

Exam 3 Review

Cancer

Genetics and Risk factors - 3-

frequency of genetic changes can be increased by exposure to mutagens.

Three major types of epigenetic processes:

Methylation- (CH₃) aberrant methylation can lead to silencing of tumor suppressor genes.

Histone Modification- (alterations in the chromatid) can result in gene silencing

Micro-ribonucleic acid- (miRNA's) -small RNA molecules that can target gene expression post -transcriptionally. Act like volume control lever to modulate the production of defined proteins in cells. Maybe linked to carcinogens because they *act as either oncogenes, or tumor suppressor genes.*

Tobacco Use:

carcinogenic; most important cause of cancer

↑ risk of lung cancer by 10; in developed countries responsible for 30% of all cancer deaths

Risk correlates with duration of smoking and # of cigarettes a day

Tobacco smoking is responsible for *small cell and squamous cell carcinoma* of the lungs

Dietary sources of carcinogens:

cooking fat, meat, protein, alkaloids, and mold byproducts

low amounts of vitamin D

excess amounts of alcohol

low amounts of fiber are linked with colorectal cancer

Obesity:

hypothesis states that observed increase in incidence of such cancers, breast, endometrium, colon, liver, kidneys, and esophagus. **Page 264**

Alcohol:

Associated with cirrhosis of liver

Heavy alcohol use combined with cigarette smoke increases the incidence of *mouth, larynx, pharynx and esophageal cancers*

Tumors, Metastatic, and types (sarcoma etc.) - 5

Metastasis- spread of cancer from original site to distant organs.

Types P223

Carcinoma

Tumors of epithelial tissues (*this is the metastasis*)

Adenocarcinoma

Tumors from glandular or ductal tissues

Sarcoma

Tumors of mesenchyme tissues; includes bones, muscle and connective tissue

Lymphomas

tumors in the lymphatic tissue

Leukemia's

cancers of blood forming cells

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Systems based (Hepatic, Lung, Neuro, Reproductive, Blood forming, etc.) - 5

7 Warning Signs

- Change in bowel or bladder habits- could be colorectal or stomach cancer
- A sore that doesn't heal- could be esophageal cancer
- Unusual bleeding or discharge-
- Thickening or lump in the breast or elsewhere- breast cancer (adenocarcinoma)
- Indigestion or difficulty swallowing- could be cancer of esophageal or stomach, throat, larynx
- Obvious change in a wart or mole- could be lymphoma?
- Nagging cough or hoarseness- cancer of the throat, or larynx?

Pediatric Cancers - 2

most pediatric cancers arise from the mesodermal germ layer

Common Childhood Cancers:

leukemias *most malignant*; 1/3 childhood deaths

sarcomas

embryonic tumors; *diagnosed early in life by age 5* (neuroblastoma, Wilms Tumor)

Brain tumors are the second most common group. Causes of Cancer in Children are largely unknown

Genetic Factors:

fragility

translocations

amplifications

deletions

aneuploidies

Environmental Factors

Prenatal exposure to drugs or ionizing radiation

Diethylstilbestrol (DES) prescribed in the 1970's to prevent spontaneous miscarriage

Viruses like Epstein Barr which is linked to Burkitt Lymphoma's

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Pulmonary – 22 questions

COPD/Emphysema/Asthma-3

Chronic Obstructive Pulmonary Disease: Group of respiratory disorders characterized by chronic and recurrent obstruction of airflow

Asthma: Chronic inflammatory disorder of the airways resulting in reversible bronchoconstriction and air hunger in response to triggers from a variety of sources

Low birth weight

Obese common causes

SMOKING

Emphysema- Abnormal, permanent enlargement of the acinus accompanied by destruction of alveolar walls

°Recurrent inflammation °use of accessory muscles

° Damage to epithelial lining of alveoli °barrel chested (think pink)

°Irreversible enlargement of airspaces distal to terminal bronchioles

Upper Respiratory structures -2

- **Upper Airways-** *Upper Respiratory Infections occur here: Chronic Bronchitis, Sinusitis_*

Structures:

Nose

Mouth

Pharynx

Larynx

Functions:

Allows airflow in and out of the lungs

Warms, humidifies and filters inspired air

Infection - 4

Bronchiectasis caused by recurrent inflammation or infection from stagnated sputum

Bronchiolitis Inflammatory obstruction of bronchioles caused by infection

pneumonia is a result of infection of the alveoli, caused by bacteria, virus, fungi, protozoa

Hemoptysis indicates localized infection (this is spitting up blood)

Tuberculosis Type of pneumonia caused by *Mycobacterium tuberculosis*