Preventative Health Screening

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I. Discussion Outline

A. Periodic health screening

- Risk assessment and interventions
- Screening and prevention
- Immunizations and chemoprophylaxis

B. Cancer screening

- General
- Breast cancer
- Ovarian cancer
- Endometrial cancer
- Cervical cancer
- Colon cancer
- Lung

C. Lifestyle issues

- Cardiovascular disease
- Diabetes
- Prenatal counseling
- Smoking cessation
- Sexual issues
- Diet
- Exercise

D. Periodic health screening

- Risk assessment and interventions
- Screening and prevention
- Immunizations and chemoprophylaxis

II. Risk Assessment and Interventions

A. Ages 13-18

1. 75% have had coitus.
2. 2 million affected by STDs
3. Highest teen pregnancy rate
4. 40% end in termination
5. Leading causes of morbidity
    - Nose, throat, and upper respiratory conditions
    - Viral, bacterial, parasitic infections
    - Sexual abuse
    - Injuries (musculoskeletal and soft tissue)
    - Acute ear infections
    - Digestive system conditions
    - Acute urinary conditions
6. Leading causes of mortality
    - Motor vehicle accidents
    - Homicide
    - Suicide

- Leukemia

B. Ages 19-39

1. Family planning
2. Menstrual problems
3. Infertility
4. Leading causes of morbidity
   - Nose, throat and upper respiratory conditions
   - Injuries (musculoskeletal and soft tissue, including back and upper and lower extremities)
   - Viral, bacterial and parasitic infections
   - Acute urinary conditions
5. Leading causes of mortality
   - Motor vehicle accidents
   - Cardiovascular disease
   - Homicide
   - Coronary artery disease
   - Acquired immunodeficiency syndrome
   - Breast cancer
   - Cerebrovascular disease
   - Uterine cancer

C. Ages 40-64

1. Depression
2. Abuse
3. Sexual dysfunction
4. Incontinence
5. Behavioral risk factors
6. Leading causes of morbidity
   - Nose, throat and upper respiratory conditions
   - Osteoporosis/arthritis
   - Hypertension
   - Orthopedic deformities and impairments (including back and upper and lower extremities)
   - Heart disease
   - Hearing and vision impairments
7. Leading causes of mortality
   - Cardiovascular disease
   - Coronary artery disease
   - Breast cancer
   - Lung cancer
   - Cerebrovascular disease
   - Colorectal cancer
   - Obstructive pulmonary disease
   - Ovarian cancer

D. 65 years and older

1. Suicide risk
2. Depression
3. Fracture risk
4. Nutrition
5. Leading causes of morbidity

- Nose, throat and upper respiratory conditions
- Osteoporosis/arthritis
- Hypertension
- Urinary incontinence
- Heart disease
- Injuries (musculoskeletal and soft tissue)
- Hearing and vision impairments

6. Leading causes of death
    - Cardiovascular disease
    - Coronary artery disease
    - Cerebrovascular disease
    - Pneumonia/influenza
    - Obstructive lung disease
    - Colorectal cancer
    - Breast cancer
    - Lung cancer
    - Accidents

III. Screening and Prevention

A. Ages 13-18

1. Pap test
    - Yearly when sexually active or by age 18

B. Ages 19-39

1. Pap test
    - Physician and patient discretion after 3 consecutive normal tests
2. Cholesterol
    - Every 5 years

C. Ages 40-64

1. Pap test
    - Physician and patient discretion after 3 consecutive normal tests
2. Mammography
    - Every 1-2 years until age 50, yearly beginning at 50
3. Cholesterol
    - Every 5 years
4. Fecal occult blood test
5. Sigmoidoscopy
    - Every 3-5 years after age 50

D. 65 years and older

1. Pap test
    - Physician and patient discretion after 3 consecutive normals
2. Urinalysis/dipstick
3. Mammography
4. Cholesterol (every 3-5 years)
5. Fecal occult blood test
6. Sigmoidoscopy (every 3-5 years)
7. Thyroid-stimulating hormone test (every 3-5 years)

IV. Immunizations and Chemoprophylaxis

A. Ages 13-18

1. Periodic
    - Tetanus-diphtheria booster
2. Once between ages 14-16
3. High-risk groups
    - Measles, mumps, rubella
    - Hepatitis B vaccine
    - Fluoride supplement

B. Ages 19-39

1. Periodic
    - Tetanus-diphtheria booster
2. Every 10 years
3. High-risk groups
    - Measles, mumps, rubella
    - Hepatitis B vaccine
    - Influenza vaccine
    - Pneumococcal vaccine

C. Ages 40-64

1. Periodic
    - Tetanus-diphtheria booster
2. Every 10 years
    - Influenza vaccine
3. Annually beginning at age 55
4. High-risk groups
    - Measles, mumps, rubella
    - Hepatitis B vaccine
    - Influenza vaccine
    - Pneumococcal vaccine

D. Ages 65 and older

1. Periodic
    - Tetanus-diphtheria booster
2. Every 10 years
    - Influenza vaccine
3. Annually
    - Pneumococcal vaccine
4. Once
5. High-risk groups
    - Hepatitis B vaccine

V. Cancer Screening

- General
- Breast cancer
- Ovarian cancer
- Endometrial cancer
- Cervical cancer
- Colon cancer
- Lung cancer
- Skin cancer

A. Cancer screening guidelines

1. General screening
   - Annual or as appropriate health evaluation
2. Breast cancer
   - Increased age
   - Previous history of breast cancer
   - Nulliparity
   - Delayed childbearing (after 30)
   - Early menarche (before 12)
   - Late menopause (age 53)
   - Family history of breast cancer (first-degree)
   - Biopsy-proven ductal or lobular hyperplasia (with atypia)
   - Higher socioeconomic status
   - Obesity

   a. Mammography
      - Ages 40-49 every 1-2 years
      - Ages 50 and older yearly

   b. BRCA1 gene
      - 50% of hereditary breast cancers
      - 80% of hereditary ovarian cancers
      - 80-90% risk of breast cancer
      - 40-50% risk of ovarian cancer
      - 80-90% risk of ovarian breast cancer
      - < 25% risk of ovarian cancer

   c. Occur at earlier age

   d. 1 in 300-800 women heterozygous for BRCA1 mutation

   e. If family history, risk of gene may approach 50%

   f. Ashkenazi Jewish population
      - 1 in 50 heterozygous for BRCA1 or BRCA2

   g. Jewish women with ovarian cancer
      - 60% risk of BRCA1 or BRCA2

   h. Prophylactic mastectomy 81-99% effective

   i. Consider tamoxifen or raloxifene.

   j. Positive BRCA1 and BRCA2
      - Monthly SBE starting age 25
      - Annual to semi-annual CBE starting 25-35
      - Annual mammography starting 25-35
3. Ovarian cancer

   a. 4th leading cause of cancer mortality in US women

   b. 30% increase in number of cases (18,500 to 26,600)

   c. 18% increase in number of deaths (11,600 to 14,500)
      - *The Female Patient*. February 1997.

   d. Ovarian cancer symptoms

   e. Ovarian cancer screening

   f. Risk
      - Ratio of incidence of trait or risk factor divided by incidence without risk factor (relative risk)

- 1 in 55 (1.8%) lifetime risk
- Relative risk of ovarian cancer (first degree relatives)
- 6.5-8% lifetime risk of ovarian cancer with one affected first-degree relative

g. Hereditary familial ovarian cancer
- 3 ovarian cancers
- 5 or more cases of ovarian or breast cancer
- 5-10% caused by inheritance of gene

h. NIH consensus conference

i. 0.5% at risk due to
- Breast/ovarian syndrome
- Hereditary nonpolyposis colorectal cancer

j. Lynch syndrome II
- Colorectal, endometrial, gastrointestinal, kidney and ovarian cancer

k. 50% risk to first-degree relatives with
- Autosomal dominant inheritance pattern
- Family with 2 or more first-degree relatives with ovarian cancer

l. Kings College, United Kingdom
- First-degree relative (mother) with ovarian cancer

m. Diagnosed younger than 45
- Lifetime risk = 25% (RR = 14.2)

n. Diagnosed between 45-54
- Lifetime risk = 9% (RR = 5.2)

o. Diagnosed older than 55
- Lifetime risk = 5% (RR = 3.7)

p. Overall
- Lifetime risk = 8% (RR = 4.5)
- Clomiphene citrate risk: Seattle, Washington hMG risk, Israeli Study.

q. Sonogram
- Low pulsatile index
- Absent diastolic notch
- Centrally located blood vessels

r. CA-125

VI. Screening Approach in Asymptomatic Women

A. Ovarian cancer screening

1. Greek study
   - 2,000 asymptomatic women over 45
   - Pelvic exam and CA-125
   - If normal, followed with repeat CA-125 in 1 year
   - If abnormal, sonogram was obtained
   - For every 2 ovarian cancers detected
2. 8 unaffected women would under laparoscopy or laparotomy.

  - Sonogram did not increase specificity.
3. Did decrease unnecessary diagnostic procedures
4. Similar symptoms in local and advanced disease
   a. Consider:
      - Exam
      - CA-125
      - Sonogram
5. 1,502 asymptomatic women with at least one close relative with ovarian cancer
   - TV and CA-125
   - Odds of 1:3 that abnormal screen would diagnose ovarian cancer at surgery
   - For every 1 cancer diagnosed, 2 women underwent "unnecessary" surgery.
6. CA-125
   - Sensitivity of 85%
   - Specificity of 97%
7. Premenopausal of 95%
8. Postmenopausal of 99%

VII. Initial Cancer Screening Test

A. Cancer screening guidelines – ovarian cancer

- 15,000 die from epithelial ovarian cancer.
- Fourth leading cause of cancer mortality
- 1 in 60 develop ovarian cancer
- 3-5 fold increase with 1 relative
- 50% increase with 2 relatives
- HNPCC syndrome
- Lynch II syndrome
- 50% of stage I ovarian cancers do not have elevated CA-125 levels.
- Sonogram has 3.7% predictive value.

1. 96 surgeries performed for every 4 ovarian cancers diagnosed
   - Doppler?
   - No techniques available
   - Leading cause of death from gynecologic malignancy
2. Studies
   - NCI PLCO
3. No screening vs CA-125, U/S, pelvic examination
4. Completed in 2008
   - European multicenter study
5. No screening vs U/S
6. Completed in 2003
   - The St. Bartholomew trial
7. No screening vs CA-125 and OVXI
8. Completion in 2002

B. Cancer screening guidelines – endometrial cancer

- Not cost-effective or warranted

- Most common genital cancer in 45 and over
- HNPCC

1. TV sonogram or EMB annually starting age 20-35
   - Lynch II

C. Cancer screening guidelines – cervical cancer

- Pap smear

1. Sexually active or age 18 and older, yearly
2. After 3 consecutive normal tests, per discretion

D. Cancer screening guidelines – colorectal cancer

1. 55,000 deaths in 1997
2. 130,000 new cases
3. 3rd leading cause of cancer death among women (behind lung and breast cancer)
4. 6-7% lifetime risk of development
5. $6 billion spent annually
   - *Contemporary Ob-Gyn*, August 1998.
6. Women more likely to have proximal disease
7. 13.3 years average loss of life-expectancy
8. BRCA1 and BRCA2
   - Four-fold increase in colorectal cancer
   - General guidelines
9. HNPCC syndrome
   - Colonoscopy every 1-3 years starting at age 20-35
10. Digital rectal exam with fecal occult blood test
11. After age 50, sigmoidoscopy every 3-5 years
12. Colonoscopy every 10 years
13. BE every 5 years
14. Causes more death than all gynecologic cancers combined
15. HNPCC syndrome
16. Lynch II syndrome

E. Colon cancer screening

- *Centers for Disease Control and Prevention*, 1999.
- 52,000 respondents
- 40% had done home fecal occult test
- 42% had had sigmoidoscopy
- Screening can lower mortality by 33%.
- Cancer becomes curative.
- Dr. Laura Seef, 1999.

VIII. Colorectal Cancer

- *The Minnesota Colon Cancer Control Study*, 1993
- 33% reduction in mortality in annually screened group compared to control
- 6% reduction in biennial group

A. Colon cancer screening

1. American Cancer Society
   - At age 50
2. Yearly fecal occult blood test

3. Sigmoidoscopy every 5 years
   - 10% of respondents had complied with both guideline items.

B. Fecal occult blood testing
- 6 samples on 3 consecutive stools
- Sensitivity of 30-92%
- Specificity of 90-99%

C. Digital rectal examination
- < 10% of CRC is detectable with DRE.
- No role as screening modality
- Done with sigmoidoscopy or TCE every 5-10 years
- No additional benefit with more frequent DRE

D. Flexible sigmoidoscopy
- Lower 1/3 to 1/2 of colon
- Distal 60 cm of colon
- 25% of CRC would be missed by FS alone.

E. Double control barium enema
- Equal to colonoscopy in detecting CRC and polyps greater than 1 cm
- Mortality studies not available

F. Colonoscopy
1. Lesion detected with FS, DCBE or positive FOBT
2. Definitive procedure
3. Universal screening at 55?
   - 9% of CRC occur before 55.
   - 11-35% of adenomas by age 55
4. American Cancer Society
   - Average risk
   - Moderate risk
   - High risk

IX. Lung Cancer

A. 47 million people smoke.
B. 23% of women (27% of men)
C. 1990-1996
- Lung cancer deaths in women rose by 1.4% per year (33 deaths/100,000 females) (Mortality in men fell)

D. High school smokers increased
- 1991: 28% to 1997: 36%

E. Cancer screening guidelines
1. Lung cancer
   - No techniques available
   - Consider chest x-ray with 20 pack-year history.

X. Melanoma

A. Study of 1,258 white patients
- Diagnosed with stage I or II melanoma
- Patients 50 and over

B. 43-53% less likely to report elevation

C. 42-53% less likely to report itching

D. 22-25% less likely to report color change

E. 50-90% more likely to report bleeding or ulceration

F. Cancer screening guidelines

1. Skin cancer
    - Begin at age 20
    - Repeat every 3 years
    - Yearly over age 40

XI. Lifestyle Issues

- Cardiovascular disease
- Diabetes
- Prenatal counseling
- Smoking cessation
- Sexual issues
- Diet
- Exercise

A. Cardiovascular disease

- Hormone discussion
- BP check
- Coronary risk profile

B. Diabetes (type 2)

1. 43% increased risk of developing colorectal cancer
2. Overall history of diabetes
    - 1.6 relative risk of advanced colorectal cancer
    - 2.4 relative risk of fatal colorectal cancer
3. 11-15 year history of diabetes
    - 2.3 relative risk of advanced colorectal cancer
    - 4 relative risk of fatal colorectal cancer
4. > 15 year history of diabetes
    - Risk diminished (related to insulin levels)
5. Screening
    - Family history in parents or siblings
    - Obesity
    - High-risk ethnicity
    - History of glucose intolerance
    - Hypertension or hyperlipidemia
    - History of GDM or macrosomia
6. Screening method
    - Fasting glucose ≥ 126 mg/dl on more than one occasion

C. Preconception care

1. Identification of risks
    - Reproductive, family, medical histories
    - Nutritional status
    - Drug exposures

- Social concerns
- Education
- Based on risks

2. Management
   - Effects on pregnancy
   - Medical conditions
   - Interventions
   - Genetic concerns
   - Immunity
   - Rubella
   - Hepatitis status
3. Exposures
   - Tuberculosis
   - Cytomegalovirus
   - Toxoplasmosis
4. Laboratory tests
5. Nutritional status
   - Folic acid
   - Vitamins
6. Counseling
   - Social, financial and psychological issues
   - Birth spacing
   - Prenatal care
   - Menstrual calendar
7. Social issues
   - 25-35% of pregnant women smoke
   - 73% expose fetuses to alcohol
   - 2.6-28% report use of cocaine
   - 3-27% report use of marijuana
   - 0.3-3.9% report use of opiates
   - 37% physically abused
   - *ACOG Technical Bulletin*, Number 205, June 1995.

D. Smoking cessation

1. Prepare to quit.
   - Reasons
   - Condition
   - Date
2. Expectations
   - Relapse
3. Involve others.
4. Day before quitting
5. Day of quitting
6. Switch brands.
7. Avoid "automatic" smoking.
8. Inconvenient smoking
9. Avoid temptation.
10. Manage cravings.
11. Find new outlets.
12. Manage weight gain.

13. Vigilant
14. Manage cravings.
    - Why
    - Rationalization
    - Weight issues
    - Triggers
    - Rewards
    - Positive thoughts
    - Relaxation
    - Social support
15. Good habit
16. Relapse management
17. Document progress
18. Screening questions
    - Do you or does anyone at home smoke? If yes, about how many cigarettes per day?
    - Do you drink alcoholic beverages? What quantity of alcohol do you consume in one day?
    - Do you take any regularly prescribed medications?
    - Do you use any street or "illicit" drugs? If so, which ones? How often? How much?

E. Sexual behaviors

1. Sexuality
    - History
    - Broad, open-ended questions
    - Sexual dysfunction (Chaperon for examination)
    - Affects 43% of women
2. Sexuality questions
    - Are you sexually active? What is your sexual orientation?
    - Are you in a monogamous relationship?
    - How frequently do you have intercourse or other sexual activity?
    - What method of contraception or family planning do you use? (unless patient has had a hysterectomy or tubal sterilization or is a lesbian)
    - Do you have any problems or concerns about sexual issues?
3. Sexuality issues
    a. Causes
        - Lack of communication
        - Lack of nurturing environment
        - Lack of understanding about adequate response
        - Ineffective techniques for stimulation
        - Discomfort
        - Apprehension regarding pain, pregnancy, infection, or other concerns
        - History of sexual abuse
4. Sexual behaviors

a. Strategy for management
    - Identify stage of sexual dysfunction
    - Arousal issues
    - Orgasm issues
b. Vaginismus/dyspareunia
    - Menopause
    - Emotional issues

F. Diet

1. General nutrition
2. Referral if necessary
3. BMI (weight [kg]/height[m^2]
    - 20% above or below (normal = 22)
4. Central obesity
    - Waist:hip ratio (greater than 0.76 increases risk)
5. Greater relative risk of death from cancer or cardiovascular disease in women age 55-69
6. Food pyramid
    - Fat should be no more than 20-30% of total calories in an adult diet.
    - Salt should not exceed 6 g per day.
    - Fiber should equal 20-30 g per day
    - Calcium should equal 1,500 mg per day for the postmenopausal patient.
    - Folic acid should equal 0.4 mg per day.
7. Committee on Diet and Health
    a. Fat should be 30% or less of calories.
        - Saturated fatty acids should be less than 10% of calories.
        - Cholesterol should be less than 300 mg daily.
    b. 5 or more servings of fruits and vegetables
        - 6 or more servings of starches and other complex carbohydrates
    c. Protein should be less than 1.6 g/kg of body weight.
    d. Alcoholic beverages should be less than 1 oz of absolute alcohol per day.
    e. Sodium should be limited to 6 g or less per day.
    f. Vitamin-mineral supplement should not exceed recommended dietary intake.

G. Exercise

1. Consult physician prior to initiating.
2. Regular physical activity
    - 30 min per day
3. High-impact not necessary
4. Measure heart rate
    - Target heart rate = (220 - age) x 0.75
5. Osteoporosis (exercise with calcium)
6. Assess emotional state.