Cancer Screening in the United States, 2011
A Review of Current American Cancer Society Guidelines and Issues in Cancer Screening
Kathy Gray, DNP, CRNP, FNP-BC

OBJECTIVES

- Cancer Screenings and Guidelines related to:
  - Breast
  - Cervical
  - CRC
  - Prostate
  - Endometrial
  - Lung
  - Ovarian

Introduction

- 2010 marked the 30th anniversary of the American Cancer Society's (ACS) first evidence-based review of cancer screenings
- Process of systematic review led by Dr. David Eddy, early pioneer
- Question: screenings and the asymptomatic adult

Goals of the Report

- Summary of the current ACS cancer screening guidelines
- Guidance related to early detection tests used but not always recommended
- Recent data on adult cancer screening rates and trends
- Role of health professionals and utilization of tests
- Patient Protection and Affordable Care Act and access to cancer screening tests

Breast Cancer

Breast Cancer Screening

- Most common cause of cancer diagnosed in US women
- Guidelines for high risk women
  - Mammogram and MRI
- Average-risk women
  - Clinical breast exam (CBE) and raise awareness by age 20
  - Annual mammogram beginning at age 40
Breast Cancer Screening

- CBE
  - Between the ages of 20-39 every 3 years; annually after 40 years
  - Discuss breast health
  - Family history of breast and ovarian cancer in first and second-degree relatives on maternal and paternal side
  - Identifies woman who are candidates for screening before age 40 and who need referral for genetic counseling
  - 1.4 million warrant referral/<2% tested for high-risk mutations

- Mammogram
  - Benefits: reduction in risk of dying, early detection leads to less aggressive surgery and adjunct treatment
  - Limitations: will not detect all cancers, some breast cancers may still have poor prognosis, false-positives, may need additional testing and/or biopsy
  - As long as a woman is in good health and a candidate for breast cancer treatment, screening is recommended

Breast Cancer Screening

- BRCA mutation and other high risk genetic syndromes or treated with chest radiation for Hodgkin's
  - Annual screening mammography and MRI starting at age 30 with known mutation aid
  - Unknown mutation and first-degree relative with a BRCA mutation or woman with 20-25% or greater lifetime risk of breast cancer based on "Gail" model
  - Other models available to estimate risk by analyzing the family history of patients with first or second-degree relatives with breast cancer but did not have genetic testing (Claus, Tyrer-Cuzick, BRCAPRO, Breast and Ovarian Analysis of Disease Incidence and Carrier Estimation Algorithm models).
  - http://caonline.amcancersoc.org/cgi/data/57/2/75/DC1/1

Cervical Cancer Screening

- Guidelines based on age, screening history, other risk factors, choice of screening tests
- Initiate screening 3 years after first vaginal intercourse, no later than age 21
- Until age 30, woman of average risk should receive either annual screening with conventional cervical cytology smears, or biennial screening using liquid-based cytology
- After age 30, if 3 consecutive technically satisfactory Papanicolaou (Pap) tests with normal/negative results may choose to either undergo screening every 2 to 3 years using either method, or undergo screening every 3 years with the combination of HPV DNA testing using either method
Cervical Cancer Screening

- HPV DNA testing
  - Inform woman that HPV infection usually is not detectable or harmful
  - Almost everyone who has had sexual intercourse has been exposed to HPV
  - HPV infection is very common
  - A positive HPV test is a sexually acquired infection and not a STI, does not indicate cancer, the majority of woman with an HPV infection will not develop advanced cervical neoplasia

Screen until age 70 in women in good health and with an intact cervix

After age 70 may elect to stop screening if all screenings in the last 10 years were normal prior to age 70, and if there is documentation that the 3 most recent Pap tests were technically satisfactory and interpreted as normal

Cervical Cancer Screening

- History of cervical cancer or in utero exposure to diethylstilbestrol (DES)
  - Follow same guidelines as average-risk

HIV positive, immunocompromised

- Test twice during the first year after diagnosis and annually thereafter
- Note: no recommended age at which to stop screening for above women

Screening is not indicated for women who have undergone removal of the cervix or the uterus for benign gynecological disease

With pathology and TAH, screen until there is a 10 year history of no abnormal/positive cytology, and that the 3 most recent consecutive tests were technically satisfactory and interpreted as normal

Cervical Cancer Screening

- HPV vaccination
  - Females ages 11 to 12 years with catch up in ages 13 to 18 years
  - Insufficient data to recommend for or against vaccination of females ages 19 to 26 years

Cervical Cancer Screening

- Screening for CRC

CRC Screening for CRC
### CRC

- Colonoscopy is preferred
- Shared-decision making
- Access, insurance coverage

### CRC

- Average-risk adult beginning screening age 50 years

<table>
<thead>
<tr>
<th>Screening Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. gFOBT or FIT, annual</td>
</tr>
<tr>
<td>2. sDNA, uncertain screening interval</td>
</tr>
<tr>
<td>3. FSIG every 5 years</td>
</tr>
<tr>
<td>4. CSPY every 10 years</td>
</tr>
<tr>
<td>5. DCBE every 5 years</td>
</tr>
<tr>
<td>6. CT colonography every 5 years</td>
</tr>
</tbody>
</table>

### CRC

- Higher risk
- 1. history of adenomatous polyps
- 2. history of CRC surgery
- 3. family history of CRC or adenomas dx in first-degree relative, based on age at dx
- 4. Hx IBD
- 5. hereditary syndromes: nonpolyposis or adenomatous polyposis

### CRC

- Study outcomes and concerns
  - RCT; n=170,000, prospective over 11 years, ages 55-64, United Kingdom
  - One-time screening w FSIG/usual care
  - Statistically significant reduction in CRC incidence (-23%) and mortality (-31%)

CRC
- Distal colon lesions vs. proximal colon
- Nearly all of the incidence reduction was for lesions in the distal colon
- Only 2% reduction in proximal colon
- Research question: Are these data sufficient to conclude that endoscopy, (FSIG and CSPY) are only effective as screening tools for advanced neoplasia in the distal colon?

Other issues
- Type of lesion: flat vs. pedunculated (stalk)
- Technical challenge of examining the proximal colon and failure to reach the cecum
- Quality assurance
- Ongoing studies to justify costs of CSPY vs. other screening methods

Prostate Screening
Prostate Cancer Screening: early detection

Prostate
- Asymptomatic men who have less than a 10-year life expectancy
  - Should not be offered screening
- Men with at least a 10 year life expectancy
  - Receive information regarding the benefits, risks, uncertainties w screening
  - DRE and serum PSA

Prostate
- Average risk begin at age 50 yrs.
- Higher risk begin at age 45 yrs.
  - African American, brother or father dx before age 65 yrs.
- Appreciably higher risk
  - Multiple family members dx before age 65 yrs.

Prostate
- Screening recommended w PSA w or without the DRE
  - PSA <2.5ng/mL, screen every 2 years
  - PSA >2.5ng/mL, yearly screening
  - PSA >4.0ng/mL refer
  - PSA 2.5-4.0nh/mL risk assessment before referral
Prostate

- Issues
  - Evidence insufficient for regular screening, historically
  - Some prostate CA not life-threatening
  - Treatment associated w significant adverse side effects
  - RCT outcomes have not resolved uncertainties regarding the value of early screening

- Two studies/conflicting outcomes
- Observational/quasi-experimental
  - 1. 7 yrs., no reduction in prostate cancer deaths in the group invited to screen
  - 2. 9 yrs., statistical significant 20% reduction in prostate cancer deaths
- Both trial investigators agreed
- Considerable human costs associated with preventing a death from prostate CA

Prostate, Lung, Colorectal and Ovarian Cancer Screening
European Randomized Study of Screening for Prostate Cancer

Prostate

- A third RCT
  - 20,000 Swedish men, 50-74 years
  - PSA screening q 2 years vs. no screening
  - 14 year follow-up
  - 44% fewer prostate cancer deaths in the treatment group
  - Note at 14 yrs., control and screened groups had same mortality rate

- Informed and shared decision-making
- Evidence about the risks and harms with screening and treatment
- Anxiety, PSA imprecision
- 2/3 men w PSA > 4 no cancer but will have undergone biopsy
- Overdiagnosis Issue: detection of cancer during screening that would not likely have become known and would never be life-threatening.


Prostate

- Prostate CA slow growing
- Informed decision is inconsistently implemented in practice
- 40% of cancers found w screening would never have caused harm
- Once detected leads to life-altering complications and side effects
- ED, difficulties with elimination

Endometrial Cancer Screening
Endometrial
- Insufficient evidence to recommend screening for average risk women
- Women at the time of menopause
  - Advised to report and unexpected bleeding or spotting to their provider
- High risk women: genetic mutation
  - begin annual screening at age 35
- Endometrial biopsy is still the standard

Lung Cancer

Lung Cancer Screening

Ovarian Cancer

Ovarian Cancer Screening

Ovarian Cancer
- Incidence is low/most lethal gyn CA
- 5-year survival rate < 50%
- Poor prognosis when symptomatic
- Researchers: identify ways to dx symptoms earlier
- No effective screening for early detection
- No recommendations for screening asymptomatic women of average risk

Lung Cancer
- Screening not recommended in asymptomatic individuals
- Heavy smokers or w occupational exposures may decide with provider to undergo testing
- Spiral CT
- Anxiety due to nondefinitive findings
- Prospective trials underway in US/Europe

Ovarian Cancer
- Screening/diagnostic methods
  - Pelvic exam, CA125, TVU
  - Pelvic exam: poor sensitivity/specificity
- Symptoms: observational studies
  - self-reported symptoms study among women w ovarian CA
  - Abdominal, pelvic and back pain, bloating and swelling, urinary symptoms
### Ovarian

- Retrospective study: noted patients reported symptoms early in the disease
  - Linked Medicare claims data with patients in their study
  - Codes for 4 symptoms
    - Abdominal pain, swelling, GI symptoms and pelvic pain
    - 1985 women with ovarian cancer
    - Looked at data during 3-36 months prior to the diagnosis
  - Results: symptoms were reported 6 months prior to the diagnosis
  - Consensus: women with daily symptoms lasting > a few weeks should see their provider
  - Bloating, pelvic/abdominal pain, difficulty eating or feeling full quickly, urinary symptoms
  - Symptoms still strongly associated with late stage disease and majority of women will not have ovarian cancer
  - Smith, et al. (2005)

### Ovarian

- A word about CA 125
  - Used for surveillance post dx and tx
  - Use as diagnostic tool/limited S/S

### Ovarian

- NIH, 1994 concluded
  - Women with 2 or more first-degree relatives dx with ovarian cancer should be offered counseling
  - 3% risk of ovarian cancer
  - Women with known hereditary ovarian cancer syndrome BRCA1, BRCA2, should receive annual rectovaginal pelvic exam, CA125, TVU and prophylactic oophorectomy after age 35 or until childbearing is complete

### Impact of Patient Protection and Affordable Care Act

- Insurance plans required to cover preventive services with no out of pocket costs
- Breast, cervical and CRC screening
- Medicare now pays for a yearly well-visit and screenings

### Screening

- Relative to:
- Race, ethnicity, insurance, educational level, not recommended by provider at time of visit, reactive vs. proactive model of health care
Summary

- Screen at all patient encounters
- Whether acute or yearly exam
- Set up alerts in the EMR/paper chart
- Know the history, guidelines, explain to patients, set up the screenings, referrals
- “sick-care” model vs. prevention model of healthcare delivery

References


References


Journal Article


Conference Evaluation

Online evaluations at: www.pacnp.org/conference