Neonatal Abstinence Syndrome: Rethinking Our Approach

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I Have No Conflicts of Interest or Relevant Financial Relationships With Any Commercial Interests

The Traditional Model of Care for NAS

• Delivery Room → NICU
• Finnegan Scores
• Medications Started
• Long Weaning Process

MAIN OBJECTIVES

Question the Traditional Model of Care for NAS & Share Our Changes in Approach

• Delivery Room → NICU??
• Finnegan Scores??
• Medications Started??
• Long Weaning Process??

Our Journey...

4 Key Points to Embrace the Changes

1. Non-Pharm Care is 1st Line Therapy – Parents Do This Best at the Bedside
2. Medications are 2nd Line Therapy – Not Needed if 1st Line Therapy Works
3. Stop Treating Numbers and Assess Functional Status
4. 80 Doses of Morphine for Sneezing 4 Times Instead of 3 is Extreme
Medication Studies

- Opium vs. Opium plus clonidine: 17 days vs. 12 days
- Opium vs. Opium plus Phenobarbitone: 79 days vs. 38 days
- Opium vs. Morphine: 27 days vs. 30 days
- Phenobarbitone vs. Morphine: 12 days vs. 8 days
- Methadone vs. Morphine: 17 days vs. 24 days
- Subutex vs Morphine: 21 days vs. 33 days

HOW DO WE EXPLAIN THIS VARIATION?

- Our Theory – Maybe The Meds Aren’t Solely Responsible for the Outcomes?

The AAP Says...

- Intensive, Non-Pharm Care is 1st Line Therapy & Can Limit Unnecessary Pharmacologic Treatment
- "Flaw" - None of Previous Evidence Controls for 1st Line Therapy!!!
- Were We Offering an Intensive, “Committed Non-Pharm Support Program”?
What Does a Committed Non-Pharm Program Look Like?

- What Is Non-Pharm Care?
  - Quiet, Low Light
  - Feeding On Demand!!!
  - 5 S’s Vs. Lasers
  - U of Mich

- Who’s There To Provide This Care?
  - The Parents!!!
  - Rooming-in is Key
  - Constant & Immediate Care For the Infant

Harnessing the Full Power of the Maternal-Infant Bond

Culture Change: We are now Coaches, Cheerleaders, & Support

There is a Serious Stigma to Overcome

- How Do Moms Feel?
  - Misunderstood
  - Guilty
  - Judged
  - Mistrusting of staff

  "His nurse said ‘his muscles are locking up because of his junkie mom’. I didn’t want to visit, I would call before and if that nurse was there, I wouldn’t even go."

Parents Should Not Feel This Way!!!

- Overcoming Provider Bias and Stigma To Deliver an Empowering Message
  - Families Not Just "Visiting," but “Caring" for Their Infant
  - “You are the Best Treatment for Your Child"

- Preparation w/ Prenatal Counselling

What We Noticed...

- The AAP Don’t Lie – Power of the Maternal-Infant Bond
  - Majority Respond to an Intensive, “Committed Non-Pharm Program”
  - Don’t Require 2nd Line Therapy → Becomes “Unnecessary”

- Helping Strengthen the Bond
  - Parents More Prepared for Transition Home

- It Works
  - Felt Good About What We Were Doing

AAP Clinical Report on Neonatal Drug Withdrawal

Excited by the Power of the Maternal-Infant Bond

In Which Environment Can We Best Optimize Intensive 1st Line Therapy?

NICU Vs. Floor
Analogy: Pneumonia on a Floor without Antibiotics?
Why The NICU?

- What’s So Intensive About NAS?
  - Safety Concern → Seizures
  - 70’s 2-11% → Herzlinger → “Not sure actually seizures”
  - 0 in 10 Years
- Compared to other NICU patients
  Bigger
  Not Premature
  Not as Sick
- Eminence-Based Medicine → What was done yesterday…

The Blueprint…

Why The Finnegan?

1. Disturbing Infants to get Finnegan Scores
   - Actually Inducing Symptoms of Withdrawal … Do No Harm!
   - How do you Observe for an Exaggerated More?
2. Slow to Respond – 8 Hours Before Intervene
3. Significance of Yawning 4 times vs. 3?
4. Why Do We Use 8 As The Cutoff? Did Anyone Here Decide to Use 8 As The Cutoff?

4 Key Points to Embrace the Changes

1. Non-Pharm Care is the 1st Line Therapy – Parents Do This Best at the Bedside
2. Medications are 2nd Line Therapy – Not Needed if 1st Line Therapy Works
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Changing The Way We Assess Infants

“The infant with a score of “7” or less was not treated with drugs for the abstinence syndrome because, in our experience, he would recover rapidly with swaddling and demand feedings. Infants whose score was “8” or above were treated pharmacologically”

In Our Experience, What We Really Care About For Any Baby…

1) Can this Baby **Eat**?
2) Can this Baby **Sleep**?
3) Can this Baby be **Consol ed**?

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**ESC Study**

- Analyzed 50 Consecutive NAS Babies from March 2014 to August 2015
- Management Decisions Based on ESC
- Also Assessed Every 2-6 hours Using The Finnegan, But Did Not Guide Management

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**Outcomes**

1. Proportion of Infants Treated with Morphine vs. Proportion Predicted to be Treated with Morphine using The Finnegan
2. Days the Two Approaches Disagreed
3. Finnegan Scores the Day After the Two Approaches Disagreed

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**Results**

1. Proportion of Infants Treated with Morphine
2. Days the Two Approaches Disagreed
3. Finnegan Scores the Day After the Two Approaches Disagreed

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**Results**

- On 78 days (26.4%) the ESC Led to **LESS** Morphine than Predicted by The Finnegan
  - The following day, the Average Finnegan Score Decreased by 0.9 Points, and Decreased in 69% of Cases.
- On 2 days (0.7%) the ESC Led to **MORE** Morphine than Predicted by The Finnegan
  - In Both Cases the Average Finnegan score increased by 1.7 Points the Next Day

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**Results**

- No readmissions
- No seizures
- No ICU transfers
- Max avg. weight loss 8%, weight loss at d/c 7%

- Successfully Reduced Exposure to Medication with a Functional Assessment Rather Than Treating A Number
The ESC in Action... Function vs. Number

- Baby A Sneezes & Yawns 4 Times, hypertonic, tremors
- Baby is Eating, Sleeping and Consolable
- 1st Line Therapy is Working
- Continue Current Plan & Discharge if stable at 5 DOL

VS.

- Baby B Sneezes & Yawns 4 Times, hypertonic, Finn = 10
- Baby is Eating, Sleeping and Consolable
- Give Medications
- At 10% Wean/Day, Minimum 80 Doses of Morphine & Added 10 Days in Hospital!!! WHY?!?

A Different Approach...PRN 2nd-Line Therapy

- 3 PM: Baby Screaming, Irritable for 10 minutes
- Can We Calm Him? Where's Mom? Can She Come Back? Volunteer Baby Whisperers?
- No → Give 2nd Line Therapy (PRN Morphine - 0.05mg/kg x 1)
  • Reassess Need for Further Dosing Based on ESC Status
- 2 Hours Later → Mom Back & Baby Calm
  • 1st Line therapy is Again Working
  • Does not need 80 more doses of meds!!!
  • No Further Medications Unless Failing 1st Line Therapy

The New Model of Care for NAS

- Delivery Room → NICU
- Finnegan Scores
- Medications Started
- Long Weaning Process

The Traditional Model of Care for NAS

- Delivery Room → WB → Floor
- ESC
- Rooming-in, non-pharm measures, coaching
- Meds 2nd-Line, PRN med usage

Our Results

[Graph showing percent of NAS patients treated with morphine]

Percent Treated with Morphine

[Graph showing percent of infants treated with morphine]

Trick Question:
What % of Infants are we treating for NAS in 2016?

Answer:
Treating 100% patients with Intensive, Committed Non-Pharm Program focused On Rooming In & Functional Assessment
Average Maximum Morphine Dose

Breastfeeding Rate

Average Maximum Morphine Dose (mg/dose)

Year

Breastfeeding Rate

Average Maximum Morphine Dose (mg/dose)

Year

Total Average Cost of NAS Care per Patient

How Do We Do This? ... Roadmap to Success

2 million cost savings/year

Length of Stay

Key Points – Culture Change is Hard, But Doable & Worthwhile → Need a Good Reason To Separate Parent/Baby

Next Steps

• Need Data About What Happens When They Go Home
  • Neurodev Status
  • Furthering the Movement

Thank You & Questions
References


• The lone nut + a first follower = a movement. Youtube. https://www.youtube.com/watch?v=256eKjULdgQ