



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
 - 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
 - 820,000 WOMEN SMOKED CIGARETTES
 - 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

DRUG	TIME
ALCOHOL	6 to 60 HOURS
BARBITUATE	4 to 10 DAYS
DIAZEPAM	1 to 12 DAYS
OPIOID	12 to 72 HOURS

*MATERNAL WITHDRAWAL DEPENDS ON THE DRUG, FREQUENCY OF USE, AND DURATION OF USE. TIMES CAN VARY SIGNIFICANTLY.



TIME TO ONSET OF NEONATAL WITHDRAWAL SIGNS

DRUG	TIME
ALCOHOL	3 to 12 HOURS
BARBITUATE	4 to 7 DAYS
DIAZEPAM	1 to 12 DAYS
OPIOID	48 to 72 HOURS

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



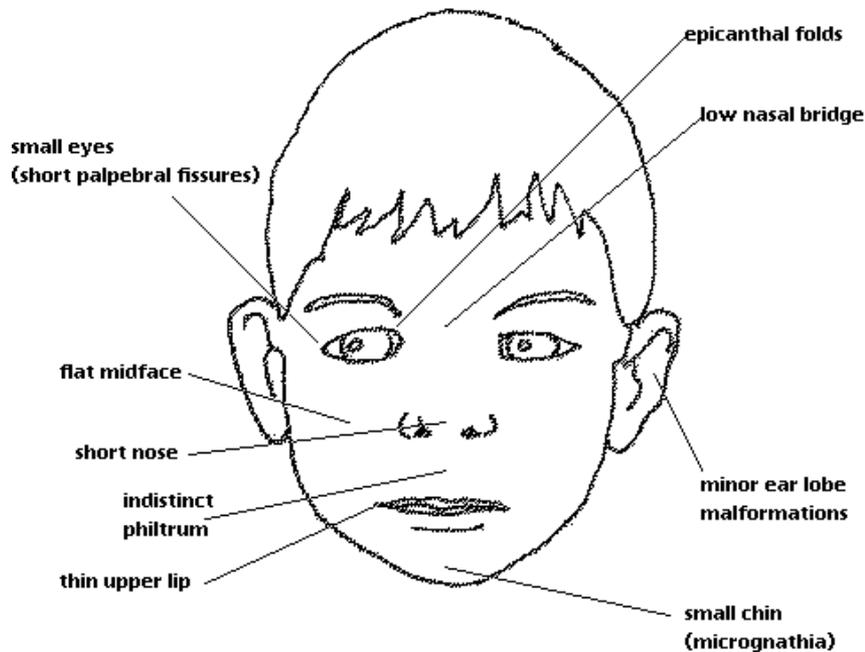
FETAL EFFECTS OF ALCOHOL



- 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 PATHOGNOMONIC 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

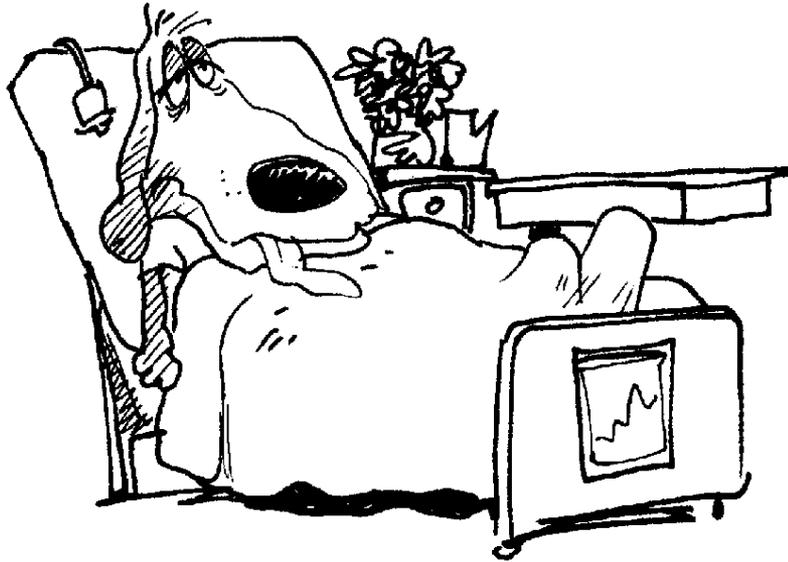
- CLEFT LIP AND PALATE



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 PRENATAL 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

MEDICATION	DOSING			
	INDUCTION	TITRATION	STABILIZATION	TAPERING
TINCTURE OF OPIUM	0.1 ML/KG (2 DROPS/KG) Q 4 H WITH FEEDINGS	INCREASE BY 0.1 ML/KG Q4H AS NEEDED	Q 4 H WITH FEEDINGS FOR 3 TO 5 DAYS	TAPER GRADUALLY BY REDUCING DOSE NOT FREQUENCY
PAREGORIC (0.4 MG/ML)	0.1 ML/KG (2 DROPS/KG) Q 4H WITH FEEDINGS	INCREASE BY 0.1 ML/KG Q 4H PRN	Q4H WITH FEEDINGS FOR 3 TO 5 DAYS	TAPER GRADUALLY BY REDUCING DOSE NOT FREQUENCY
METHADONE	0.05 TO 0.1 MG/KG Q 6H	INCREASE BY 0.05 MG/KG Q 6 H PRN	WHEN STABLE, GIVE TOTAL DAILY DOSE ONCE DAILY OR ½ BID	TAPER GRADUALLY TO 0.05 MG/KG, THEN D/C MED



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

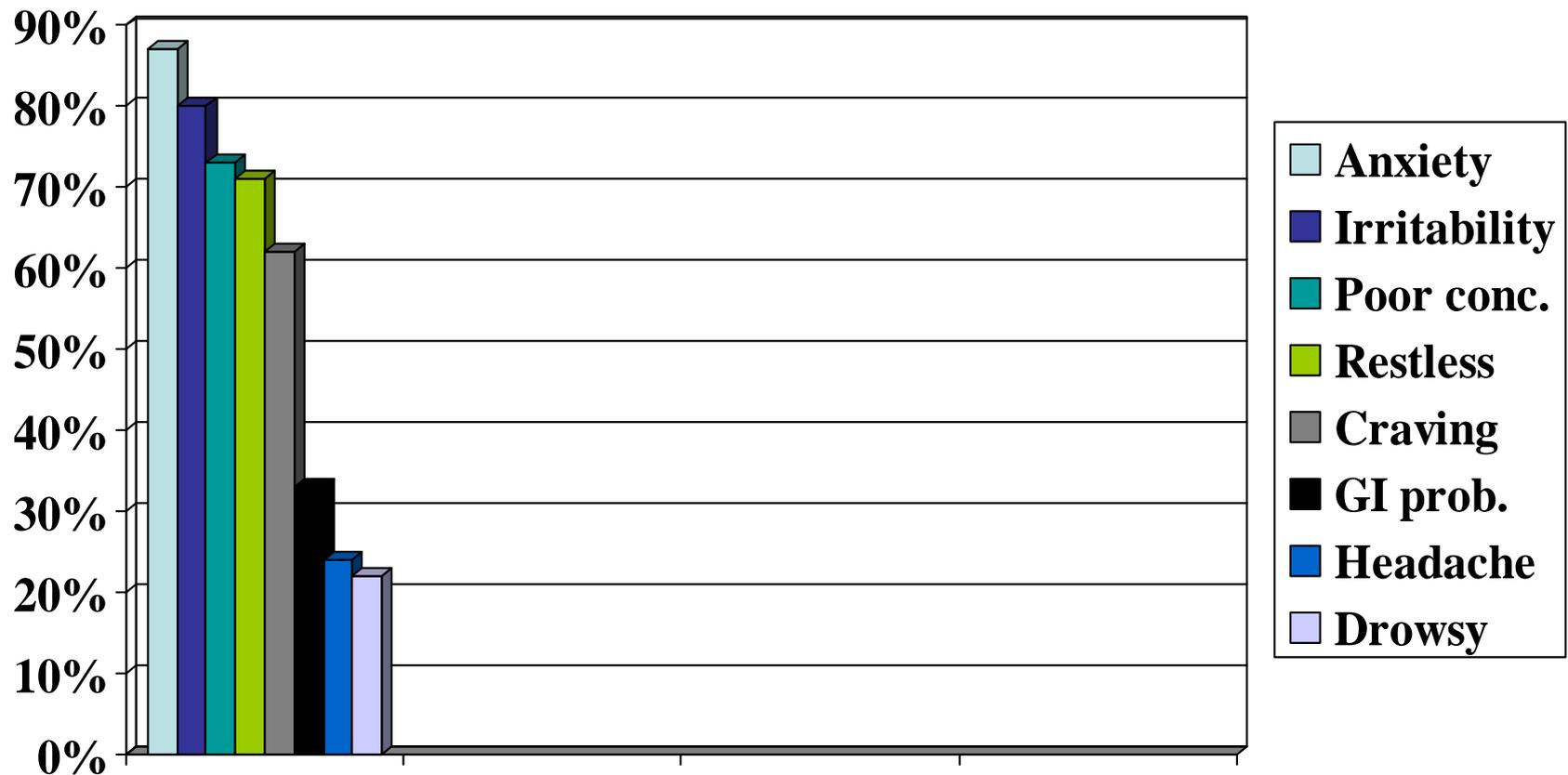


FETAL EFFECTS OF COCAINE

- SIDS
- LOWER AROUSAL AT 2 MONTHS
- LESS COORDINATED MOVEMENTS AT 2 MONTHS



NICOTINE WITHDRAWAL SYMPTOMS IN THE MOTHER



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 CUTDOWN 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 (STEVENS 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



THE IDEAL TREATMENT PROGRAM

- 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 CULTERAL BACKGROUNDS 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

