TREATMENT OF THE PREGNANT WOMAN WITH A SUBSTANCE USE DISORDER

PREVENTING FETAL ALCOHOL SPECTRUM DISORDER
AND NEONATAL SUBSTANCE EXPOSURE
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TREATMENT OF THE PREGNANT WOMAN MEANS THAT ONE IS CARING FOR TWO PATIENTS, NOT ONE

* IT IS SUGGESTED THAT PHYSICIANS ADDRESS THE ISSUE OF ALCOHOL AND DRUG USE DURING PREGNANCY WITH ALL WOMEN OF CHILD BEARING AGE
TERMINOLOGY
USED IN THE LITERATURE

• FETAL ALCOHOL SYNDROME (FAS)
• FETAL ALCOHOL EFFECTS (FAE)
  ◦ NOT FULL BLOWN SYNDROME
• ALCOHOL RELATED BIRTH DEFECTS (ARBD)
  ◦ ISOLATED PHYSICAL ABNORMALITIES
• ALCOHOL RELATED NEURODEVELOPMENTAL DISORDER (ARND)
  ◦ NEURODEVELOPMENTAL ABNORMALITIES
• PRENATAL ALCOHOL EXPOSURE (PAE)
• FETAL ALCOHOL SPECTRUM DISORDERS (FASD)
  ◦ SAMHSA TERMINOLOGY
• MATERNAL SUBSTANCE USE
  ◦ USE AND NOT ABUSE - ANY AMOUNT OF EXPOSURE CAN BE SIGNIFICANT
INTRODUCTION

• 1992 DEPARTMENT OF HEALTH AND HUMAN SERVICES SURVEY
  o 4 MILLION WOMEN GAVE BIRTH
    • 221,000 (5%) OF INFANTS EXPOSED IN UTERO TO ILLEGAL DRUGS
    • NUMBER OF INFANTS EXPOSED IN UTERO TO LEGAL DRUGS
      o 820,000 WOMEN SMOKED CIGARETTES
      o 757,000 WOMEN DRANK ALCOHOL
        • 5000 INFANTS BORN EACH YEAR WITH FULL BLOWN FAS*
        • 50,000 CHILDREN HAVE ARBD/ARND* (NATIONAL CLEARINGHOUSE FOR ALCOHOL AND DRUG INFORMATION 2000)

*SEE DEFINITIONS ON NEXT PAGE
LIFETIME COST OF ONE FASD CHILD
(STREISSGUTH ET AL WASHINGTON STATE UNIVERSITY 1996)

• 5 MILLION DOLLARS TOTAL
  - $1,496,000 FOR MEDICAL COSTS
  - $1,376,000 FOR RESIDENTIAL PLACEMENT
  - $ 530,000 FOR PSYCHIATRIC COSTS
  - $ 354,000 FOR FOSTER CARE
  - $ 12,000 FOR ORTHODONTIA
  - $ 240,000 FOR SPECIAL EDUCATION
  - $ 624,000 FOR SUPPORTED EMPLOYMENT
  - $ 360,000 FOR SSI

100% PREVENTABLE
DETOXIFICATION AND WITHDRAWAL

GENERAL RULES
DETOX AND WITHDRAWAL

BEFORE GIVING ANY MEDICATIONS TO A PREGNANT WOMAN, ALWAYS DISCUSS AND MAKE SURE THEY UNDERSTAND THE RISKS AND BENEFITS OF THE MEDICATION.
DETOX AND WITHDRAWAL

A PREGNANT WOMAN SHOULD RECEIVE COMPREHENSIVE MEDICAL/OB-GYN CARE WHEN ADMITTED TO A DETOX UNIT, ESPECIALLY IF THIS IS THE FIRST TIME SHE HAS SOUGHT CARE.
TIME TO ONSET OF MATERNAL WITHDRAWAL SIGNS

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<tr>
<th>DRUG</th>
<th>TIME</th>
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<tr>
<td>ALCOHOL</td>
<td>6 to 60 HOURS</td>
</tr>
<tr>
<td>BARBITUATE</td>
<td>4 to 10 DAYS</td>
</tr>
<tr>
<td>DIAZEPAM</td>
<td>1 to 12 DAYS</td>
</tr>
<tr>
<td>OPIOID</td>
<td>12 to 72 HOURS</td>
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*MATERNAL WITHDRAWAL DEPENDS ON THE DRUG, FREQUENCY OF USE, AND DURATION OF USE. TIMES CAN VARY SIGNIFICANTLY.*
TIME TO ONSET OF NEONATAL WITHDRAWAL SIGNS

<table>
<thead>
<tr>
<th>DRUG</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALCOHOL</td>
<td>3 to 12 HOURS</td>
</tr>
<tr>
<td>BARBITUATE</td>
<td>4 to 7 DAYS</td>
</tr>
<tr>
<td>DIAZEPAM</td>
<td>1 to 12 DAYS</td>
</tr>
<tr>
<td>OPIOID</td>
<td>48 to 72 HOURS</td>
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USUALLY THE ONLY WITHDRAWAL SYNDROME THAT REQUIRES TREATMENT IS OPIOID WITHDRAWAL
ALCOHOL WITHDRAWAL
MATERNAL WITHDRAWAL

• THE RATE OF ALCOHOL METABOLISM MAY BE FASTER DURING PREGNANCY, SO BE AWARE THAT WITHDRAWAL CAN START SOONER THAN EXPECTED.
MINOR WITHDRAWAL IN THE MOTHER

TIME
- 6 to 60 HOURS

SYMPTOMS
- TREMORS
- INSOMNIA
- NAUSEA
- ANOREXIA
- ANXIETY
- WEAKNESS
MINOR WITHDRAWAL IN THE MOTHER

SIGNS
- ACTION TREMOR
- INATTENTION
- EASY STARTLE
- PLETHORA
- CONJUNCTIVAL INJECTION
- INCREASED REFLEXES
MINOR WITHDRAWAL IN THE MOTHER

• TREATMENT
  • PHARMACOLOGIC SUBSTITUTE
    • BENZO TAPER IS CURRENT PRACTICE OF CHOICE
      • NOT A TERATOGEN (A SUBSTANCE THAT MIGHT INTERFERE WITH THE NORMAL DEVELOPMENT OF THE FETUS) AS OTHER ANTICONVULSANTS IF GIVEN FOR A SHORT PERIOD OF TIME
      • SHORT-ACTING BENZO CAN BE USED IN 1ST TRIMESTER (ROBERT ET AL 2001)
        • LONG-ACTING BENZO SHOULD BE AVOIDED AND THEIR USE DURING THE 3RD TRIMESTER OR NEAR DELIVERY CAN RESULT IN A WITHDRAWAL SYNDROME IN THE BABY (GARBIS & McELHATTON 2001)

NOTE: PHENOBARBITAL WAS ASSOCIATED WITH NEONATAL WITHDRAWAL
EARLY WITHDRAWAL IN THE MOTHER

ILLUSIONS AND HALLUCINATIONS

• ILLUSIONS ARE MISINTERPRETATIONS
  • MOST COMMON (25% OF PATIENTS)
• VISUAL AND AUDITORY HALLUCINATIONS
  • TACTILE AND OLFACTORY HALLUCINATIONS ARE LESS COMMON
• SENSORIUM IS RELATIVELY CLEAR
EARLY WITHDRAWAL IN THE MOTHER

TREATMENT

• WATCH FOR DT’S
• EVALUATE FOR OTHER ILLNESSES AND INJURIES
• LIGHT SEDATION WITH BENZODIAZEPINES
• THIAMINE
• ELECTROLYTE BALANCE
• PATIENTS MUST UNDERSTAND THAT THEY NEED FURTHER TREATMENT
LATE WITHDRAWAL IN THE MOTHER

DELIRIUM TREMENS

- HIGH RISK FOR DT’S IF BLOOD ALCOHOL LEVEL GREATER THAN 300 mg% OR WITHDRAWAL SEIZURES
- PROFOUND CONFUSION AND MISPERCEPTIONS
- DISORIENTATION
- HALLUCINATIONS
- PARANOID DELUSIONS
- MOTOR HYPERACTIVITY
  - TREMOR, RESTLESS, AGITATED, INCREASED REFLEXES
- AUTONOMIC HYPERACTIVITY
  - INCREASED HEART RATE, PROFUSE SWEATING, DILATED PUPILS
- MORTALITY OF THE MOTHER IS 10 to 15% IF UNTREATED, 1 to 2% IF TREATED
ANCILLARY MEDS

• ANTABUSE IS CONTRAINDICATED AS IT CAN CAUSE CLUB FOOT
• LITTLE IS KNOWN ABOUT NALTREXONE DURING PREGNANCY
• UNCLEAR IMPACT OF BETA BLOCKERS (McELHATTON 2001)
• PROZAC DID NOT INCREASE MALFORMATIONS BUT NEONATAL WITHDRAWAL WAS SEEN (GARBIS & McELHATTON 2001)
• VALPROIC ACID CAUSED SIGNIFICANT MALFORMATIONS
MATERNAL EFFECTS OF ALCOHOL

- USUAL ALCOHOL RELATED CONSEQUENCES
- NUTRITIONAL DEFICIENCIES
- PRECIPITATION OF LABOR
- DEFICIENT MILK EJECTION
FASD

• NOT A NEW DISORDER
  • “BEHOLD, THOU SHALT CONCEIVE AND BEAR A SON...AND NOR DRINK, NOR WINE NOR STRONG DRINK” (JUDGES 13:7)
FASD

• 100% PREVENTABLE
• LEADING KNOWN CAUSE OF PREVENTABLE MENTAL RETARDATION
  • 2 TIMES MORE COMMON THAN DOWN’S SYNDROME
  • MAJORITY OF INDIVIDUALS WITH FASD DO NOT HAVE MENTAL RETARDATION
    • STREISSGUTH ET AL 1996 SHOWED THAT I.Q. RANGE WAS 42 to 142 WITH 90 BEING THE MEAN; 9% HAD I.Q. OF 70 OR BELOW
FASD

- CAUSED BY DIRECT EFFECT OF ALCOHOL ON THE DEVELOPING FETUS
- ALCOHOL IS A TERATOGEN (A SUBSTANCE THAT MIGHT INTERFERE WITH THE NORMAL DEVELOPMENT OF THE FETUS)
FASD

• ALCOHOL’S EFFECT ON THE BRAIN IS THROUGHOUT THE ENTIRE PREGNANCY
  • ALCOHOL HAS EFFECTS ON MIDBRAIN DOPAMINE SYSTEM – MAY BE RELATED TO ATTENTION AND HYPERACTIVITY PROBLEMS IN THE NEWBORN (SHEN ET AL. RESEARCH IN BRIEF - RIA 2001)
FASD

• BINGE DRINKING (5 OR MORE DRINKS ON ONE OCCASION) IS ESPECIALLY DETRIMENTAL TO THE FETUS

• THERE IS NO PROVEN “SAFE” AMOUNT OF ALCOHOL TO USE DURING PREGNANCY
  • ALCOHOL HAS BEEN FOUND IN BREAST MILK
FETAL EFFECTS OF ALCOHOL

- ALCOHOL RELATED BIRTH DEFECT (ARBD), ALCOHOL RELATED NEURODEVELOPMENTAL DISORDER (ARND)
  - POSSIBLE TO HAVE BOTH ARBD AND ARND
  - ARND CHILDREN MAY LOOK "NORMAL"
  - ONE CAN SEE:
    - CARDIAC ABNORMALITIES
    - NEONATAL IRRITABILITY
    - NEONATAL HYPOTONIA
    - HYPERACTIVITY
    - GUM ABNORMALITIES
    - SKELETAL ABNORMALITIES
    - OCULAR PROBLEMS
    - HEMANGIOMAS
FETAL EFFECTS OF ALCOHOL

- FAS (5000 BIRTHS/YR)
  - PRENATAL AND POSTNATAL GROWTH RETARDATION
  - CNS DEFICITS
  - FACIAL FEATURE ANOMALIES
    - SHORT PALPEBRAL FISSURE
    - ELONGATED MIDFACE
    - THIN UPPER LIP
    - FLATTENED MAXILLA
FASD

• FASD CHILDREN ARE FREQUENTLY MISDIAGNOSED AS HAVING A PSYCHIATRIC DISORDER
  • LIKELY MISDIAGNOSIS:
    • ATTENTION DEFICIT HYPERACTIVITY DISORDER
    • OPPOSITIONAL DEFIANT DISORDER
    • CONDUCT DISORDER
    • INTERMITTENT EXPLOSIVE DISORDER
    • BIPOLAR DISORDER
    • PSYCHOTIC DISORDER
    • OBSESSIVE COMPULSIVE DISORDER
    • AUTISM
    • ANTISOCIAL PERSONALITY DISORDER
    • BORDERLINE PERSONALITY DISORDER
FASD

- FASD CHILDREN
  - MAY NOT COMPLETE TASKS
    - CANNOT RECALL INFORMATION
    - MAY NOT TAKE IN THE INFORMATION
  - MAY HIT OTHERS
    - CAN MISINTERPRET INTENTIONS
  - MAY TAKE UNNECESSARY RISKS
    - DO NOT PERCEIVE DANGER
SEDATIVE/HYPNOTICS
SEDATIVE/HYPNOTICS

- BENZODIAZEPINE WITHDRAWAL
  - NO DIFFERENCE BETWEEN PREGNANT AND NON-PREGNANT WOMAN, ALTHOUGH SEVERE WITHDRAWAL CAN PRODUCE STATUS EPILEPTICUS AND FETAL RESPIRATORY ARREST
  - CAN LAST 3 TO 5 WEEKS
  - VERY MUCH LIKE ACUTE ALCOHOL WITHDRAWAL
  - TIME COURSE AND SEVERITY DEPEND ON
    - DOSE OF DRUG
    - DURATION OF USE (DOES NOT WORSEN AFTER ONE YEAR OF USE)
    - DURATION OF DRUG ACTION
SEDATIVE/HYPNOTICS

BENZODIAZEPINE AND BARBITURATE WITHDRAWAL IS LIKELY

• IF THERAPEUTIC DOSE IS GIVEN QD FOR 4 TO 6 MONTHS
• IF 2 TO 3 TIMES THE THERAPEUTIC DOSE IS GIVEN QD FOR 2 TO 3 MONTHS
• IN BARBITURATE USE, 50% HAVE SEvere WITHDRAWAL IF 600MG OF PHENOBARBITAL OR EQUIVALENT IS USED QD* FOR 50 OR MORE DAYS
• IN BARBITURATE USE, 100% HAVE SEVERE WITHDRAWAL IF 900 TO 1200MG OF PHENOBARBITAL OR EQUIVALENT IS USED QD FOR 50 OR MORE DAYS

* ONCE A DAY
SEDATIVE/HYPNOTICS

BENZODIAZEPINE & BARBITURATE WITHDRAWAL

• MORE LIKELY TO BE SEVERE IF
  • RAPIDLY ELIMINATED DRUG IS USED
  • HIGHLY POTENT DRUG (ATIVAN, XANAX)
  • ABRUPT DISCONTINUATION
  • HIGH DOSES USED
  • PRN SCHEDULE OF USE AND NOT FIXED
  • HISTORY OF DEPENDENCY
  • HISTORY OF CONCURRENT ALCOHOL USE
  • HISTORY OF PANIC ATTACKS
SEDATIVE/HYPNOTICS

BENZODIAZEPINE WITHDRAWAL IN THE MOTHER

• MOOD CHANGES
  • NEGATIVE
  • DYSPHORIA
  • RUMINATIVE

• SLEEP CHANGES
  • INSOMNIA
  • ALTERATIONS OF SLEEP - WAKE CYCLE

• PERCEPTION CHANGES
  • ILLUSIONS
  • HALLUCINATIONS
  • DEPERSONALIZATION
  • SENSORY HYPERACTIVITY (LIGHTS BRIGHTER, NOISE LOUDER, ETC.)
SEDATIVE/HYPNOTICS

BENZODIAZEPINE WITHDRAWAL IN THE MOTHER

• PHYSICAL CHANGES
  • INCREASE IN PULSE RATE AND IN BLOOD PRESSURE
  • INCREASE REFLEXES
  • TREMORS
  • RESTLESS
  • NAUSEA
  • ATAXIA (UNSTEADY GAIT)
  • SEIZURES
  • POSTURAL HYPOTENSION (DECREASE BLOOD PRESSURE WHEN STANDING)
  • PUPILS ARE DILATED
  • EXAGGERATED BLINK REFLEX (ESPECIALLY BARBITUATES)
  • METALLIC TASTE
SEDATIVE/HYPNOTICS

• PROTRACTED WITHDRAWAL IN THE MOTHER
  • CAN LAST FOR MONTHS
  • NO PATHOGRNOMONIC SIGNS OR SYMPTOMS
  • WAXING AND WANING OF SYMPTOMS
  • DEPRESSION
  • ANXIETY
  • PANIC
  • TINNITUS
  • HEADACHES
  • DIZZINESS

*INCREASED RISK IF FAMILY HISTORY OF ALCOHOLISM, DAILY USE OF ALCOHOL OR OTHER SEDATIVES
SIMILARITIES AND DIFFERENCES BETWEEN SEDATIVE – HYPNOTIC WITHDRAWAL AND PREGNANCY

• SIGNS AND SYMPTOMS COMMON TO WITHDRAWAL AND PREGNANCY
  • RESTLESSNESS
  • INSOMNIA
  • NAUSEA AND VOMITING
  • HYPERTENSION
  • INCREASED PULSE
  • INCREASED RESPIRATORY RATE
  • SEIZURES

• SIGNS & SYMPTOMS NOT SEEN IN PREGNANCY BUT IN WITHDRAWAL
  • IMPAIRED MEMORY
  • DISTRACTIBILITY
  • AGITATION
  • TREMOR
  • FEVER
  • DIAPHORESIS (SWEATING)
  • HALLUCINATIONS
SEDATIVE/HYPNOTICS
MATERNAL WITHDRAWAL

- ALWAYS TAPER THE MEDS SLOWLY
  - 5 TO 10 % /DAY
- SAFEST DURING THE 2ND TRIMESTER SO AS TO AVOID SPONTANEOUS ABORTION OR PREMATURE LABOR
- EASIER TO USE THE DRUG OF USE
FETAL EFFECTS FROM BARBITURATES

- CLEFT PALATE
- HYPOSPADIAS (PENILE ORIFICE IS TOO LOW)
- MICROCEPHALY (SMALL HEAD SIZE)
- SHORT NOSE
FETAL EFFECTS FROM BENZODIAZEPINES

- CLEFT LIP AND PALATE
OPIATES
HEROIN WITHDRAWAL IN THE MOTHER - EARLY

- LACRIMATION (EYES WATERING)
- YAWNING
- RHINORRHEA (RUNNY NOSE)
- SWEATING
HEROIN WITHDRAWAL IN THE MOTHER – MIDDLE PHASE

- RESTLESS SLEEP
- DILATED PUPILS
- ANOREXIA
- GOOSEFLESH
- IRRITABILITY
- TREMOR
HEROIN WITHDRAWAL IN THE MOTHER - LATE PHASE

- INCREASE IN ALL PREVIOUS SIGNS AND SYMPTOMS
- INCREASE IN HEART RATE
- INCREASE IN BLOOD PRESSURE
- NAUSEA AND VOMITING
- DIARRHEA
- ABDOMINAL CRAMPS
- LABILE MOOD
- DEPRESSION
- MUSCLE SPASM
- WEAKNESS
- BONE PAIN
HEROIN WITHDRAWAL IN THE MOTHER - TIME FRAME

- 1/2 LIFE IS 2 TO 3 HOURS
- ONSET AFTER LAST DOSE IS 8 TO 12 HOURS
- PEAK IS 48 HOURS
- DURATION IS 5 TO 10 DAYS
OPIATE WITHDRAWAL

• IT IS NOT RECOMMENDED TO TAPER PREGNANT WOMEN OFF OF METHADONE, BUT THE SAFEST TIME IS THE 2ND TRIMESTER (TIPS2)
  • BEFORE 14 WEEKS AND AFTER 32 WEEKS THERE IS AN INCREASED INCIDENCE OF SPONTANEOUS ABORTION AND PREMATURE LABOR
OPIATE WITHDRAWAL

• IT IS POSSIBLE TO DETOX OPIATE DEPENDENT PREGNANT WOMEN OFF OF HEROIN
  • METHADONE TAPER
  • CONSIDER SUGGESTING METHADONE MAINTENANCE
    • SOME PROGRAMS SUGGEST LOW DOSE (LESS THAN 60 MG
    • NIDA SUGGESTS THAT THIS IS NOT EFFECTIVE TREATMENT AND MAINTENANCE SHOULD BE HIGHER DOSE BLOCKADE (UP TO 150MG)
METHADONE DOSING STRATEGIES IN THE PREGNANT WOMAN

- INITIAL 10 TO 40 MG
- EXTRA 5 TO 10 MG IN 3 TO 4 HOURS IF SIGNS AND SYMPTOMS OF WITHDRAWAL
- REPEAT 5 TO 10 MG Q 3 TO 4 H PRN
- STABILIZE AT THIS DOSE FOR SEVERAL DAYS
- DECREASE BY 2.5 MG Q 7 TO 10 DAYS AND MONITOR OB STATUS
METHADONE MAINTENANCE

• REDUCES ILLEGAL OPIOID USE
• REMOVES PATIENT FROM DRUG - SEEKING ENVIRONMENT
• PREVENTS FLUCTUATION OF MATERNAL OPIOID LEVEL
• IMPROVES NUTRITIONAL STATUS
• IMPROVES THE PATIENT’S ABILITY TO PARTICIPATE IN PREGNATAL CARE
• REDUCTION IN OBSTETRICAL COMPLICATIONS
METHADONE

• DURING PREGNANCY, DUE TO AN INCREASE METABOLISM, THERE CAN BE SEEN A REDUCTION IN THERAPEUTIC EFFECT OF METHADONE AND THE METHADONE DOSE MAY HAVE TO BE INCREASED, ESPECIALLY DURING THE 3RD TRIMESTER
  • OTHER FACTORS INCLUDE ↑PLASMA VOLUME AND ↑RENAL BLOOD FLOW
  • MAY NEED BID DOSING
METHADONE USE IN THE MOTHER

• CRITERIA FOR EFFECTIVE DOSING
  • PREVENTS WITHDRAWAL
  • REDUCES OR ELIMINATES DRUG CRAVING
  • BLOCKS EUPHORIC EFFECT OF NARCOTICS

*SIMILAR CRITERIA TO NON-PREGNANT WOMEN OR MEN.
METHADONE USE IN THE MOTHER (CONTINUED)

• BERGHELLA ET AL IN THE AM J OBSTET GYNECOL AUGUST 2003
  • STUDIED THE MATERNAL METHADONE DOSE AND NEONATAL WITHDRAWAL
    • CONCLUSION: NO RELATIONSHIP BETWEEN SEVERITY OF NEONATAL ABSTINENCE AND MATERNAL DOSE, EVEN IN DOSES > 80MG/DAY
OTHER WITHDRAWAL AGENTS

• CLONIDINE
  • NO TERATOGENIC EFFECTS
  • LONG TERM USE NOT RECOMMENDED

• BUPRENORPHINE
  • APPEARS SAFE WITH NO TERATOGENIC EFFECTS, BUT NOT APPROVED FOR USE YET (JONES AND JOHNSON 2001)

• NEVER USE NARCAN UNLESS AS A LAST RESORT
  • SPONTANEOUS ABORTION
  • PREMATURE LABOR
  • STILLBIRTH
MATERNAL EFFECTS OF OPIOIDS*

• TOXEMIA
• MISCARRIAGE
• PREMATURE RUPTURE OF MEMBRANES
• INFECTIONS
• BREECH PRESENTATION
• PRETERM LABOR

*MAY BE DUE TO LIFESTYLE FACTORS AND NOT DIRECT DRUG TOXICITY
FETAL EFFECTS OF OPIOIDS

- LOW BIRTH WEIGHT
- FETAL DISTRESS
- PREMATURITY
- NEONATAL ABSTINENCE SYNDROME
- STILLBIRTH
- SUDDEN INFANT DEATH SYNDROME
- MECONIUM ASPIRATION
NEONATAL ABSTINENCE SYNDROME

• 60-80% OF HEROIN EXPOSED INFANTS
  • 72 HOURS AFTER BIRTH
    • CNS EFFECTS
      • IRRITABILITY
      • HYPERTONIA (INCREASED MUSCLE TONE)
      • HYPERREFLEXIA
      • ABNORMAL SUCK
      • POOR FEEDING
      • SEIZURES (1 TO 3%)
    • GI EFFECTS
      • DIARRHEA
      • VOMITING
NEONATAL ABSTINENCE SYNDROME

• 60 TO 80% OF HEROIN EXPOSED INFANTS
  • 72 HOURS AFTER BIRTH
    • RESPIRATORY EFFECTS
      • TACHYPNEA (INCREASED RESPIRATORY RATE)
      • RESPIRATORY ALKALOSIS (BLOOD IS NOT ACIDIC ENOUGH DUE TO A DECREASE IN CARBON DIOXIDE AS A RESULT OF THE INCREASED RESPIRATORY RATE)
    • AUTONOMIC EFFECTS
      • SNEEZING
      • LACRIMATION
      • YAWNING
      • SWEATING
      • HYPERPYREXIA (INCREASED TEMPERATURE)
  • DELAYED EFFECTS SEEN FOR 4 TO 6 MONTHS
    • SIDS
NEONATAL ABSTINENCE SYNDROME

• METHADONE EXPOSED INFANTS
  • STARTS LATER AND LASTS LONGER THAN WITH OTHER OPIATE USE BY THE MOTHER
  • EEG ABNORMALITIES IN 50% OF INFANTS
  • MYOCLONIC SEIZURES IN 7% (BETWEEN DAY 7 AND 14)
## NEONATAL ABSTINENCE SYNDROME

<table>
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<th>MEDICATION</th>
<th>DOSING</th>
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<tr>
<td><strong>INDUCTION</strong></td>
<td><strong>TITRATION</strong></td>
</tr>
<tr>
<td><strong>TINCTURE OF OPIUM</strong></td>
<td>0.1 ML/KG (2 DROPS/KG) Q 4 H WITH FEEDINGS</td>
</tr>
<tr>
<td><strong>PAREGORIC</strong></td>
<td>0.1 ML/KG (2 DROPS/KG) Q 4H WITH FEEDINGS</td>
</tr>
<tr>
<td><strong>METHADONE</strong></td>
<td>0.05 TO 0.1 MG/KG Q 6H</td>
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**increases**

- Tincture of Opium
- Paregoric
- Methadone
STIMULANTS
STIMULANTS

WITHDRAWAL IN THE MOTHER
- DYSPHORIA
- FATIGUE
- UNPLEASANT DREAMS
- INSOMNIA
- HYPERSOMNIA (INCREASED SLEEP)
- INCREASED APPETITE
- PSYCHOMOTOR RETARDATION
- AGITATION
STIMULANTS

• OTHER THAN NICOTINE DEPENDENT PATIENTS, THERE IS NO CURRENT PHARMACOTHERAPY SUGGESTED.

• ANXIETY TREATMENT
  • LOW DOSE VALIUM (25MG QID* X’S 6 DOSES) PRN**

• ANTIDEPRESSANT TREATMENT
  • DOXEPIN 25MG BID*** DAY 1 TO 5

*QID = 4 TIMES A DAY
**PRN = AS NEEDED
***BID = TWICE A DAY
COCaine USE BY THE MOTHER

• ASSOCIATED WITH
  • HIGHER ALCOHOL USE
  • CIGARETTE SMOKING DURING PREGNANCY
  • HIGHER MARIJUANA USE

* WORK OF EIDEN ET AL ( RIA – RESEARCH IN BRIEF JUNE 2002)
MATERNAL EFFECTS OF COCAINE

• ABRUPTIO PLACENTAE
• PREMATURE LABOR
• SPONTANEOUS ABORTION
• DECREASE DURATION OF DELIVERY
• GREATER NUMBER OF OBSTETRICAL COMPLICATIONS
FETAL EFFECTS OF COCAINE

- INCREASE IN CONGENITAL ANOMALIES
- MILD NEURODYSFUNCTION
- TRANSIENT EEG ABNORMALITIES (50%)
- CEREBRAL INFARCTION
- SEIZURES
- SMALL HEAD CIRCUMFERENCE
- DECREASED BIRTH WEIGHT
- VASCULAR DISRUPTION SYNDROME
- ADHD SEEN LATER IN LIFE
- NO ABSTINENCE SYNDROME
FETAL EFFECTS OF COCAINE

• SIDS
• LOWER AROUSAL AT 2 MONTHS
• LESS COORDINATED MOVEMENTS AT 2 MONTHS
NICOTINE WITHDRAWAL SYMPTOMS IN THE MOTHER

- Anxiety
- Irritability
- Poor conc.
- Restless
- Craving
- GI prob.
- Headache
- Drowsy
NICOTINE AND TOBACCO

• OVERWHELMING DOCUMENTATION THAT SMOKING DURING PREGNANCY CAUSES NUMEROUS ADVERSE FETAL CONSEQUENCES (SCHAEFER 2001)
  • SPONTANEOUS ABORTION
  • ABRUPTIO PLACENTAE
  • PLACENTA PREVIA
  • UTERINE BLEEDING
  • SIDS (4.4 X’S INCREASE IF MOTHER IS A SMOKER DURING PREGNANCY)
NICOTINE AND TOBACCO

• IF THE PREGNANT WOMAN CANNOT STOP SMOKING USING BEHAVIORAL INTERVENTIONS, THEN NICOTINE REPLACEMENT PRODUCTS CAN BE USED
NICOTINE AND TOBACCO

• AS IN ALL MEDS, WOMAN MUST BE TOLD RISKS AND BENEFITS
  • LESSER OF TWO EVILS
  • GUM OR INTERMITTENT USE FORMULATIONS SUGGESTED OVER CONTINUOUS FORMULATIONS (PATCH)
NICOTINE AND TOBACCO

• BUPROPRION IN PREGNANCY HAS VERY LIMITED STUDIES
  ∎ STUDIES HAVE SHOWN THAT WOMEN MAY DERIVE LESS BENEFIT FROM NICOTINE REPLACEMENT TREATMENTS (NRT’S) THAN MEN AND GREATER BENEFIT FROM NON-NRT TREATMENT
CANNABINOIDS
CANNABINOIDs

WITHDRAWAL IN THE MOTHER

- 10 HOURS AFTER USE
  - TREMOR OF THE TONGUE AND EXTREMITIES
  - INSOMNIA
  - SWEATS
  - LATERAL GAZE NYSTAGMUS
  - EXAGGERATED DEEP TENDON REFLEXES
CANNABINOIDs

• NO APPROVED PHARMACOTHERAPY AND NO CHANGE IN PREGNANT VS. NON - PREGNANT WOMAN
PREGNANT WOMEN AND THE LAW

- 13 STATES HAVE LEGISLATION TO TERMINATE PARENTAL RIGHTS DUE TO MATERNAL DRUG ABUSE
  - FLORIDA, ILLINOIS, INDIANA, OHIO, MARYLAND, MINNESOTA, NEVADA, RHODE IS., S.CAROLINA, S. DAKOTA, TEXAS, VIRGINIA AND WISCONSIN
PREGNANT WOMEN AND THE LAW

• SUPREME COURT DECISION – FERGUSON V. CITY OF CHARLESTON
  • MUST INFORM PATIENT OF DRUG SCREEN
  • AS OF 4/2001 S.CAROLINA WAS ONLY STATE TO CRIMINALIZE PRENATAL DRUG USE
PREGNANT WOMEN AND THE LAW

• 8 STATES REQUIRE REPORTING OF DRUG TESTING
  • ARIZONA
  • ILLINOIS
  • IOWA
  • MASSACHUSETTS
  • MICHIGAN
  • MINNESOTA
  • UTAH
  • VIRGINIA
WOMEN ARE SPECIAL PATIENTS

• MANY WOMEN WHO SEEK TREATMENT FOR THEIR ALCOHOL AND OTHER DRUG PROBLEMS AT PUBLICLY FUNDED PROGRAMS
  • FUNCTION AS SINGLE PARENTS
  • RECEIVE LITTLE OR NO FINANCIAL SUPPORT FROM THE BIRTH FATHER
  • UNEMPLOYED OR UNDEREMPLOYED
  • LIVE IN UNSTABLE OR UNSAFE ENVIRONMENTS
  • LACK TRANSPORTATION
WOMEN ARE SPECIAL PATIENTS

• MANY WOMEN WHO SEEK TREATMENT FOR THEIR ALCOHOL AND OTHER DRUG PROBLEMS AT PUBLICLY FUNDED PROGRAMS
  • LACK CHILD CARE AND BABY – SITTING OPTIONS
  • HAVE SPECIAL THERAPEUTIC NEEDS
    • INCEST
    • ABUSE
  • HAVE SPECIAL MEDICAL AND OB/GYN NEEDS
THE IDEAL TREATMENT PROGRAM

• TREATMENT PROGRAMS SERVING PREGNANT SUBSTANCE USING WOMEN SHOULD HAVE THE FOLLOWING SERVICES OR LINKAGES AVAILABLE
  • COMPREHENSIVE INPATIENT AND OUTPATIENT TREATMENT
  • COMPREHENSIVE MEDICAL SERVICES
  • GENDER SPECIFIC GROUPS
  • TRANSPORTATION SERVICES
    • TAXI VOUCHERS
    • BUS TOKENS
  • CHILD CARE
  • VOCATIONAL SERVICES
  • EDUCATIONAL SERVICES
THE IDEAL TREATMENT PROGRAM

• TREATMENT PROGRAMS SERVING PREGNANT SUBSTANCE USING WOMEN SHOULD HAVE THE FOLLOWING SERVICES OR LINKAGES AVAILABLE
  • DRUG FREE SAFE HOUSING
  • FINANCIAL SUPPORT SERVICES
  • CASE MANAGEMENT SERVICES
  • PEDIATRIC FOLLOW UP
  • SERVICES THAT RECOGNIZE THE UNIQUE NEEDS OF PREGNANT, ADOLESCENT SUBSTANCE USERS
THE IDEAL TREATMENT PROGRAM

• ASSESSMENTS
  • MEDICAL AND OBSTETRICAL
    • HISTORY AND PHYSICAL
    • NORMAL EVALUATION ASKING AND LOOKING FOR STIGMATA OF ALCOHOL AND DRUG USE
  • SCREENING TOOLS – ONLY 2 HAVE BEEN VALIDATED. NO TOOL IS VALIDATED FOR DRUG USE DURING PREGNANCY
    • T-ACE
    • TWEAK
THE IDEAL TREATMENT PROGRAM

T-ACE

TOLERANCE – HOW MANY DRINKS DOES IT TAKE TO MAKE YOU FEEL HIGH?

ANNOYED – HAVE PEOPLE ANNOYED YOU BY CRITICIZING YOUR DRINKING?

CUT DOWN – HAVE YOU FELT YOU OUGHT TO CUT DOWN ON YOUR DRINKING?

EYE OPENER – HAVE YOU EVER HAD A DRINK FIRST THING IN THE MORNING TO STEADY YOUR NERVES OR GET RID OF A HANGOVER?

A POSITIVE ANSWER TO TOLERANCE OR 2 POSITIVES TO THE OTHER 3 QUESTIONS INDICATES AN INCREASED LIKELIHOOD THAT THE WOMAN IS DRINKING AT A LEVEL THAT MAYBE HARMFUL TO THE FETUS.
THE IDEAL TREATMENT PROGRAM

TWEAK

**TOLERANCE** – HOW MANY DRINKS DOES IT TAKE TO MAKE YOU FEEL HIGH? **2 OR MORE = 2 POINTS**

**WORRY** – HAVE CLOSE FRIENDS WORRIED OR COMPLAINED ABOUT YOUR DRINKING IN THE PAST YEAR? **YES = 1 POINT**

**EYE – OPENER** – HAVE YOU EVER HAD A DRINK FIRST THING IN THE MORNING TO STEADY YOUR NERVES OR GET RID OF A HANGOVER? **YES = 1 POINT**

**AMNESIA** – HAS ANYONE EVER TOLD YOU ABOUT THINGS THAT YOU SAID OR DID WHILE DRINKING THAT YOU DO NOT REMEMBER? **YES = 1 POINT**

**KUT DOWN** – HAVE YOU FELT YOU OUGHT TO CUT DOWN ON YOUR DRINKING? **YES = 1 POINT**

3 OR MORE POINTS = LIKELY THAT THE WOMAN IS DRINKING SIGNIFICANTLY
THE IDEAL TREATMENT PROGRAM

• ASSESSMENTS
  • MEDICAL AND OBSTETRICAL
    • LAB WORK – CBC, VDRL, U/A, ETC
    • DISCUSS HIV STATUS
    • BASELINE SONOGRAM
    • REFERRALS AS NECESSARY
MEDICAL

• HIGH RISK SEXUAL BEHAVIORS
• TEST FOR SYPHILIS, GONORRHEA, CHLAMYDIA, HIV, HEPATITIS A, B, C
• THIS GROUP OF PATIENTS ARE MORE LIKELY TO SUFFER FROM POOR DIET AND MALNUTRITION
• INCREASE RISK FOR ANEMIA
• INCREASE RISK FOR PRE-ECLAMPSIA
• INCREASE RISK OF PHYSICAL ABUSE
  • 44 TO 70% OF WOMEN (STEVEN ET AL 1997)
THE IDEAL TREATMENT PROGRAM

• ASSESSMENTS
  • ALCOHOL AND OTHER DRUG USE
    • ADDICTION HISTORY INCLUDING OTC, PRESCRIPTION DRUGS AND CIGARETTES
    • ASSESS MOTIVATION FOR TREATMENT
THE IDEAL TREATMENT PROGRAM

• ASSESSMENTS
  • PSYCHOSOCIAL
    • SUPPORT SYSTEM
    • PATIENT’S PERCEPTION OF PREGNANCY AND OPTIONS
    • EDUCATIONAL LEVEL
    • EMPLOYMENT SKILLS
    • ABUSE AND NEGLECT ISSUES
    • LEGAL ISSUES
    • CURRENT ISSUES OF IMPORT TO PATIENT
    • RELATIONSHIP WITH OTHER CHILDREN
ASSESSMENTS

MENTAL HEALTH

PREGNANT WOMEN WHO ABUSE ALCOHOL AND ILLICIT DRUGS HAVE A HIGHER LEVEL OF PSYCHOPATHOLOGY (DEPRESSION, SCHIZOPHRENIA, SOCIAL MALADJUSTMENT) THAN PREGNANT WOMEN WHO DO NOT USE ALCOHOL (MILES ET AL 2001)

- 45% HAVE A NON SUBSTANCE ABUSE AXIS I DX
- 75% HAD AN AXIS II DX (HALLER ET AL 1993)
- 19 TO 58% HAD A DX OF PTSD (BROWN ET AL 1995, MOYLAN ET AL 2001)
PREVENTION

• BEGIN AT AN EARLY AGE
  • AVERAGE AGE OF FIRST ALCOHOL USE IS 11.6 YEARS OLD (SAMHSA)
  • ADDRESS MATERNAL SUBSTANCE USE AT ALL ALCOHOL AND DRUG TREATMENT PROGRAMS
  • CONTINUE TO PROVIDE EDUCATION TO THE MOTHER
PREVENTION

• NATIONAL ACADEMY OF SCIENCES – 3 MAJOR PREVENTION STRATEGIES
  • UNIVERSAL PREVENTION OF MATERNAL ALCOHOL ABUSE
    • EDUCATE THE BROAD PUBLIC ABOUT RISKS OF DRINKING WHEN PREGNANT
      • ALCOHOL WARNING LABELS IS AN EXAMPLE
  • SELECTIVE PREVENTION OF MATERNAL ALCOHOL ABUSE
    • TARGET WOMEN OF CHILDBEARING AGE WHO DRINK
      • EDUCATION AND COUNSELING WITH REFERRAL TO TREATMENT IF WARRANTED
  • INDICATED PREVENTION
    • HIGH RISK WOMEN WHO DRANK DURING PREGNANCY IN THE PAST, HAD A FASD CHILD
PREVENTION

• ADD TO MEDICAL SCHOOL EDUCATION
  • REQUIRED NUMBER OF TRAINING HOURS IN RESIDENCY PROGRAMS IS LOW
  • ONLY 17% OF OBSTETRICAL TEXTBOOKS PUBLISHED IN THE LAST 2 DECADES CONTAINED CONSISTENT RECOMMENDATIONS THAT PREGNANT WOMEN SHOULD NOT USE ALCOHOL (LOOP ET AL AM J PREV MED 2002)
  • ONE KEY ELEMENT IS TO SCREEN ALL PREGNANT WOMEN
CONCLUSIONS

• ALCOHOL AND ILLICIT DRUGS THAT ARE USED BY A WOMAN DURING PREGANCY ARE A PUBLIC HEALTH PROBLEM AND SHOULD NOT BE A LEGAL PROBLEM.

• ALL CARE PROVIDERS WHO INTERACT WITH WOMEN NEED TO BE SENSITIVE TO THE FEELINGS AND CULTURAL BACKGROUND AND CREATE A SUPPORTIVE ENVIRONMENT
TREATMENT OF THE PREGNANT WOMAN WITH A SUBSTANCE USE DISORDER

• REFERENCES
  • IF NOT ALREADY MENTIONED
    • TREATMENT OF WOMEN WITH SUBSTANCE USE DISORDERS
      • ASAP CONFERENCE 1/25/04 D.DUBOVSKY MSW
    • PRINCIPLES OF ADDICTION MEDICINE 3RD EDITION
      • NUMEROUS EXCELLENT CHAPTERS