

NURSING MANAGEMENT OF THE EXPECTANT FAMILY
Allison Sutphin, RN BSN
Summer 2007

Contemporary Childbirth

- Emphasis on family & family choices
- Hospital LOS
- Home births – “lay midwife”
- Advances in diagnosis/treatment
- Evidence based practice

Complementary/Alternative Therapies

- Acupuncture, massage, herbs, etc.
- Respect & support family’s rights
- 60% do not reveal using alternative therapies
- Thought to prevent complications, decrease nausea, pain, etc...

Ethical Issues

- Maternal fetal conflict
- Abortion
- Intrauterine fetal surgery
- Reproductive assistance
- Embryonic stem cell research
- Human genome project
- Cord blood banking

Ethical Issues:

Nursing Implications

- Anticipate ethical dilemmas
- Clarify own position
- Understand legal implications
- Develop strategies for decision making

Statistics

- Birth rate
- Infant mortality
- Neonatal mortality
- Maternal mortality
- North Carolina State Center for Health Statistics

Fertilization

- Sperm fuses with ovum
- Ova fertile 12-24 hours after ovulation
- Sperm survive 48-72 hours

Preembryonic Development: Cellular Multiplication

- Zygote moves toward uterus
- About 3 days
- Rapid division
- Morula
 - Blastocyst (inner)
 - Trophoblast (outer)

Preembryonic Development: Implantation (Nidation)

- Trophoblast attaches to endometrium
- Implants deep in uterine lining
- Progesterone maintains pregnancy now
- Decidua – endometrium after implant.

Preembryonic Development: Cellular Differentiation

- 10-14 days after conception
- Germ layers – ecto/meso/endoderm
- Embryonic membranes

Preembryonic Development:
Cellular Differentiation

- Amniotic fluid
- Yolk sac

Preembryonic Development:
Cellular Differentiation

- Umbilical cord
 - Connects embryo to yolk sac
 - 1 vein, 2 arteries
 - Wharton's jelly

Placenta

- Delivers O₂ & nourishment
- Begins to develop 3rd week
- By 20th week – ½ of uterus covered
- Maternal portion
- Fetal portion

Placenta: Functions

- Metabolic
- Transport – transfer of substances
- Endocrine
- Immunologic

Fetal Circulatory System

- Most blood bypasses fetal lungs
- Foramen ovale
- Ductus arteriosus
- O₂ via diffusion from maternal circulation

Embryonic & Fetal Development

- Embryonic stage

- Fetal stage

Factors Influencing Embryonic & Fetal Development

- Quality of sperm or ovum

- Genetic code

- Adequacy of intrauterine environment

Infertility

- 12 months without conception
- 10-15% infertile
- Sterility – absolute factor present
- Subfertility – both partners reduced fertility
- Primary vs. secondary infertility

Infertility

- Essential components of fertility
 - Female
 - Male
- When to refer
 - After one year of trying unless over age 35, then after 6-9 months of trying

Infertility Workup

- Teach fertility awareness (Table 7-2)
- Table 7-3 – Physical & Labs

Tests For Infertility: Female

- Ovulatory Factors

- Cervical Factors

Tests For Infertility: Female

- Uterine Structures
 - Hysterosalpingography
 - Hysteroscopy
 - Laparoscopy

Tests for Infertility: Male

- Semen analysis
 - Volume
 - Sperm concentration
 - Motility
 - Morphology
 - Leukocytes

Infertility Management

- Pharmacological
 - Clomiphene citrate (Clomid)
 - Menotropins (Pergonal)
 - Bromocriptine (Parlodel)
 - Danazol (Danocrine)
- Therapeutic insemination (artificial)
- In vitro fertilization
- Other assisted reproductive techniques
- Adoption

Genetic Disorders

Chromosome abnormalities

- Numerical abnormalities
- Sex chromosome abnormalities
- Structural anomalies

Down Syndrome (trisomy 21)

Klinefelter syndrome

Turner syndrome

Autosomal Recessive Conditions

X-linked conditions

- Many muscular dystrophies (Duchenne and Becker most common)
- Many mental retardation syndromes (Fragile X most well known)
- Hemophilia and colorblindness

Fragile X syndrome

Referral Indications for Genetic Counseling and Prenatal Diagnosis

- Abnormal Quad, MSAFP (or first trimester) screening
- Advanced maternal age
- Ultrasound abnormalities
- Exposure of current pregnancy to known or suspected teratogen
- Maternal illness or infection
- Family history of a chromosome abnormality, single gene disorder, or birth defects
- History of multiple spontaneous miscarriages, stillbirth, neonatal death or infertility
- Risk for genetic disease due to ethnic background
- Consanguinity (couple is related)

Prenatal Screening vs. Diagnosis

- Prenatal Screening

- Diagnostic Testing

Prenatal Screening vs. Diagnosis

- Screening test examples:
 - Quad screening (or MSAFP screening)
 - First trimester screening
- Diagnostic test examples:
 - Chorionic Villus Sampling (CVS)
 - Amniocentesis
 - Percutaneous Umbilical Blood Sampling (PUBS)

Prenatal Screening Tests

- Benefits
- Risks

Quad or MSAFP Screening

- Measures four markers that cross into the maternal serum - AFP, hCG, uE3, DIA
- Generally performed between 15-20 weeks of gestation (most sensitive 16-18 weeks)
- Estimates risk to have a fetus with Down syndrome, trisomy 18, or open neural tube defect
- Each marker independently changes risk
- Measures women of the same age and gestational age

Factors Influencing Screening

- Gestational Dating
- Maternal Age
- Maternal IDDM
- Maternal Race
- Maternal Weight
- Twin gestation

Other Reasons for High AFP

- Ventral wall defects
 - Omphalocele
 - Gastroschisis
- Kidney defects
- Fetal death
- Multiple gestation
- Dermatological disorders

MSAFP Screening in Women

≥ 35 Years of Age

- ACOG states MSAFP screening should not be offered in women who are 35 or older unless diagnostic testing has already been offered
- MSAFP screening in women who are 35 or older has a higher detection rate, but a higher false positive rate
- MSAFP screening does not detect trisomy 13, Klinefelter syndrome or 47,XXX
 - These disorders also increased in women 35 or older

First Trimester Screening

- Screens for Down syndrome, trisomy 18, and congenital heart defects
- Done between 11-14 weeks gestation
- Detects over 80-85% of Down syndrome and over 90% of trisomy 18

First Trimester Screening

- Advantages of first trimester screening:
 - Psychological (?reduce anxiety)
 - Earlier results allow patient to do invasive diagnostic testing earlier and perhaps earlier termination if desired.
 - Comparable detection rates with 2nd trimester quad screening for Down syndrome.
 - Increased detection of trisomy 18 over 2nd trimester quad screen

First Trimester Screening

- Disadvantages of first trimester screening:
 - Requires you to get prenatal care early!
 - Does not provide neural tube defect screening.
 - Time consuming!
 - May increase the number of invasive procedures.

Remember!

- A negative 1st or 2nd trimester screen does not take the risk away, it just lowers it!
- A woman 35 or older should always be offered invasive testing regardless of whether she elects to have or not to have Quad/MSAFP screening.

Ultrasound

Level II Ultrasound--Benefits and Limitations

- Benefits
- Limitations
- No Known Risks

Amniocentesis

Most often done between 15-18 weeks of pregnancy.
Results may take 2-3 weeks.

Amniocentesis- Benefits, Limitations, and Risks

- Benefits
- Limitations and Risks

PUBS- Benefits, Limitations, and Risks

- Benefits
- Limitations and Risks

Chorionic Villus Sampling

CVS- Benefits, Limitations, and Risks

- Benefits
- Limitations and Risks

Goals of Prenatal Care

- Provide physical care
- Educate in self-care
- Teach health habits that may be continued after pregnancy
- Provide environment that is caring, aware of cultural diversity, & supportive of the family
- Provide psychological care
- Prepare parents for responsibilities of parenthood

Barriers to Prenatal Care

- Costs of health care
- Limited financial resources
- Lack of coordinated services
- Personal beliefs
- Unavailability of maternal services in certain areas
- Underfunded/overcrowded public clinics
- Difficulty retaining HCP in public clinics
- Inaccessibility – transportation, location, lack of child care

A&P of Pregnancy: Reproductive System

- Uterus

- Cervix

- Vagina

- Breasts

A&P of Pregnancy: Respiratory System

- Breathing pattern: deeper & slight increase in rate

- Upward displacement of diaphragm

A&P of Pregnancy: Cardiovascular System

- Heart displaced upward & to left
- Increase blood volume 30-50%
- Increase cardiac output
- Increase heart rate
- Split S1

A&P of Pregnancy:

GI System

- N/V
- Gums, swell, soften & bleed easily
- Ptyalism
- Delayed intestinal motility
- Bloating/constipation
- Reflux
- Hemorrhoids
- Gallstones

A&P of Pregnancy:

Urinary Tract

- Urinary frequency – 1st & 3rd trimesters
- Increased incontinence, UTI
- Increased Na retention
- Increase GFR
 - Increase urine flow/volume
 - Decrease BUN/Cr
 - Altered renal excretion of drugs (may be subtherapeutic blood levels)

A&P of Pregnancy:

Skin & Hair

- Increased pigmentation
 - Areola, nipples, vulva, perianal area
- Linea nigra
- Chloasma
- Hyperactive sweat & sebaceous glands
- Striae
- Vascular spider nevi
- Decreased hair growth

A&P of Pregnancy:

Musculoskeletal System

- Waddling gait
- Accentuated lumbar spinal curve
- Diastasis recti

A&P of Pregnancy:

Eyes

- Difficulty wearing prepregnancy contacts

A&P of Pregnancy:
Metabolism

- Weight gain
 - Normal wt: 25-35 lbs
 - Overweight: 15-25 lbs
 - Underweight: reach IBW + 25-35 lbs

- 1st trimester: 3.5- 5 lbs
- 2nd trimester: 12-15 lbs
- 3rd trimester: 12-15 lbs

A&P of Pregnancy:
Metabolism

- Water metabolism
 - Need extra water!!!!
- Nutrient metabolism
 - Biggest demands 2nd half of pregnancy
 - Increase protein & CHO needs

A&P of Pregnancy:
Endocrine System

- Thyroid
 - Enlarges slightly
 - BMR increases up to 25%
- Pituitary
 - Slightly enlarged
 - Increased production of prolactin
 - Secretes oxytocin

A&P of Pregnancy:
Endocrine System

- Adrenals
 - Cortisol levels increase
 - Aldosterone levels increase
- Pancreas
 - Increased insulin needs
- Pregnancy hormones
 - Human chorionic gonadotropin (hCG)
 - Maintain pregnancy until placenta develops
 - Human placental lactogen (hPL)
 - Increases amt of circulating fatty acids for maternal needs & decreases maternal metabolism of glucose

A&P of Pregnancy:
Endocrine System

- Pregnancy hormones
 - Estrogen
 - Increases blood flow to uterus & stimulates uterine development
 - Softens cervix, initiates uterine activity, maintains labor
 - Helps prepare for lactation
 - Progesterone
 - Maintains pregnancy
 - Relaxin
 - Inhibits uterine activity, softens cervix

Signs of Pregnancy: Subjective (presumptive)

- Amenorrhea
- N/V
- Breast changes
- Urinary disturbances
- Fatigue
- Quickening

Signs of Pregnancy:
Objective (Probable)

- Changes in pelvic organs
 - Goodell's sign
 - Chadwick's sign
 - Hegar's sign
- Enlargement of abdomen
- Braxton Hicks contractions
- Uterine souffle
- Changes in pigmentation of skin
- Fetal outline
- Pregnancy tests

Pregnancy Tests

- Goal is to detect hCG
 - Blood or urine

Diagnostic (Positive) Changes

- Fetal heartbeat
- Fetal movement
- Visualization of the fetus

Psychologic Response: Mother

- 1st Trimester
- 2nd Trimester
- 3rd Trimester

Psychological Tasks of Mother

- Ensuring safe passage thru pregnancy, labor, & birth
- Seeking acceptance of child by others
- Seeking commitment & acceptance of herself as mother to infant
- Learning to give of oneself on behalf of child

Psychologic Response: Father

- 1st Trimester
- 2nd Trimester
- 3rd Trimester

Siblings

- Prepare
- Reassurance
- Take on prenatal visits/tour nursery

Prenatal Nursing Assessment: Client Profile

- GTPAL
 - Gravidity- # of times pregnant
 - T - # of term infants born (at least 37 weeks)
 - P - # of preterm infants born (20-36 weeks)
 - A - # of pregnancies ending in abortion
 - L - # of children living now

Prenatal Nursing Assessment

- Current pregnancy
- Past pregnancies
- GYN history
- Current medical history
- PMH
- FMH

Prenatal Nursing Assessment

- Religious, spiritual, cultural history
- Occupational history
- Partner's history
- Personal info
- Risk factors – Table 10-1

Determination of Due Date

- Nagele's Rule
 - 1st day of LMP
 - Subtract 3 months
 - Add 7 days
- Gestation wheel
- Physical exam
- Ultrasound

Prenatal Assessment

- VS
- Wt
- Skin
- Nose
- Mouth
- Neck

Prenatal Assessment

- Chest & Lungs
- Breasts
- Heart
- Abdomen
 - Fundal height
- Extremities
- Spine
- Reflexes

Prenatal Assessment

- Pelvic area
- Pelvic measurements
- Anus & rectum
- Fetal heartbeat
- ultrasound

Prenatal Assessment

- Cultural
- Psychologic stress
- Educational needs
- Support systems
- Family functioning
- Economic status
- Stability of living conditions

Ongoing Prenatal Visits

- Vital signs
- Wt gain
- Fundal height
- Fetal heartbeat
- Edema
- Urinalysis & hemoglobin
- Nutrition
- Risk factors/Danger Signs

Common Discomforts of Pregnancy: 1st Trimester

- N/V
- Urinary frequency
- Fatigue
- Breast tenderness
- Increased vaginal discharge
- Nasal stuffiness & epistaxis
- Ptyalism

Common Discomforts of Pregnancy: 2nd & 3rd Trimesters

- Heartburn
- Ankle edema
- Varicose veins
- Flatulence
- Hemorrhoids
- Constipation

Common Discomforts of Pregnancy: 2nd & 3rd Trimesters

- Backache
- Leg cramps
- Faintness
- Dyspnea
- Difficulty sleeping
- Round ligament pain
- Carpal tunnel syndrome

Promotion of Self Care

- Cultural considerations
- Fetal activity monitoring
- Breast care
- Clothing
- Bathing
- Employment

Promotion of Self Care

- Travel
- Activity and rest
- Exercises to prepare for childbirth
- Sexual activity
- Dental care
- Immunizations
- Avoiding teratogens

Causes of birth defects

Prenatal infections

- Cytomegalovirus (CMV)
- Herpesvirus
- Parvovirus (fifth disease)
- Rubella (German measles)
- Varicella (chickenpox)
- Toxoplasmosis (which can be transmitted in cat litter)
- Syphilis

Other birth defects are a result of environmental exposures

- Fetus is also most sensitive in the first trimester from exposures to infections (like CMV), medications, (such as maternal seizure medications) and other teratogens (such as alcohol).

Maternal medications/conditions

- Thalidomide, nausea drug used in the 1950's and 1960's, caused severe limb abnormalities
- Acne drug (Retin-A) is associated with facial anomalies (esp. ears)
- Maternal diseases such as diabetes, thyroid disease, seizure disorder also increase risk of birth defects in offspring

Fetal Alcohol Syndrome (FAS)

- Entirely preventable birth defect.
- No safe amount of alcohol during pregnancy
- Genes influence alcohol metabolism and therefore once a woman has a child with FAS, her risk increases in subsequent pregnancies (if she continues to drink).

Factors Contributing to Adolescent Pregnancy

- Social & cultural factors
 - Figure 12-1
 - AA & Hispanic
- Abuse
 - h/o abuse??

Risks to the Adolescent Mother

- Physiologic risks
 - Preterm birth
 - LBW
 - Cephalopelvic disproportion
 - Iron deficiency anemia
 - PIH

Risks to the Adolescent Mother

- Psychologic risks
 - Not able to complete adolescent development
- Sociologic risks
 - Drop out of school
 - Unstable family structure
 - Lack of finances

Nursing Role with Adolescents

- Make experience positive
- Be aware of developmental level
- H&P
- Support systems
- Education