IMPACT OF H&N CANCER AND TREATMENT ON THE ENDOCRINE SYSTEM

RICHARD M. HIRATA, MD
1. GENERAL EFFECTS OF HEAD & NECK CANCER & TREATMENT

A. TRAUMATIC TO BODY AND SYSTEM
   1. DEFENDS AGAINST BLOOD AND FLUID LOSS
      a. Clotting factors
      b. Vasopressin/ADH
   2. PROTECTS BY PROVIDING ENERGY TO MUSCLES, HEART, AND BRAIN
      a. Glucose
GENERAL EFFECTS OF HEAD & NECK CANCER & TREATMENT

ENDOCRINE ORGANS AFFECTED

- Pituitary gland (ACTH, TSH, Vasopressin/ADH, GH, FSH, LH, Prolactin, Oxytocin, etc)
- Thyroid-Thyroxine (T4)
- Adrenal-Cortisol, Aldosterone, Epinephrine/Norepinephrine
- Parathyroid
- Pancreas-Insulin, Glucagon
- Ovary, Testis
  - Usually functions by feedback mechanism
  - Sex hormone functions diminish
  - Thyroid, adrenal, ADH, glucagon hormones increase
General effects usually temporary

- Less essential hormone (sex, etc) function returns after trauma is over
- Long term corticosteroid use—may be necessary but
  - May cause atrophy of adrenal gland—often requires large doses of cortisol during operations and recovery
  - There are long term adverse effects
    - Physical changes
    - Osteoporosis
    - Easy bruisability and skin thinning
    - Alteration in immunity
    - Chemical diabetes
DIRECT EFFECTS OF TREATMENT OF HEAD & NECK CANCERS

- ADVERSE EFFECTS DIMINISH OVER TIME BUT MAY NOT NECESSARILY DISAPPEAR
- SURGICAL TREATMENT may create significant functional and cosmetic alterations
  - Breathing
  - Chewing and swallowing
  - Speech and voicing
  - Hypothyroidism if thyroid is removed
  - Hypoparathyroidism/hypocalcemia w/thyroid surgery

1/16/2006 PHOTOS OR DIAGRAMS
DIRECT EFFECTS OF TREATMENT OF HEAD & NECK CANCER

RADIATION THERAPY MAY CREATE SIGNIFICANT ALTERATION IN FUNCTION

- Dry mouth w/decreased salivation
- Difficulty swallowing
- Increase risk of dental caries
- Increase cicatrix (hardening of tissues of the head and neck) and decrease mobility of neck
- Increase risk of hypothyroidism
- CHEMO/RADIATION RX may amplify the alterations in function
DIRECT EFFECTS OF H & N CANCER AND RX ON ENDOCRINE ORGANS OF H & N

ADVERSE EFFECTS INCREASE W/ADVANCED STAGE OF PRIMARY CANCER

- THYROID- hypothyroidism, cancer?
  - Surgery-removal for thyroid tumor, removal of thyroid necessary in removal of a cancer of the head and neck may cause hypothyroidism
  - Radiation therapy- hypothyroidism and ?cancer
  - Idiopathic
DIRECT EFFECTS OF H & N CANCER AND RX ON ENDOCRINE ORGANS OF THE H & N

- **PARATHYROID-Hypoparathyroidism,** temporary or permanent. May need to take calcium and Vitamin D
  - Thyroid surgery-more likely w/total thyroidectomy as the treatment
  - Parathyroid surgery
  - Idiopathic
IMPACT OF H&N CANCER AND TREATMENT ON THE ENDOCRINE SYSTEM
Cancer is traumatic to the body
Cancer treatment is traumatic
Body defends its integrity
Blood volume, vital organs, energy
Endocrine network sustains
General adverse effects temporary
Direct adverse effects improve
Thyroid/Parathyroid
H&N CANCER AND RX AND ENDOCRINE SYSTEM

- QUESTIONS
- COMMENTS
- DISCUSSION