THE ROLE OF RADIOTHERAPY AND CHEMOTHERAPY IN PALLIATIVE CARE
Top Ten Cancers in Public Hospital KNH 2008 (CTC)
Multidisciplinary Approach

- Radiotherapist
- Radiologist
- Medical Oncologist
PALLIATIVE CARE/ONCOLOGY

THE ACTIVE TOTAL CARE OF PATIENTS AND THEIR FAMILIES BY A MULTI-PROFESSIONAL TEAM WHEN THE PATIENTS DISEASE IS NO LONGER RESPONSIVE TO CURATIVE TREATMENT
THE PALLIATIVE CARE APPROACH

THE PALLIATIVE CARE APPROACH AIMS TO PROMOTE BOTH PHYSICAL AND PSYCHOLOGICAL WELL BEING

IT IS A VITAL AND INTEGRAL PART OF ALL CLINICAL PRACTICE WHATEVER THE ILLNESS

IT IS BASED ON A KNOWLEDGE AND PRACTICE OF PALLIATIVE CARE PRINCIPLES

SHOULD BE PRACTICED BY ALL HEALTH CARE PROFESSIONALS
PALLIATIVE CARE SERVICES

- PRIMARY CARE TEAMS
- HOSPITALS
- HOSPICES
THE MULTIPROFESSIONAL TEAM

• ONE OR MORE DOCTORS AT CONSULTANT LEVEL
• NURSING STAFF WITH INTRODUCTORY TRAINING IN HOSPICE AND PALLIATIVE CARE PHILOSOPHY AND PRACTICES. NURSES ABOVE BASIC GRADE SHOULD HOLD A POST REGISTRATION DIPLOMA OR HIGHER AWARD IN PALLIATIVE MEDICINE
• ACCESS TO BASIC ANTI-CANCER THERAPY....CHEMOTHERAPY, RADIOTHERAPY, IMMUNOTHERAPY ETC
• ACCESS TO PHYSIOTHERAPY AND OCCUPATIONAL THERAPY
• AVAILABILITY OF A RECOGNISED MINISTER OF RELIGION OR EQUIVALENT
• ACCESS TO PSYCHO-SOCIAL SUPPORT AND COUNSELLING
• ACCESS TO APPROPRIATE COMPLIMENTARY THERAPY
• +/-ACCESS TO FAMILY AND FRIENDS IN APPROPRIATE ENVIRONMENT
INTERVENTIONS IN PALLIATIVE CARE
PALLIATIVE CARE INTERVENTIONS

REASONS :-

Rx

• SYMPTOM CONTROL
• PROLONGATION OF LIVE
RADIOTHERAPY

- PAIN CONTROL
- HEMOSTSIS
- DECOMPESSION
- DEBULKING
CHEMOTHERAPY

• TUMOSTASIS
• DECOMPRESSION
• ‘BLIND HIT TINT”--MCUP
MANAGEMENT OF ACUTE DYSPNEOEA

- ACUTE MANAGEMENT
  - Reassure
  - Oxygen
  - Diamorphine / Morphine elixir
  - Sedation
    - Diazepam \ Midazolam
  - High dose steroids
    - Dexamethasone 16 mg (po. iv.)

- FURTHER MANAGEMENT
  - Palliative treatment
    - Radiotherapy
    - Chemotherapy
    - Laser treatment
INTESTINAL OBSTRUCTION

- COMMON CAUSES
  - Gynaecological cancers
  - Bowel cancers
  - Adhesions
    - PRESENTATION
  - Nausea / Vomiting
  - Abdominal distension
  - Abdominal pain
  - Constipation

- ASSESSMENT
  - HISTORY
  - EXAMINATION
    - Abdominal
    - Rectal
  - ? X- Rays
    - MANAGEMENT
  - Surgery (if appropriate)
  - Medical
Definition of Radiotherapy

- Use of high energy ionizing radiation (x/gamma rays) to treat or to kill cancer cells

Uses of radiotherapy

- Curative
- Palliative
- Control of growth of recurring non-cancer growth
Electromagnetic radiation

The Electromagnetic Spectrum

- Gamma ray
- X-ray
- Ultraviolet
- Visible
- Infrared
- Microwave
- Radio

High energy

Low energy
How Radiation leads to damage in tissue (Radiobiological effects)

Radiation → Electrical effects (ionization) → Physical & Chemical Changes → Damage to DNA

Damage to DNA leads to:

- Cell death → Early effects
- Cell transformation → Cancer → Hereditary defects
Cell Options

- Division (cell cycle)
- Normal metabolic activity (G0)
- Cell death (apoptosis)
Epidermal growth factor receptor

Antiangiogenesis

HER-2/neu

Estrogen receptor/Progesterone receptor

VEGF
Mechanism of Action

• X-rays and gamma-rays ⇒ production of fast electrons ⇒ most of the energy absorbed by H₂O ⇒ free radicals ⇒ DNA damage
  – DNA is the target for mitotic death: Double-stranded break

• Mechanisms of radiation therapy-related cell death
  – Prevention of mitosis
  – Apoptosis
Tumor Control Probability and RT Dose

Initial port around gross tumor
Reduced volume
Covers gross tumor with some margin. Usually will carry to 7000 cGy total dose.

(at 5 weeks, 5000 cGy)

"BOOST" portal
For very infiltrating tumor or large nodes to be treated by external irradiation only, additional 500-1000 cGy to 7500-8000 cGy total dose.

(at 6 or 7 weeks)
Types of radiation

• External beam
• Internal i.e brachytherapy

Duration of treatment
• Single shot 1 day
• 10 fractions 10 days (2 weeks)
• 5 fractions 5 days (1 week)
Benefits of Low-Dose-Rate Remote After-loading Intracavitary Brachytherapy

- Increased treatment control
- Radiation protection
- Patient preference
- New treatment sites
- Outpatient treatment (high-dose-rate)
Theratron: Cobalt-60

The Theratron® Equinox™ External Beam Therapy System meets the clinical and productivity demands of radiation oncology departments worldwide – increasing treatment flexibility and efficiency.

(Phot: MDS Nordion)
LDR Cesium
HDR- Brachytherapy
Selectron Low-Dose-Rate Intracavitary Brachytherapy
X-Ray Simulator
INDICATION OF PALLIATIVE RADIOTHERAPY

- PAIN RELIEF
- NEUROLOGICAL DEFICIT
- RELIEF OF PRESSURE SYMPTOMS
- CONTROL OF FUNGATING AND ULCERATING OF METASTASIS OR PRIMARY SKIN TUMORS
- HEMOSTASIS
- PROPYLAXIS OF IMPENDING SYMPTOMS
- DURABLE LOCAL CONTROL
PAIN RELIEF

- Metastatic bone pains
- Painful lymphadenopathy
- Pain due to soft tissue infiltration by cancer
- Neuropathic pain due to nerve compression/Infiltration
Osteosarcoma
NEUROLOGICAL DEFICIT

- Brain metastasis
- Spinal cord compression
SPINAL CORD COMPRESSION

Definition: Involvement of the spinal cord by tumour either directly or indirectly resulting in neurological damage

COMMON CAUSES
- Breast cancer
- Prostate cancer
- Bronchial cancer
- Lymphomas
- Renal cancer

PRESENTATION
- Weakness
  - Lower Limbs
  - Upper Limbs
- Sphincter dysfunction
- Bladder
- Rectal

Sensory impairment
  “Numbness”
  “Pins and Needles”
**MANAGEMENT OF SPINAL CORD COMPRESSION**

* Depends on the patient's condition

**TREATMENT**

1) High dose steroids
2) Surgery
3) Decompression - Stabilisation
4) Radiotherapy
5) No treatment

**DIAGNOSIS**

- History
- Pain X-Rays - Stabilisation
- MRI scan - Small cell lung cancer
- CT scan - Lymphomas
- Bone scan
Relief of pressure symptoms

- Thoracic tumors; superior vena cava obstruction; upper airway obstruction
- Dysphagia, collapse of lungs
- Increase intracranial pressure; brain metastasis
- Retroperitoneal tumors; Hydronephrosis
- Pelvic tumor tumors; Urinary retention; Intestinal obstruction
SCALP NODULES
AFTER RADIOTHERAPY
AFTER RADIOTHERAPY
Hemostasis

• Hemostasis
• Bleeding of anorectal and gynecological cancer
• Bleeding skin cancer
Propylaxis of impending symptoms

- Prevent cord compression
- Prevent pathological fracture
- Prevent impeding pressure symptoms
Durable local control

• Advanced locoregional disease beyond cure without extensive metastasis; Advanced Head/Neck; Advanced ca lung; Advanced GI and GU cancer
Side effects of palliative treatment

• Fatigue
• Nausea
• Vomiting
• Somnolence
• Tissue fibrosis
PALLIATIVE CHEMOTHERAPY

• Palliative chemotherapy: treatment where the impact of intervention is not sufficient to result in a major survival advantage, but doesn’t affect improvement regarding tumor-related symptoms.

• The palliative/toxicity trade off from treatment clearly favors symptom relief.
Contd…. 

• Chemotherapy was once regarded as an often futile and always dangerous kind of therapy by both the public and many palliative physicians and nurses.
ROUTES OF ADMINISTRATION

• Intravenous route
• Intrathecal route
• Oral route
REGIME

- Combined therapy
- Monotherapy
Palliative chemotherapy

- MBC is considered an incurable disease.
- Majority of patients with MBC do not survive beyond 5 years after diagnosis.
- Treatment usually is palliative with systemic therapy including
  - chemotherapy
  - hormonal treatment
  - biologic therapy (e.g. Trastuzumab, bevacizumab etc)
- Pain control
POTENTIAL HARM

• SYSTEMIC
  – Dizziness, nausea, vomiting
  – Fatigue/malaise
  – Myelosuppression
  – Tumour lysis syndrome
  – Allergic reactions
LOCAL

• Scalp – alopecia
• Oral cavity
  – Mucositis
  – Odynopagia
• Abdomen/pelvis – diarrhoea
• Nails – descoloration
DECIDING PALLIATIVE CHEMOTHERAPY

• Careful balance between benefits and potential harm, while considering patient’s factors and other alternatives.
POTENTIAL BENEFITS

• Symptoms relief
• Improved quality of life
• Possible extended survival
POTENTIAL HARM

• Side effects
• Hospitalisation
• Multiple visits to treatment centre
• Burden to care-givers
• Financial burden
COMMENCEMENT

(1) Indication and aim

(2) Choice between different anticancer treatments and effectiveness of different treatments

(3) Fitness for chemotherapy
   - Performance status
   - Medical illness

(4) Consideration for chemotherapy regimes based on:
(a) Effectiveness of regimes based on response rate: survival benefit
(b) Admission convenience
   - outpatient: inpatient
   - oral: bolus
(c) Side effects
(d) costing
MONITORING

• Assess the effectiveness regularly
  – Symptom relief, improved quality of life
  – Objective measurement
    • Clinical
    • Radiological
    • Serological markers
  – Side effects
  – Psychosocial burden to patients
  – Need for dose-modification to reduce side effects.
DISCONTINUATION

• Significant side effects or psychosocial burden to the patient

• Ineffective:
  • Options
  • Best supportive treatment
  • Other treatment modalities
  • Further chemotherapy

• Explain potential benefits, risks and patient expectations
• Adequate information and good communication are essential
IDEAL CHEMOTHERAPY REGIME

• High efficacy
• Minimal toxicity
• Convenient administration
• Less costing
CHEMOTHERAPY-PALLIATIVE CANCERS

- Breast cancers
- Multiple myeloma
- Lymphomas
- Ca prostate
- Cancer lung
  - Small cell lung cancer
- Bladder cancer
- Ovarian cancer
- Testicular cancer