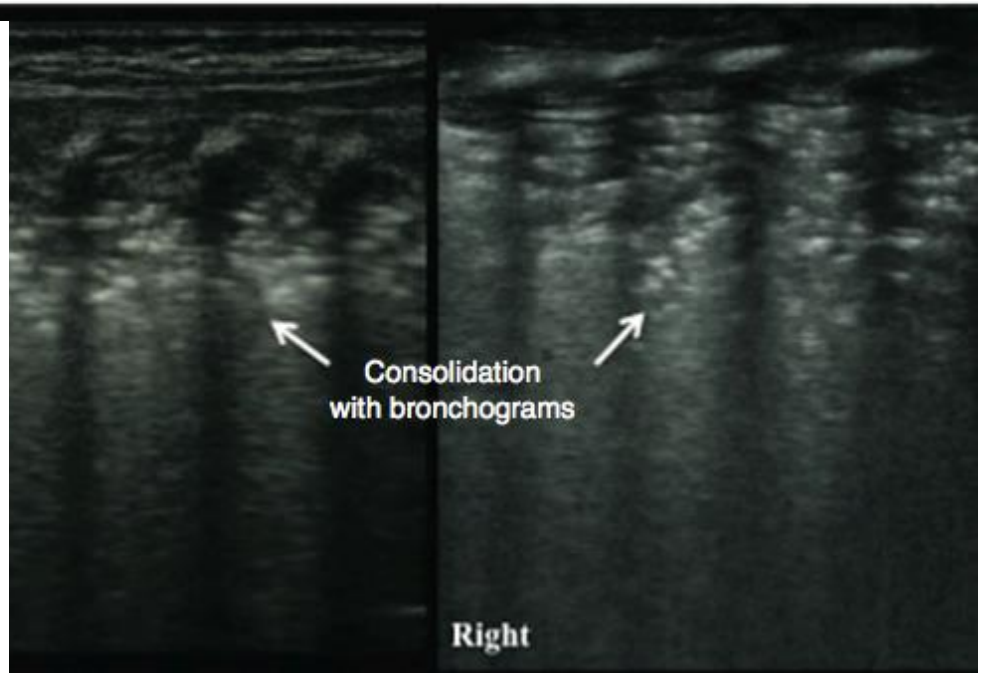


NEONATAL PNÖMONİ

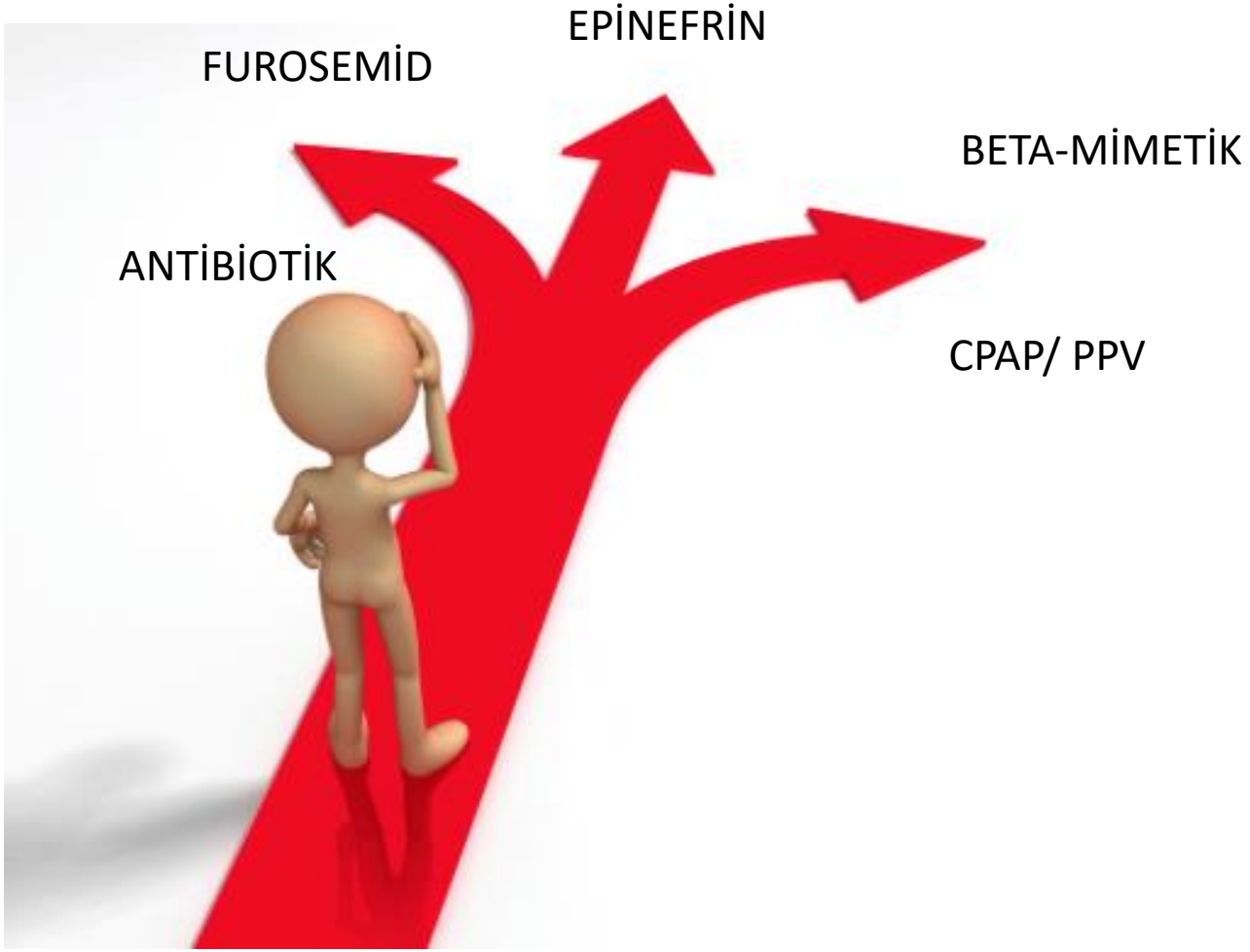
COXACKIE B3

RDS'DE TORAKS USG





TEDAVİ



Cochrane Library

Cochrane Database of Systematic Reviews

ÖNERİLMİYOR

Diuretics for transient tachypnoea of the newborn (Review)

Kassab M, Khriesat WM, Anabrees J

Authors' conclusions

Diuretics cannot be recommended as treatment for transient tachypnoea of the newborn and it should not be used unless additional data become available. This finding suggests that either furosemide is not effective in promoting resorption of lung fluid, or factors other than delayed resorption of this fluid contribute to the pathogenesis of transient tachypnoea of the newborn. The question remains as to whether furosemide given to the infant (or even to the mother before caesarean section) might shorten the duration of the illness. As elective caesarean section continues at a high level, these two interventions might be worthy of trials.

Cochrane Library

Cochrane Database of Systematic Reviews

Cochrane Database Syst Rev. 2016 May 23;(5):CD011877. doi: 10.1002/14651858.

Epinephrine for transient tachypnea of the newborn

Moresco L[1], Calevo MG, Baldi F, Cohen A, Bruschettini M.

YETERLİ BİLGİ YOK

Bir çalışma, 20 bebek
3 doz nebulize 2.25% racemic epinephrine vs placebo.
Okssijen tedavisi (mean difference (MD) -6.60, 95% confidence interval (CI) -54.80 to 41.60 hours) ve mekanik ventilasyon gereksinimi (risk ratio (RR) 0.67, 95% CI 0.08 to 5.88; risk difference (RD) -0.07, 95% CI -0.46 to 0.32) açısından fark yok.

AUTHORS' CONCLUSIONS:
At present there is insufficient evidence to determine the efficacy and safety of epinephrine in the management of transient tachypnea of the newborn.

Cochrane Library

Cochrane Database of Systematic Reviews

2016

Salbutamol for transient tachypnea of the newborn (Review)

Moresco L, Bruschettini M, Cohen A, Gaiero A, Calevo MG

- Üç çalışma, 140 bebek
- Nebülize Salbutamol vs Plasebo
- Oksijen tedavisi i 43.10 saat kıs)
- CPAP gereksinimi değişmiyor ((0.15, 95% CI -0.45 to 0.16; 1 ça
- MV gereksinimi değişmiyor (RR to 0.14; 1 çalışma, 46 bebek).
- Hastanede kalış süresi değişmiy

ETKİNLİĞİ GÖSTEREN
YETERLİ VERİ YOK
ÇALIŞMA VE VAKA SAYISI AZ

CPAP TEDAVİSİ

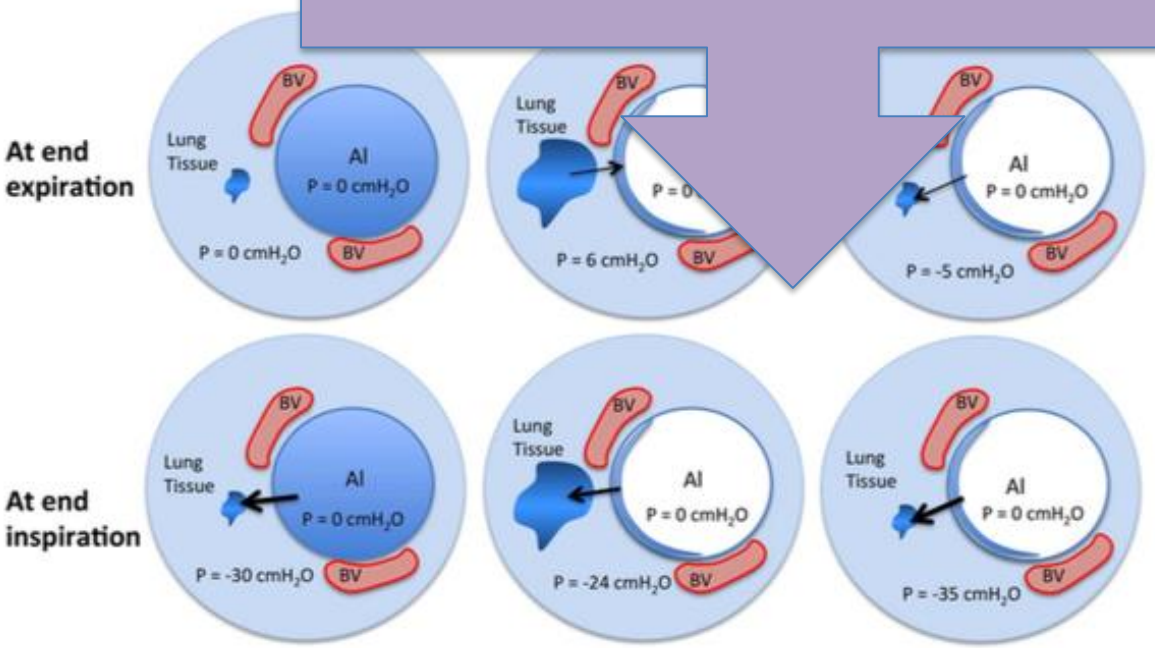
Impact of Prophylactic Continuous Positive Airway Pressure on Preterm Newborn and Ne in Newborns Del Section

YENİDOĞAN YOĞUN BAKIM'A YATIŞI AZALTIYOR

Miray Yilm
Duran Yild

[1] Department
Ankara, Turk
[2] Neonatal Int
Research Ho
[3] Division of N
School of M

Am J Perinat



dat Dolakay Cad. No:

CPAP vs NAZAL IMV

THE JOURNAL OF
MATERNAL-FETAL
& NEONATAL
MEDICINE

SOLUNUMSAL SONUÇLARDA
FARK YOK

ORIGINAL ARTICLE

Nasal intermittent mandatory ventilation v asal continuous positive airway pressure for transient ta ewborn: a randomized, prospective study*

Gamze Demirel[1], Nurdan Uras[2], Istemi Han Celik[3], Fuat Emre Canpolat[2], a d Ugur Dilmen[2,4]

ANTİBİOTİK TEDAVİSİ

J Neonatal Perinatal Med. 2013;6(3):237-41. doi: 10.3233/NPM-1367012.

Transient tachypnea of the newborn: Is empiric antimicrobial therapy needed?

Salama H[1], Abughalwa M, Taha S, Sharaf N, Mansour A.

⊕ **Author information**

Abstract

BACKGROUND: Transient tachypnea of the newborn (TTN) is a self- limited increase in the work of breathing in near- and full-term infants; it is attributed to a delay in the clearance of alveolar fluids. Prophylactic antibiotics are usually administered until blood cultures are reported negative for 48 hours.

OBJECTIVES: To prospectively compare outcomes of infants presented with classic TTN who were treated with or denied from intravenous antibiotics.

METHODS: A prospective cohort study was conducted on all infants admitted with classic TTN. Pre-set diagnostic criteria for classic TTN were applied in order to exclude other cases presenting with respiratory distress. Infants with classic TTN were stratified into two groups based on whether they received or did not receive antibiotics. The decision to administer antibiotics solely depended upon the style of the covering physician at the time of admission to the NICU. The following investigations were obtained from infants of both groups: blood culture, C-reactive protein, complete blood count, blood gas profile and chest X-ray.

RESULTS: A total of 15146 full-term infants were delivered during the study period; of them 923 were admitted to the NICU. Classic TTN was diagnosed in 168 infants; of them 106 (63%) received and 62 (37%) did not receive antibiotics. Two infants in the treated group and an infant in the non-treated group had microbiologically confirmed bacteremia. Infants in the treatment group stayed longer in the hospital (72 ± 6 vs. 48 ± 3 hrs). No recorded cases required readmission in either group.

CONCLUSIONS: With the application of strict criteria for classic TTN and the close observation in the NICU, the empiric use of antibiotics may be avoidable. Randomized controlled trials are needed to confirm the feasibility and safety of such approach.

Sepsis /pnömoni ekarte edilinceye kadar (48 saat) verilebilir
Antibiotik alan bebekler hastanede daha uzun kalıyor

NASIL ÖNLEYEBİLİRİZ?

BMJ. 2016 Oct 12;355:i5044. doi: 10.1136/bmj.i5044.

Antenatal corticosteroids for maturity of term or near term fetuses: systematic review and meta-analysis of randomized controlled trials.

Saccone G[1], Berghella V[2].

CONCLUSIONS: Antenatal steroids at ≥34 weeks' gestation reduce neonatal respiratory morbidity. A single course of corticosteroids can be considered for women at risk of imminent late premature delivery 34^{0}-36^{6} weeks' gestation, as well as for women undergoing planned cesarean delivery at ≥37 weeks' gestation.

NASIL ÖNLEYEBİLİRİZ?

J Matern Fetal Neonatal Med. 2016 Jul 20:1-7. [Epub ahead of print]

Antenatal steroid administration in med… the prevention of neonatal morbidities prio… ysis of randomised controlled trials.

Srinivasjois R[1,2], Silva D[1,2].

Author information

Abstract

BACKGROUND: Elective caesarean section is ass… ursery even at full-term gestation.

AIM: To systematically review the efficacy of anten… and quasirandomised controlled trials were selected.

METHODS: Standardised methodology as described by the Cochrane neonatal review… for data collection and analysis.

RESULTS: A total of three randomised controlled trials (N = 2740 patients) were includ… Meta-analysis of the published data was carried out. A significant decrease in the risk of respiratory distress syndrome (od… l: 0.23-0.71, p < 0.001), risk of transient tachypnoea of newborn (OR 0.37 (95%CI: 0.25-0.56, p < 0.00001)), risk of a… al care nursery (OR 0.53 (95%CI: 0.37-0.76, p < 0.0007)) were observed.

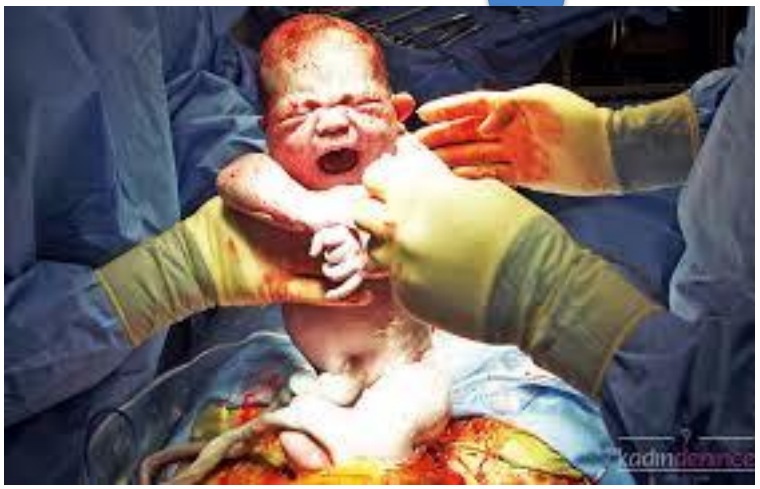
CONCLUSION: Although antenatal steroid administration prior to elective caesarean section d…monstrated significant benefit in the prevention of neonatal morbidities; however, one need to be cautious before it can be routinely administered because of the paucity of long-term safety data.

KEYWORDS: Antenatal steroids; elective caesarean section; perinatal mortality; respiratory distress; transient tachypnoea of newborn

YGT RİSKİNİ 0.4 KAT,
YYBÜ YATIŞINI YARI YARIYA AZALTIYOR

Erdil Yaşaroğlu © www.komikaze.net

39 HAFTAM TAMAMLANMADI!!



Öykü

35 yaş anne, G1P1, 40 hafta, uzamış eylem

Oligohidramniyos

NST'de deselerasyon

Acil C/S

Doğum salonu

Mekonyum boyalı

Bradikardik, solunum sıkıntısı var

PBV, entübasyon, göğüs kompresyonu

Kan gazı: pH:7.1, PCO_2:68, PO_2:44, HCO_3:19, Laktat:2.4

YYBÜ

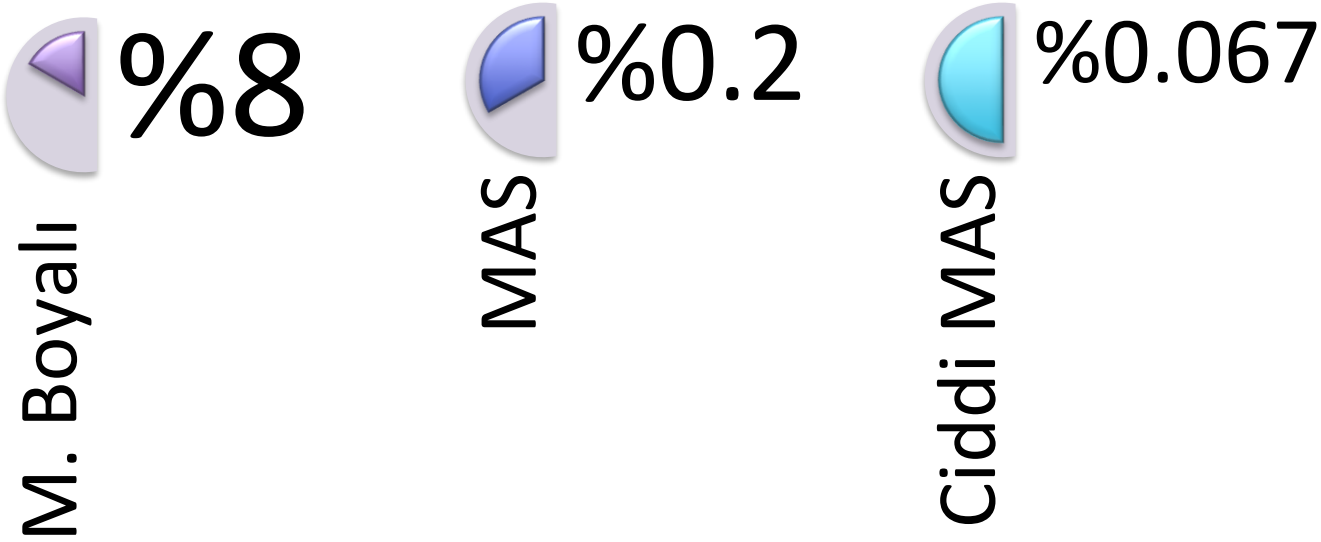
Entübe transfer edildi

Sat %90 dolaylarında

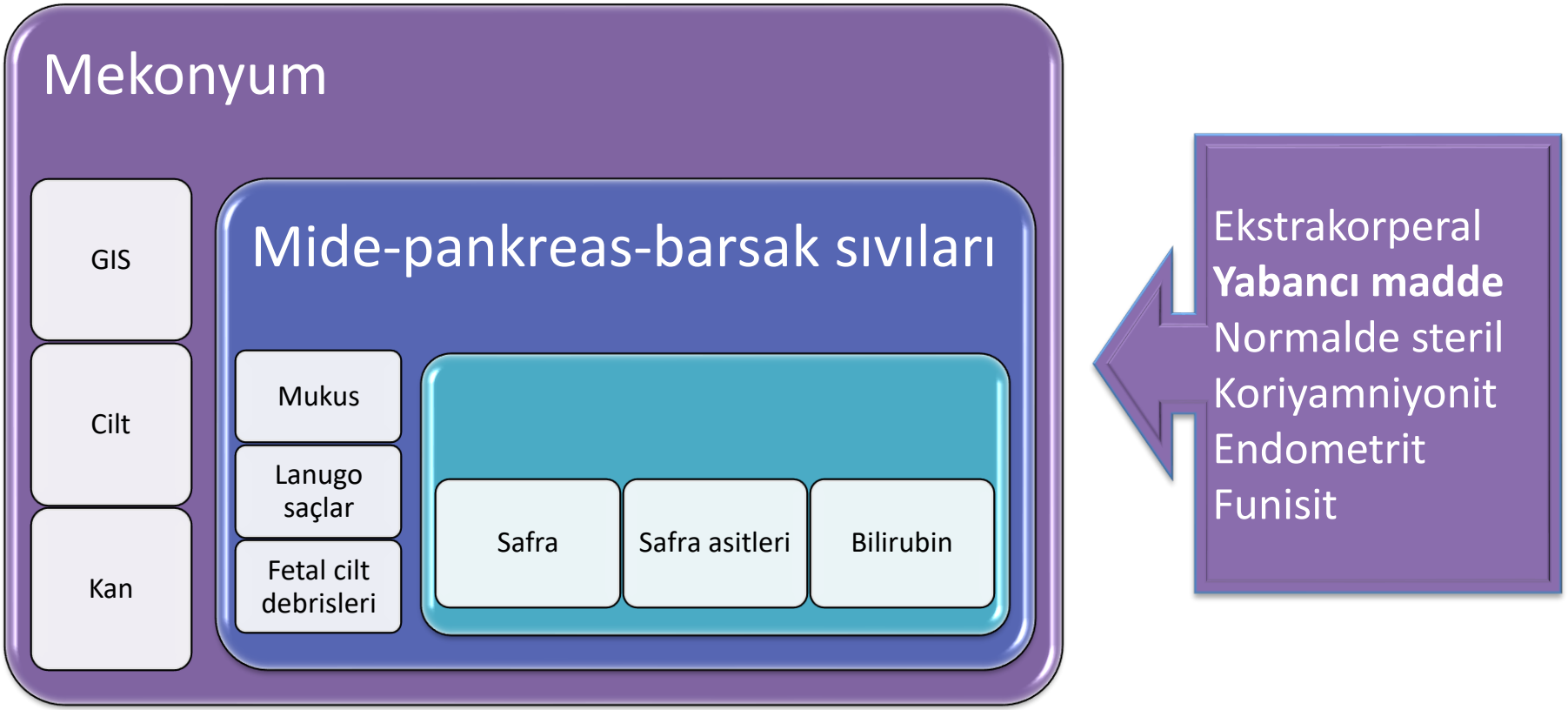
Hangi mod ve ayarlarda MV?

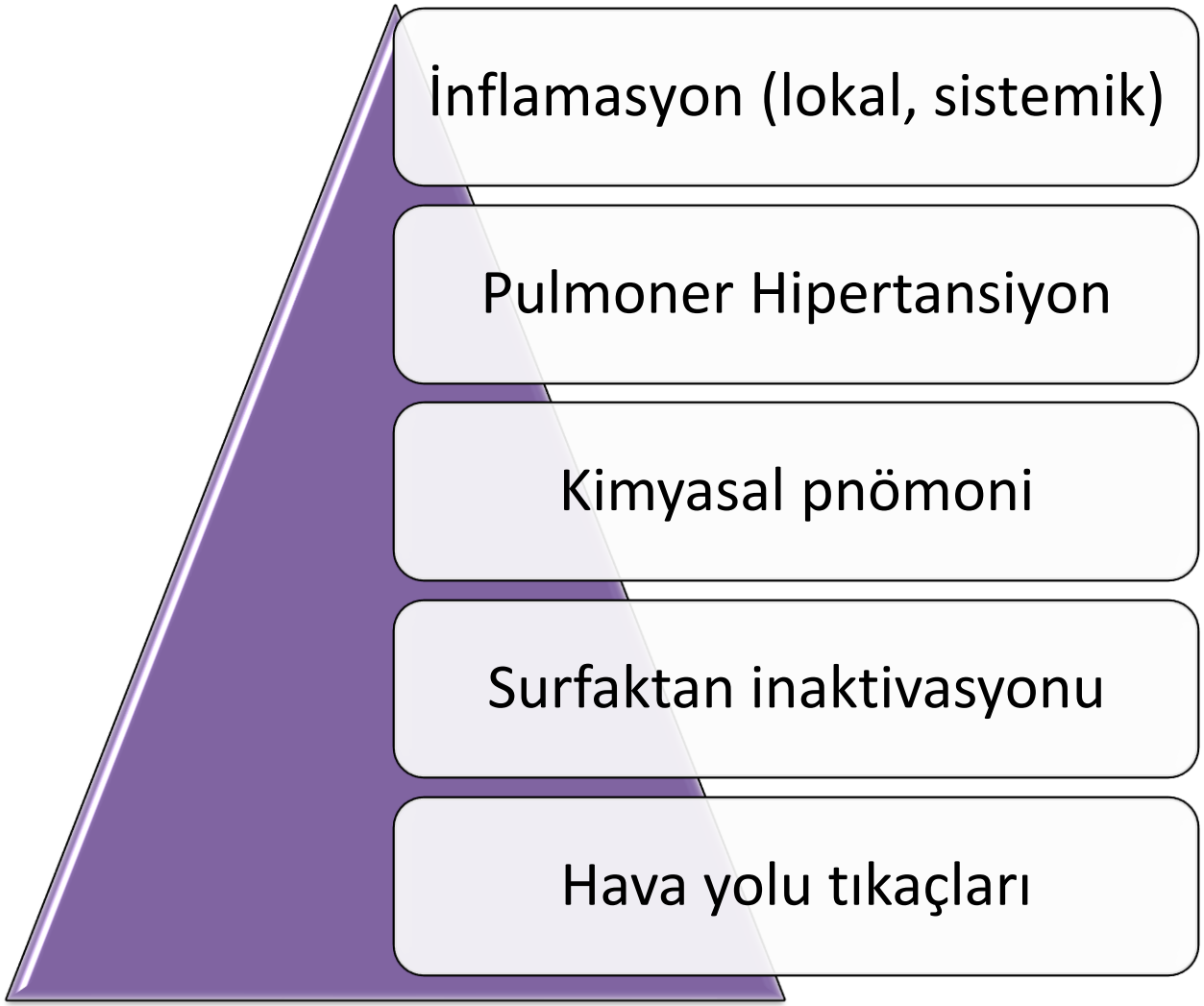
Surfaktan verelim mi?


Saturasyonu ≥%92 tutabilmek için oksijen desteğine ihtiyaç olması
Oksijen ihtiyacının ilk 2 saatte ortaya çıkması ve en az 12 saat sürmesi
Mekonyum boyalı amniyon sıvısı ile doğan bebekte solunum sıkıntısı
MAS
Akciğer, hava yolu ve kalp anomalisinin olmaması



1.250.000 doğum
100.000 mekonyum boyalı amniyon
2500 MAS
840 Ciddi MAS


Mekonyum
GIS
Cilt
Kan
Mide-pankreas-barsak sıvıları
Mukus
Lanugo saçlar
Fetal cilt debrisleri
Safra
Safra asitleri
Bilirubin
Ekstrakorperal
Yabancı madde
Normalde steril
Koriyamniyonit
Endometrit
Funisit


İnflamasyon (lokal, sistemik)
Pulmoner Hipertansiyon
Kimyasal pnömoni
Surfaktan inaktivasyonu
Hava yolu tıkaçları


Doğum salonu müdahaleleri
Antibiyotik tedavisi
Surfaktan bolus/Surfaktan lavajı
ECMO

ILCOR-2015 ve TND 2015 rehberleri

Term ve postterm gebeliklerde,

fetal distresin diğer bulguları olmaksızın **sadece MBAS'nın varlığı fetal hipoksi bulgusu değildir**.

Trakeal aspirasyon için kabul edilen tek koşul;

bebeğin solunum yollarında obstrüksiyon yapan mekonyum partiküllerinin varlığıdır.

Deprese bile doğsalar, canlandırmanın ilk basamakları uygulanmalı,

solunum çabası yeterli olmayan veya KTA<100dk olanlara **PBV** başlanmalıdır.

Part 7: Neonatal Resuscitation

2015 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations

Jeffrey M. Perlman, Co-Chair*; Jonathan Wyllie, Co-Chair*; John Kattwinkel; Myra H. Wyckoff; Khalid Aziz; Ruth Guinsburg; Han-Suk Kim; Helen G. Liley; Lindsay Mildenhall; Wendy M. Simon; Edgardo Szyld; Masanori Tamura; Sithembiso Velaphi; on behalf of the Neonatal Resuscitation Chapter Collaborators

Introduction

Newborn Transition

The transition from intrauterine to extrauterine life that occurs at the time of birth requires timely anatomic and physiologic adjustments to achieve the conversion from placental gas exchange to pulmonary respiration. This transition is brought about by initiation of air breathing and cessation of the placental circulation. Air breathing initiates marked relaxation of pulmonary vascular resistance, with considerable increase in pulmonary blood flow and increased return of now-well-oxygenated blood to the left atrium and left ventricle, as well as increased left ventricular output. Removal of the low-resistance placental circuit will increase systemic vascular resistance and blood pressure and reduce right-to-left shunting across the ductus arteriosus. The systemic organs must equally and quickly adjust to the dramatic increase in blood pressure and oxygen exposure. Similarly, intrauterine thermostability must be replaced by neonatal thermoregulation with its inherent increase in oxygen consumption.

Approximately 85% of babies born at term will initiate spontaneous respirations within 10 to 30 seconds of birth, an additional 10% will respond during drying and stimulation, approximately 3% will initiate respirations after positive-pressure ventilation (PPV), 2% will be intubated to support respiratory function, and 0.1% will require chest compressions and/or epinephrine to achieve this transition.[1–3] Although the vast majority of newborn infants do not require intervention to make these transitional changes, the large number of births worldwide means that many infants require some assistance to achieve cardiorespiratory stability each year.

Newly born infants who are breathing or crying and have good tone immediately after birth must be dried and kept warm so as to avoid hypothermia. These actions can be provided with the baby lying on the mother's chest and should not require separation of mother and baby. This does not preclude the need for clinical assessment of the baby. For the approximately 5% of newly born infants who do not initiate respiratory effort after stimulation by drying, and providing warmth to avoid hypothermia, 1 or more of the following actions should be undertaken: providing effective ventilation with a face mask or endotracheal intubation, and administration of chest compressions with or without intravenous medications or volume expansion for those with a persistent heart rate less than 60/min or asystole, despite strategies to achieve effective ventilation (Figure 1).

The 2 vital signs that are used to identify the need for an intervention as well as to assess the response to interventions are heart rate and respirations. Progression down the algorithm should proceed only after successful completion of each step, the most critical being effective ventilation. A period of only approximately 60 seconds after birth is allotted to complete each of the first 2 steps, ie, determination of heart rate and institution of effective ventilation. Subsequent progression to the next step will depend on the heart rate and respiratory response.

Evidence Evaluation

GRADE

The task force performed a detailed systematic review based on the recommendations of the Institute of Medicine of the National Academies[4] and using the methodological approach proposed by the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) Working Group.[5] After identification and prioritization of the questions to be addressed (using the PICO [population, intervention, comparator, outcomes] format),[6] with the assistance of information specialists, a detailed search for relevant articles was

The American Heart Association requests that this document be cited as follows: Perlman JM, Wyllie J, Kattwinkel J, Wyckoff MH, Aziz K, Guinsburg R, Kim HS, Liley HG, Mildenhall L, Simon WM, Szyld E, Tamura M, Velaphi S; on behalf of the Neonatal Resuscitation Chapter Collaborators. Part 7: neonatal resuscitation: 2015 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. *Circulation*. 2015;132(suppl 1):S204–S241.

*Co-chairs and equal first co-authors.

This article has been co-published in *Resuscitation*. Published by Elsevier Ireland Ltd. This article has also been reprinted in *Pediatrics*.

(*Circulation*. 2015;132[suppl 1]:S204–S241. DOI: 10.1161/CIR.0000000000000276.)

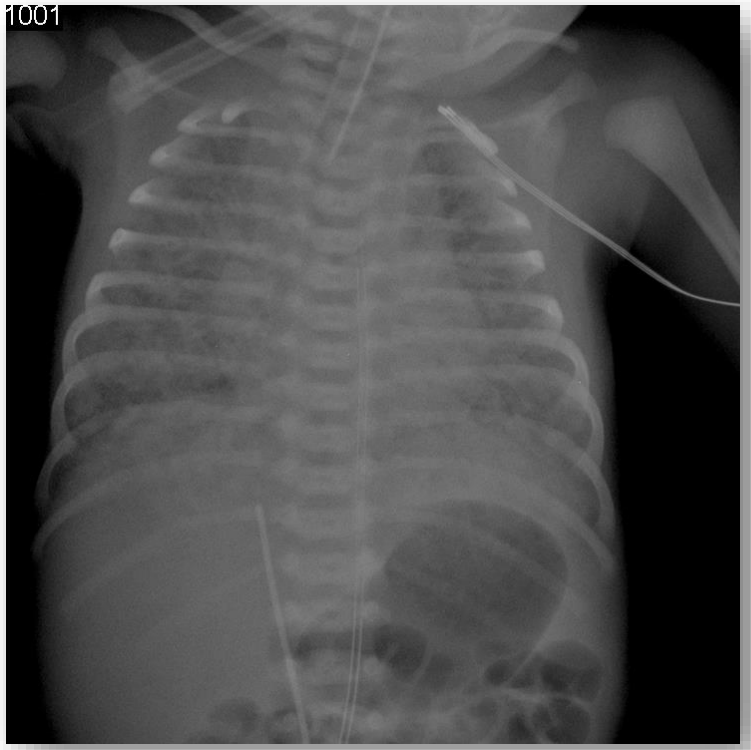
***Circulation* is available at http://circ.ahajournals.org** **DOI: 10.1161/CIR.0000000000000276**

Endotrakeal aspirasyon:
sadece mekonyum tıkaç durumunda

Gecikmeye sebep oluyor
Kanıt değeri yok
Önerilmiyor

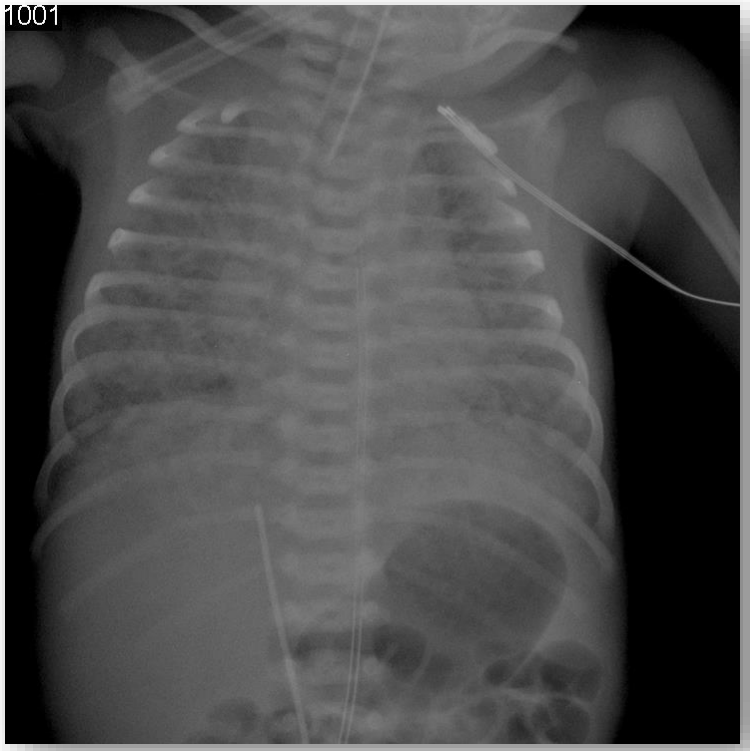
Klinik izlem

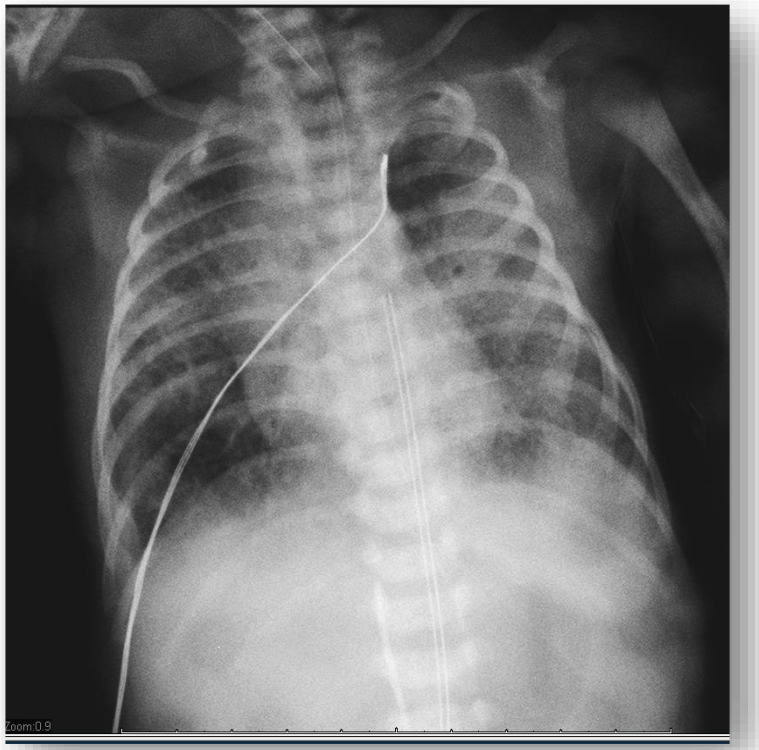
- Hasta VG PTV modunda MV takibine alınıyor
- Kan gazı: pH:7.25, PCO_2:46, PO_2:34, HCO_3:18, Laktat:3.6
- Oksijen ihtiyacı yüksek
- VG de 7 ml/kg ventilasyonda
- **Sonraki adım?!**



Mekonyum aspirasyon sendromunda surfaktan lavajı

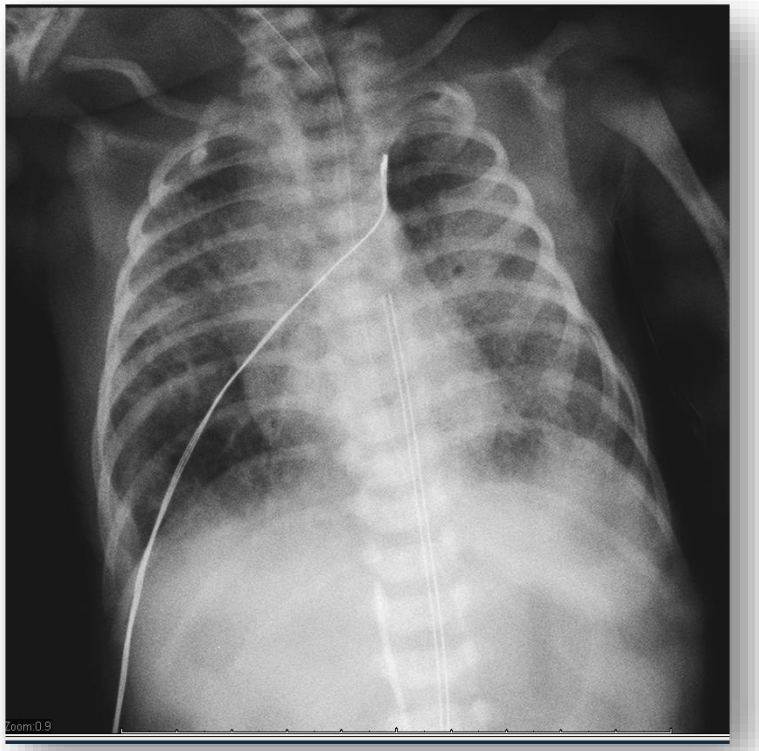

Mekonyum
Pulmoner hemoraji
Albumin
Surfaktan inhibisyonu
Travma
İnfeksiyon
Oksidatif stres
İnflamasyon


1001

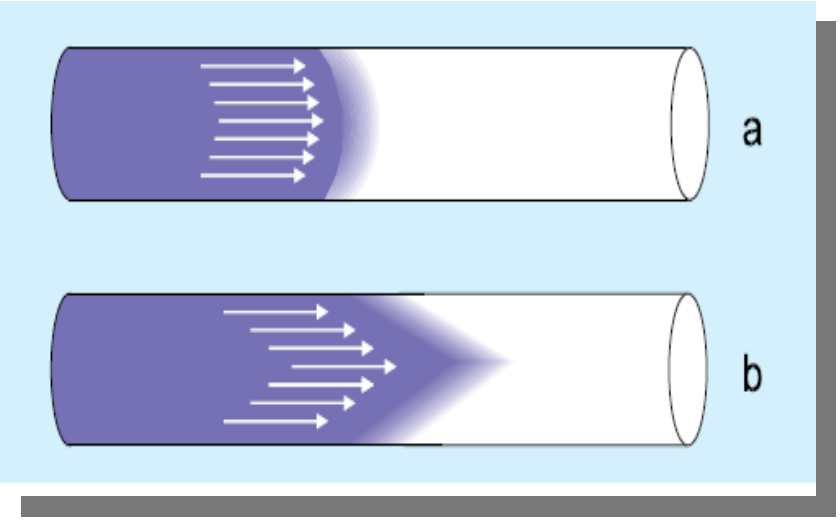

Zoom:0.9

Klinik izlem

- Hasta 16 MAP, 35 delta P ve 6 Hz ile HFO'da
- **HFOV'nun kurtarıcı özelliği harici faydası var mı?**
- Kan gazı: pH:7.35, PCO_2:36, PO_2:89, HCO_3:22, Laktat:1.5
- Oksijen ihtiyacı kademeli azalıyor
- Takipte HFO'dan NIPPV'ye geçiş

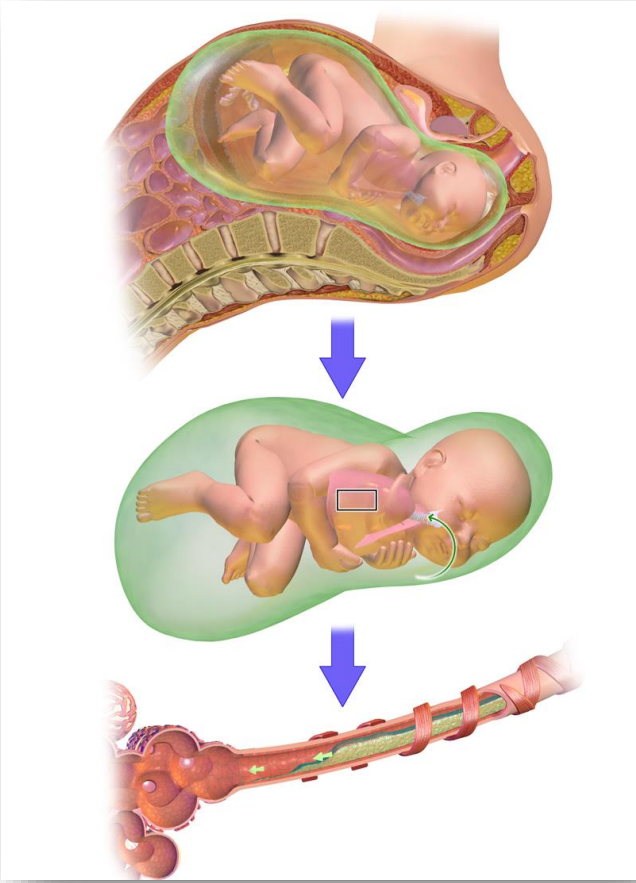


HFOV



- Asimetrik gaz akımı-akışı
  - İnspiryumda daha hızlı piston hareketi (I:E=1:2)
  - Mermi şeklinde ileryen gaz (santral)
  - Dış çeperden ekshalasyon **(mukus ve partikül eliminasyonu)**

Antibiyotik gerekli mi?



- Bakteriyel besiyeri
- Kimyasal pnömoni!
- Altta yatan stres sebebi ne?
- Koriyamniyonit varlığı
- Hastalığın ciddiyeti?
- **SENDROM!!!**; Sitokin ve akut faz deşarjı enfeksiyon kaynaklı mı?

Cochrane Library

Cochrane Database of Systematic Reviews

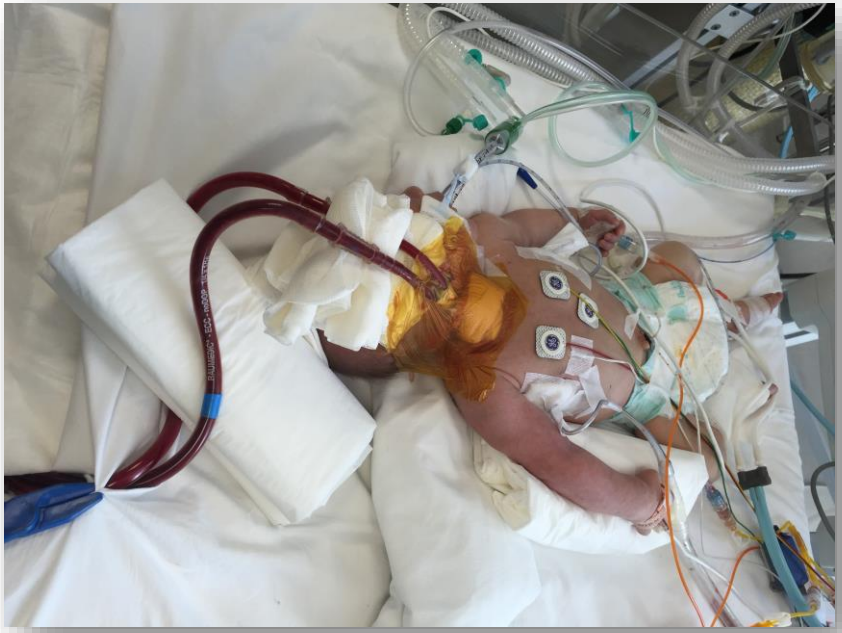
Surfactant for meconium aspiration syndrome in term and late preterm infants (Review)

El Shahed AI, Dargaville PA, Ohlsson A, Soll R

MAS'ta surfaktan kullanımı hastalık ciddiyetini ve ECMO ihtiyacını azaltabilir

Bu uygulamanın NO, HFOV, likid ventilasyon ve surfaktan lavajına karşı ve ya birlikte araştırılması gerekmektedir.

Hayaller.....Gerçekler



Surfaktan lavajı, HFOV ve NO tedavilerine rağmen
1 yılda 5 MAS ilişkili ECMO
5/5 yaşayan ve taburcu
(ELSO verileri %95, ECMO süresi ortalama 5-7 gün)

10 saatlik elektif C/S ile doğan term bebek
Solunum sıkıntısı var, akciğerleri bembeyaz
2 kez surfaktan verdik, konvansiyonel MV de %100 oksijende

Beklenmeyen bir durum, sevk etmek istiyoruz

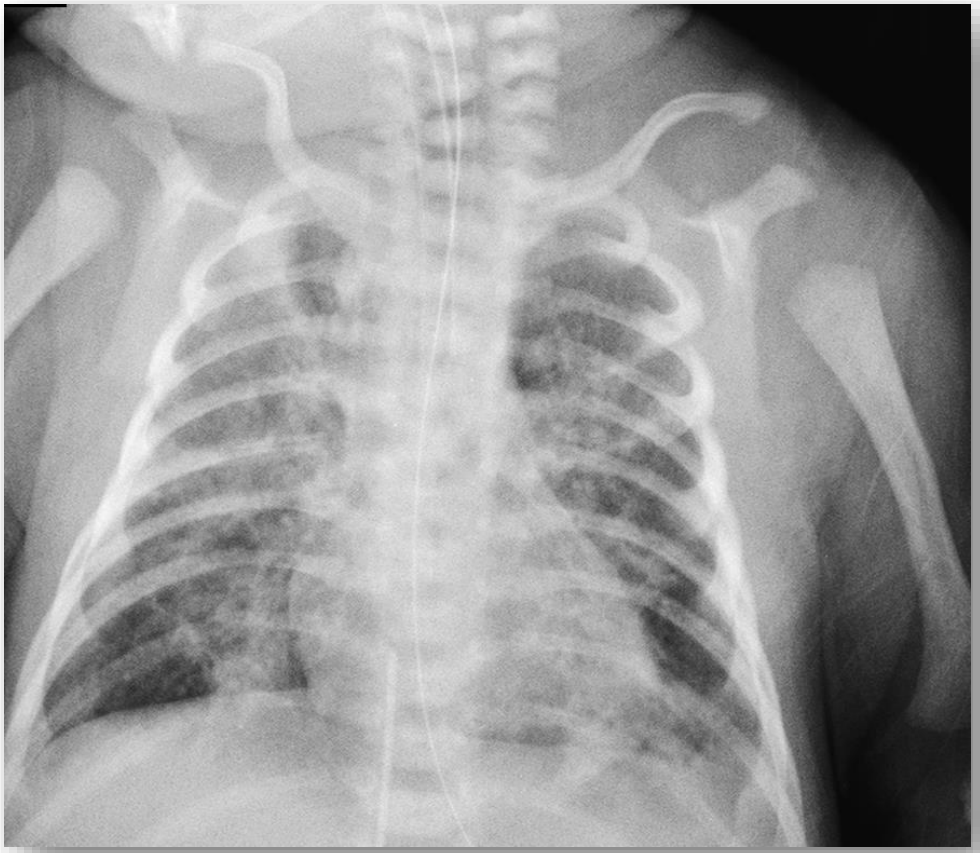
Mekonyum öyküsü var mı? YOK
Antenatal takipte sorun var mıydı? YOK

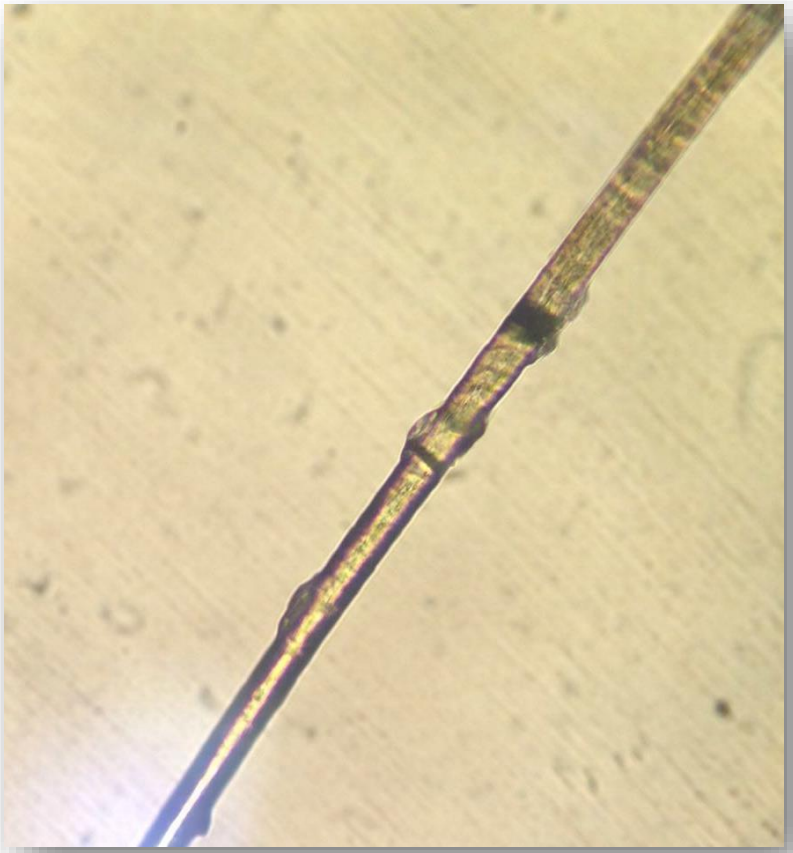
Surfaktan protein B eksikliği??
Grup B streptokok enfeksiyonu??
Yetersiz havalanma!?

HFO-NO-ECMO ihtiyacı olabilir?
Doktor eşliğinde gelmesi önemli!

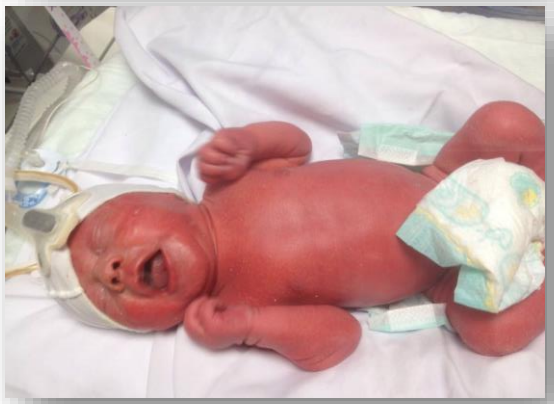
Ayrıcı tanıda ilginç bir olgu

- 10 saatlik
- Akciğer filmi RDS görünümünden infiltratif görünüme geçmiş!
- Konvansiyonel MV'de toparladı
- Geliş vücüt ısısı 32 ^{0}C, hipotermi tedavisi mi uygulanmış? **10 saattir term bir bebek ısıtılamıyor !!; küvöz nemi artırıldı**
- 2. gün cilt hiperemik; ilaç reaksiyonu?, dermatit?, toksik şok
- Saçlı deri hiperemik değil ve zayıf saçlar var





Eritroderma + Hipotermi + Solunum sıkıntısı = NETHERTON SENDROMU



Netherton Sendromu:

Kronik deri inflamasyonu, kaşıntı
Şeker kamışı görünümlü saç
Ciddi dehidratasyon, hipernatremi
Tekrarlıyan enfeksiyonlar
Atopik dermatit-astım

OR, SPINK5 gen mutasyonu
Serin proteaz inhibizyonunda defekt

Öykü

31 yaş anne, G2P2, 38 hafta, 2780 g, C/S

Polihidramniyos

Çorum: 19. haftada diyafragma hernisi?

28. Haftadan itibaren AÜTF takip

Amniyosentez: Kromzom analizi 46. XX

Obstetrik USG

Sol toraksta gelişmemiş akciğer

Kalp ileri derece sağa itilmiş

Sağda hipoplazik akciğer

Polihidramniyos

Doğum salonu

Entübe edildi

O/G drenaja alındı

Hangi mod ve ayarlarda MV?

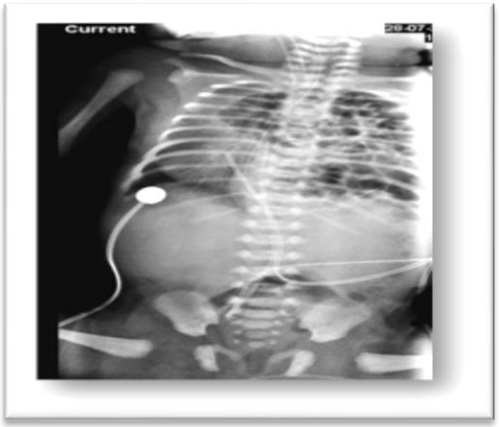
Surfaktan verelim mi?

Daha önce yapılacaklar var mıydı?

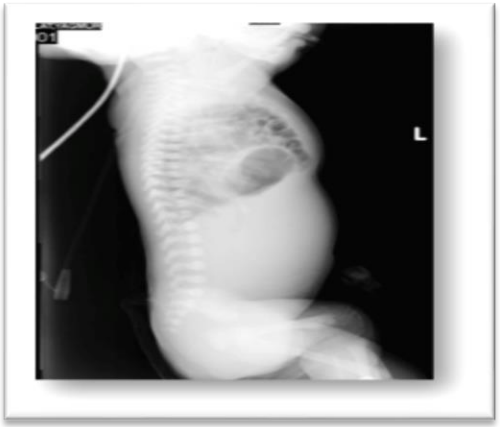
LABORATUVAR

Preduktal/postduktal sat: 94/92

Kan gazı: pH:7.19, PCO_2:61.2, PO_2:48.8, HCO_3:22.5, BE:-6.8, Laktat:1.6



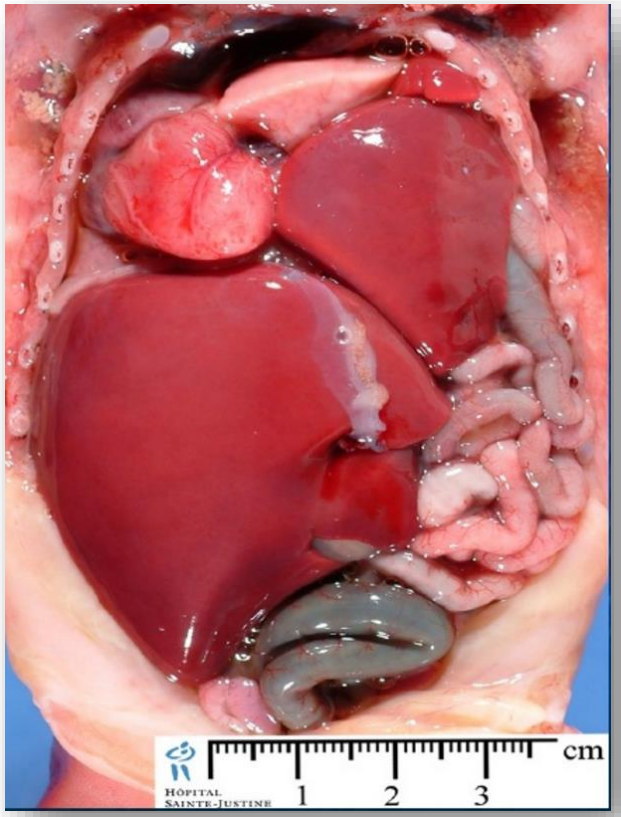
PA AKCİĞER GRAFİSİ



LATERAL GRAFİ

Konjenital diyafragma hernisi

- İnsidans: 1/2500-3500, E=K
- Sol KDG: %85-90, Sağ KDG: %10-15
- Bilateral defekt nadir (%2) ama fatal
- Semptomlar ve prognoz defektin yerine ve eşlik eden anomalilere göre değişir.
- En sık postero-lateral (Bochdalek) %90, 2. sıklıkta antero-medial (Morgagni) %9

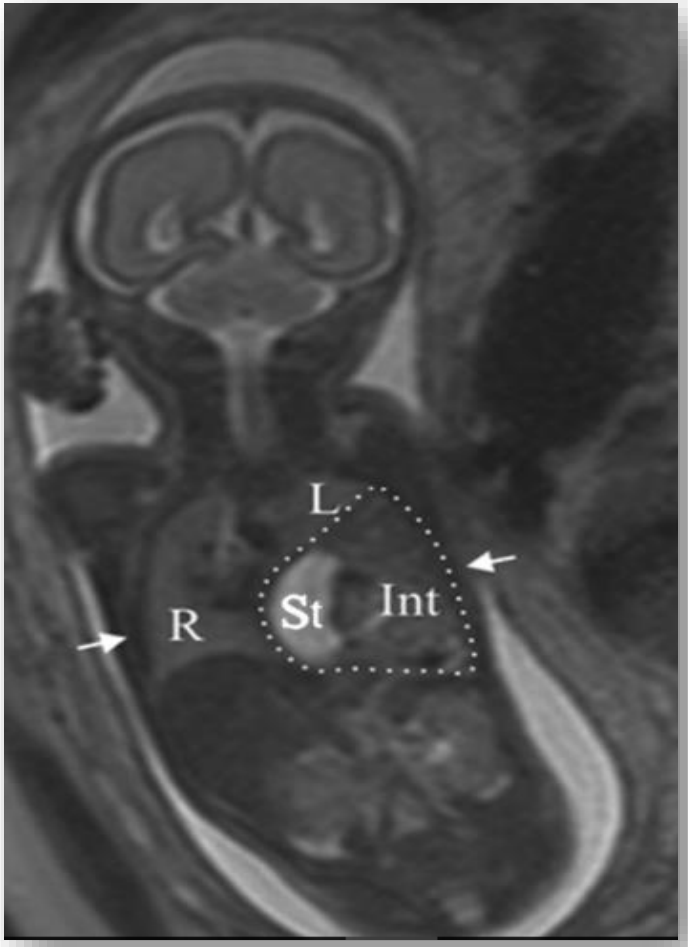


Ayırıcı tanı

- Konjenital pulmoner havayolu malformasyonları
  - Konjenital kistik adenomatoid malformasyon
  - Bronkopulmoner sekestrasyon
  - Bronkojenik kist
  - Bronkopulmoner foregut malformasyonu
- Konjenital kardiyak hastalıklar
- Diyafragma evanterasyonu,
- Solunum sıkıntısı ➔ MAS, pulmoner displazi, TTN, spontan pnömotoraks, v.b.

Antenatal takip

- 2. trimester 2D USG/MRI
- LHR, Karaciğer pozisyonu, eşlik eden konjenital anomaliler
- **Yılda >6 KDH hastası takip eden 3. basamak tedavi merkezi**
- **Multidisipliner yaklaşım**
- Genetik tanı
- Fetal müdahale (FETO)
- <34. haftada antenatal steroid

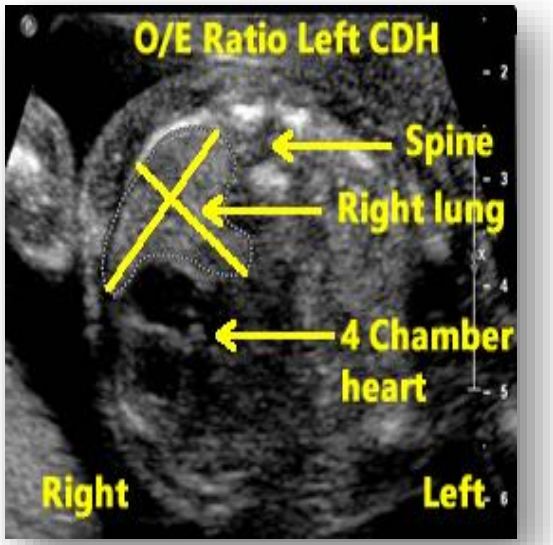


LHR---O/E LHR---QLI

- LHR(L/H) ➔ <1.0= kötü prognoz
  1.0 – 1.4= Genelde ECMO gerektiren hastalar
  >1.4= iyi prognoz

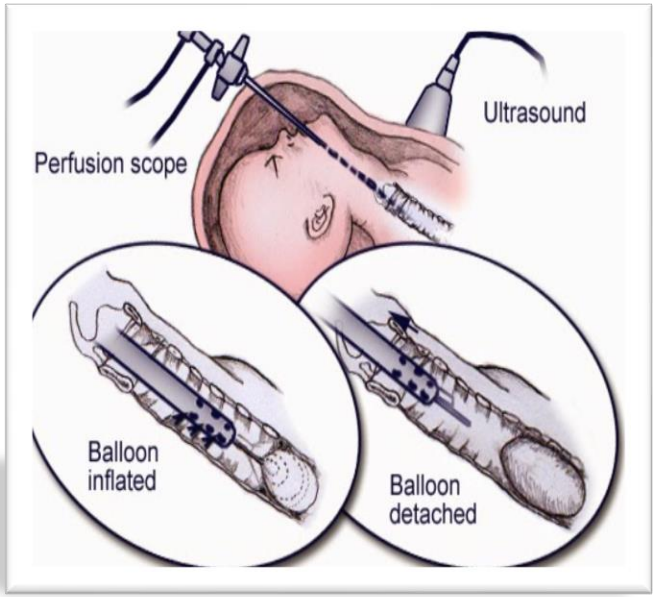
- O/E LHR(o LHR/e LHR)➔<%25= kötü prognoz (sağ kalım oranı%18)
  >%45= iyi prognoz (sağ kalım oranı%90-100)

- QLI ()➔ = 1 (50p)
  =0.6(1p)



Antenatal tedaviler

- **Açık onarım**
  - Karaciğer herniasyonu olan kısıtlı vakalarda
  - Diğer vakalarda mortaliteyi etkilemiyor
- **Fetal Endoskopik Trakeal Oklüzyon**
  - Fetal trakeayı kapatarak sıvıyı akciğerde tutarak fizyolojik akciğer hiperplazisi oluşturmak
  - Pulmoner arter kas gelişimini etkilemez ve kullanımı kısıtlı
  - Erken doğum riski




Doğum salonu müdahaleleri
Mekanik ventilasyon ve hedefler
Surfaktan ve iNO'nun yeri
ECMO

Consensus Statement

Neonatology

Neonatology 2016;110:66–74
DOI: 10.1159/000444210

Received: December 3, 2015
Accepted after revision: January 25, 2016
Published online: April 15, 2016

Standardized Postnatal Management of Infants with Congenital Diaphragmatic Hernia in Europe: The CDH EURO Consortium Consensus – 2015 Update

Kitty G. Snoek[a] Irwin K.M. Reiss[a] Anne Greenough[c] Irma Capolupo[e] Berndt Urlesberger[f] Lucas Wessel[g] Laurent Storme[h] Jan Deprest[d, i] Thomas Schaible[g] Arno van Heijst[b] Dick Tibboel[a] for the CDH EURO Consortium

[a]Erasmus MC – Sophia Children's Hospital, University Medical Center Rotterdam, Rotterdam, and [b]Radboud University Medical Centre, Nijmegen, The Netherlands; [c]King's College and [d]University College London Hospitals, London, UK; [e]Bambino Gesu Children's Hospital, Rome, Italy; [f]Medical University Graz, Graz, Austria; [g]Universitätsklinikum Mannheim, Mannheim, Germany; [h]Hôpital Jeanne de Flandre, Lille, France; [i]University Hospital KU Leuven, Leuven, Belgium

Key Words

Congenital diaphragmatic hernia · Standardized treatment · Consensus

Abstract

In 2010, the congenital diaphragmatic hernia (CDH) EURO Consortium published a standardized neonatal treatment protocol. Five years later, the number of participating centers has been raised from 13 to 22. In this article the relevant literature is updated, and consensus has been reached between the members of the CDH EURO Consortium. Key updated recommendations are: (1) planned delivery after a gestational age of 39 weeks in a high-volume tertiary center; (2) neuromuscular blocking agents to be avoided during initial treatment in the delivery room; (3) adapt treatment to reach a preductal saturation of between 80 and 95% and postductal saturation >70%; (4) target $PaCO_2$ to be between 50 and 70 mm Hg; (5) conventional mechanical ventilation to be the optimal *initial* ventilation strategy, and (6) intravenous sildenafil to be considered in CDH patients with severe pulmonary hypertension. This article represents the current opinion of all consortium members in Europe for the optimal neonatal treatment of CDH.

The Members of the CDH EURO Consortium Group are listed in the Appendix.

Introduction

In 2008, the congenital diaphragmatic hernia (CDH) EURO Consortium was set up and during a consensus meeting drafted a standardized neonatal treatment protocol to improve outcome and permit comparison of outcome data [1]. Since then the number of participating centers has increased from 13 to 22 specialized CDH centers from all over Europe, and the guidelines from 2010 have been widely cited. Moreover, after the implementation of the protocol, the survival rate has increased from 67 to 88% in 2 centers. This indicates the impact of the original standardized protocol. After 5 years of additional research including a multicenter randomized clinical trial on initial ventilation strategy (VICI-trial; Netherlands Trial Register, NTR 1310), we aimed to update the standardized neonatal treatment protocol for

KARGER

E-Mail karger@karger.com
www.karger.com/neo

Dick Tibboel
Intensive Care and Department of Pediatric Surgery
Erasmus MC – Sophia Children's Hospital
Room Sk-3284, PO Box 2060, NL–3000 CB Rotterdam (The Netherlands)
E-Mail d.tibboel@erasmusmc.nl

Doğum Odası

- KDH konusunda tecrübeli merkezde, term doğum tercih edilir
- **Rutin entübasyon, maske ventilasyon kontraendike**
- **Surfaktan faydasız, PIP: <25 cm-H_2O**
- Yüksek hava basıncı ve fazla oksijenizasyondan uzak dur
- Akciğer kapasitesi iyiyse spontan solunum
- **Preduktal SpO_2: %80-95**

Yoğun Bakımda Ventilasyon

- **Konvansiyonel MV, HFO'nun üstünlüğü yok** (PIP>28 olursa kurtarıcı)
- Preduktal SpO_2:%80-95
- Preduktal SpO_2: 70-80 arasında perfüzyon iyiyse kabul edilebilir
  - pH >7.2, Laktat <5, idrar çıkışı >1cc/kg/sa
- Postduktal SpO_2:>%70
- $PaCO_2$: 50-70 arası **(permisif hiperkapni)**

Yoğun Bakım İzlemi

- Yakın kan basıncı kontrolü
- End organ perfüzyonu ➔ Kalp hızı, idrar çıkışı, laktat
- Hipovolemi/azalmış perfüzyon: 10-20 cc/kg %0.9 NaCl 2 kez
- İnotropik ve vazopresör tedavi
- Hidrokortizon

Pulmoner Hipertansiyon

- **24 saat içinde EKO**
  - Kardiyak anomaliler
  - Sağ kalp fonksiyonu
  - **Pulmoner HT**
- R-L şantlı hastalarda kan basıncını normal değerlerin üzerine çıkarmanın faydası yok
- Preduktal SpO_2 <%85 ve azalmış perfüzyon bulguları varsa PPHT tedavisi
- İlk tercih iNO
- Kontrol edilemezse ECMO!!!

Klinik izlem

- İlk gün PTV ile takip edilen hastanın klinik stabilizasyonu sağlandı.
  - Gestasyonal yaşa göre normal ortalama kan basıncı
  - Laktat: 1.9 mmol/L (<3mmol/l)
  - İdrar çıkışı: 1.1 cc/kg/sa (>1cc/kg/sa)
  - FiO_2:25, PIP:18, PEEP:5 iken saturasyonları normal sınırlarda ve kan gazı hedeflerini koruyor, Oksijenizasyon İndeksi (Oİ): 2.3
- EKO: TV'den 40 mm-Hg gradient, L-R şant, ince PDA, yapısal anomali yok.
- Üriner USG: Normal, TFUS: Normal

Klinik izlem

- 2. gün greft ile sol diyafragma hernisi onarımı
- Postop kan gazı: pH: 7.06, PCO_2:59.7, PO_2:54.4, HCO_3:12.1, BE:-13.7, laktat: 6.4
- SF yükleme, 8 saat sonra dopamin kesildi
- Hastanın preduktal-postduktal saturasyon farkı arttı.
- EKO: «TV'den 70 mm-Hg gradient, iNO, sildenafil ve ilioprost'a rağmen PPHT devam etti.
- 2 gün SIMV ➔ 2 gün PTV ➔ HFO (kurtarıcı tedavi)
- PN 7. günde Oİ>40 ve PPHT olan hastada ECMO kararı verildi.

Klinik izlem

- **15 gün VA-ECMO**
- PN:27. gün HFO'dan çıktı
- PN: 30. gün ekstübe
- PN: 32. gün milrinon kesildi.
- PN: 39. gün taburcu

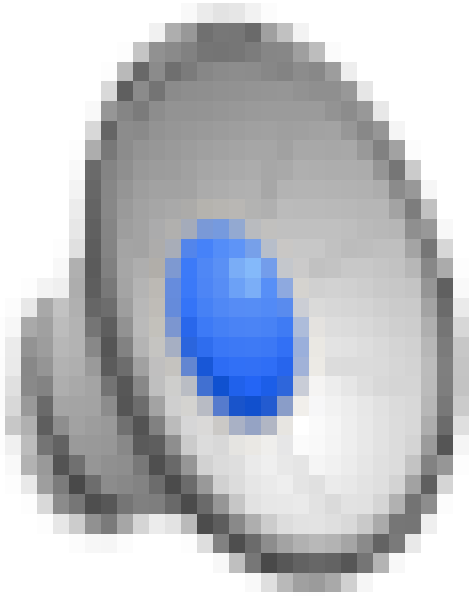
Persistence of Pulmonary Hypertension by Echocardiography Predicts Short-Term Outcomes in Congenital Diaphragmatic Hernia

Leslie A. Lusk, MD[1], Katherine C. Wai, BS[2], Anita J. Moon-Grady, MD[3,4], Martina A. Steurer, MD[1], and Roberta L. Keller, MD[4]

Objectives To describe the natural history of pulmonary hypertension (PH) and the risk of death and pulmonary morbidity associated with the persistence of PH through the neonatal hospitalization for these infants.
Study design We performed a retrospective cohort study of infants with congenital diaphragmatic hernia (CDH) cared for at University of California San Francisco (2002-2012). Infants with other major anomalies or syndromes were excluded (n = 43). Clinical echocardiograms were performed weekly for up to 6 weeks or until PH resolved off respiratory support or until hospital discharge. Echocardiograms were re-read by a blinded reviewer and categorized by severity of elevation in estimated pulmonary arterial pressure. PH was defined as ≥2/3 systemic blood pressure. Severity was determined by a hierarchy of ductus arteriosus level shunt, interventricular septal position, and tricuspid regurgitant jet velocity.
Results Of 140 infants with ≥1 echo, 98 resolved their PH prior to death/discharge. Mean time to resolution was 18 days (median 14 days, IQR 8, 21 days). Those with persistence of PH had a higher rate of extracorporeal membrane oxygenation ($P < .001$) and death ($P < .001$), and fewer ventilator-free days ($P < .001$). Persistence of PH at 14 days predicted mortality (area under the receiver operating characteristic curve 0.87) and adverse respiratory outcomes (area under the receiver operating characteristic curve 0.80-0.83).
Conclusions The majority of infants with CDH resolve PH between 1 and 3 weeks of life. At 2 weeks of age, severity of PH by echocardiogram strongly predicts short-term pulmonary morbidity and death. Further evaluation of physiological alterations during that time may lead to novel therapies for severe CDH. *(J Pediatr 2014;* ■*:*■*-*■*).*

- 98/140 KDH olgusu PPHT olmadan taburcu
- PPHT 2-3 hafta sürüyor ve kısa dönem prognoz ile ilişkili

Son 1 yılda 3 KDH olgusunda ECMO
3/3 ECMO yaşayanı, 1 taburcu
PPHT ciddi problem
ECMO başarısı %54, yaşayan %47 (ELSO)
ECMO süresi 2-4 hafta




TÜRK NEONATOLOJİ DERNEĞİ
1989
25. Ulusal Neonatoloji Kongresi (UNEKO - 25)
12-16 Nisan 2017
Regnum Carya Golf Resort, Antalya
BİLİMSEL SEKRETERYA
Prof. Dr. Nuray Duman
Dokuz Eylül Üniversitesi Tıp Fakültesi Neonatoloji BD
nuray.duman@deu.edu.tr
Prof. Dr. Ömer Erdeve
Ankara Üniversitesi Tıp Fakültesi Neonatoloji BD
omererdeve@yahoo.com
KONGRE SEKRETERYASI
flap tour
441. Cad. No.1, 06610
Birlik, Çankaya-ANKARA
Tel: 0 312 454 00 00
Faks: 0 312 454 00 01
E-posta: uneko2017@flaptour.com.tr
www.uneko2017.org