LIFE SPAN DEVELOPMENT

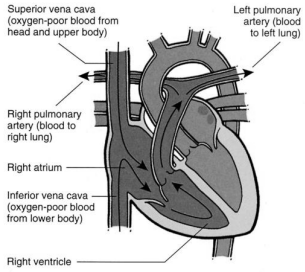
2006 Edition

Life Span Development

- The purpose of studying life span development is to become aware of the physiological changes occurring during the life span.
- Disease processes (pathophysiology) are different in different age groups.
- *Vital Signs vary by age group*
- ***Drug dosages vary by age group!***

INFANCY

- 28 days to one year of age
- Neonate
  - younger than 28 days
- Newborn
  - first few hours of life

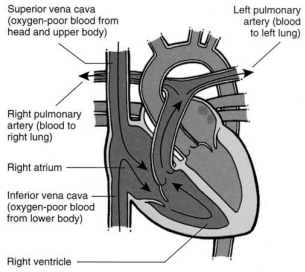


Newly Born

- Ductus Venosus: Connects umbilical vein to the inferior vena cava
- Foramen Ovale: “Hole” between intratrial septum
- Ductus Arteriosus: Connects aorta and the pulmonary artery

Newly Born Changes

- Ductus Venosus becomes Ligamentum Venosum
- Foramen Ovale closes and becomes Foramen Ovalis
- Ductus Arteriosus becomes Ligamentum Arteriosum
- Ligamentum Teres: Fibrous remains of the umbilical vein
- ***Clinical implications?***



INFANCY

- Heart Rate
  - 100-200 first 30 minutes of life
  - 120 beats per minute by one year of age
- Respirations
  - 40 to 60 breaths per minute at birth
  - 25 per minute by one year of age
- BP
  - systolic BP increases from 70 at birth to 90

INFANCY

- Nose breathers
- Airways less stable
- Tracheal bifurcation higher
- Accessory muscles underdeveloped
- Respirations increase during infections

INFANCY

- Infants head comprises 25% total weight
- Fontanelles
  - posterior closes at 3 months
  - anterior between 9 and 18 months
- Urine content almost 100% water
  - Why is this important?

INFANCY-REFLEXES

- MORO
  - sudden extension and abduction of extremities
- PALMAR
  - ?
- SUCKING and ROOTING
  - In response to facial stimulation the infant makes sucking movements and turns head to the side of the stimulus

INFANCY

- Temperament is evident
- Different types of cries
- Socialization with parents occurs
  - Separation reactions evident

TODDLERS AND PRESCHOOLERS

- Toddlers
  - 12 to 36 months
- Preschoolers
  - 3 to 5 years of age

TODDLERS AND PRESCHOOLERS

- Heart rate
  - 80 - 120 beats/min
- Respiration
  - 20 - 30 breaths per minute
- Blood pressure
  - Toddlers : 70 to 100 mm Hg systolic
  - Preschool: 80 to 100 mm Hg systolic

TODDLERS AND PRESCHOOLERS

- Visual acuity 20/30
- Organs functionally mature
- Fine motor skills develop
- Increased susceptibilty to minor infections
- Basic language skills mastered
- Recognize gender differences

SCHOOL-AGE CHILDREN

- 6 TO 12 YEARS OF AGE
- Vital signs
  - Heart rate: 70 to 110 beats per minute
  - Respirations: 20-30 breaths per minute
  - Blood pressure 80-120 mm HG systolic

TODDLERS AND PRESCHOOLERS

- Reproductive system activates -puberty
- Self esteem develops-based on external characteristics and popularity with peers
- Develops moral discrimination

ADOLESCENTS

- 13 TO 18 YEARS OF AGE
- Vitals signs similar to adults
- Blood chemistries similar to adults
- Development of secondary sexual characteristics
- Bone growth complete with a rapid 2-3 year growth spurt

ADOLESCENTS

- Development of personal identity
- Drug use begins
- Depression and suicide more common among this group than in any other age group
- Eating disorders are common

LATE ADULTHOOD OVER 60 YEARS

- Blood vessels thicken-PVR increases
- Blood flow to organs decreases
- Cardiomegaly
- Fibrous tissue develops in SA node
- Dysrythmias occur
- Blood volume and platelet counts decline
- RBC's and iron levels decrease

LATE ADULTHOOD OVER 60 YEARS

- Lung capacity diminishes
- Elasticity of the diaphragm decreases
- Alveolar diffusion decreases (pollutants)
- Coughing becomes ineffective due to weakening of the chest wall

LATE ADULTHOOD OVER 60 YEARS

- Peristalsis decreases
- GI secretions decrease
- Vitamin and mineral deficiencies develop
- Some taste buds are lost
- Olfactory sense diminishes

LATE ADULTHOOD OVER 60 YEARS

- Pain perception decreases
- Visual acuity diminishes
- Hearing diminishes
- Reaction time declines

LATE ADULTHOOD OVER 60 YEARS

- Glucose metabolism and insulin production decrease
- 50% of nephrons in kidney are lost
- Ovaries atrophy
- Pituitary gland 20% less effective

Scenario

A 50 YO male is found by his wife lying face down in bed. She cannot wake him up.