

## WHAT ARE PAEDIATRIC CANCERS



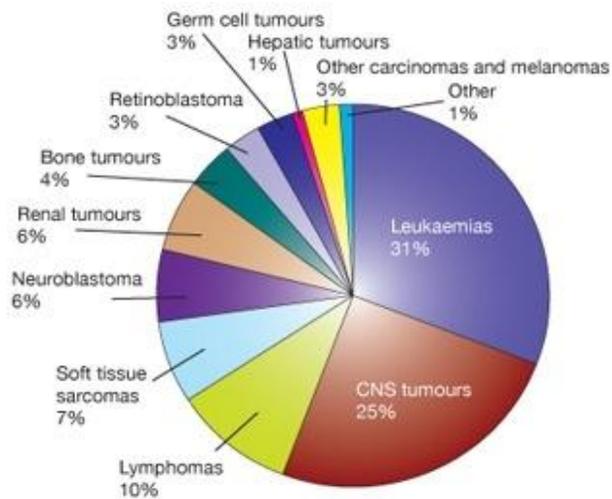
## INTRODUCTION

- Childhood cancers are RARE
- 0.5% of all cancers in the West
- Overall risk that a child will develop cancer during first 15 years of life is 1 in 450 and 1 in 600



## INTRODUCTION

- Leukaemia is the commonest childhood cancer 30%
- Brain tumours 25%
- Lymphomas 10%
- Solid tumours
  - Neuroblastoma 7%
  - Wilms tumour and renal syndromes
  - Bone tumours 4%
  - Rhabdomyosarcomas 3%



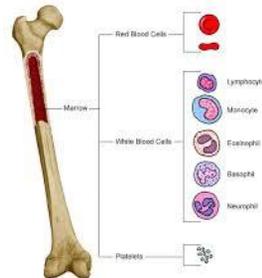
## GENERAL PRINCIPLES OF CANCER TREATMENT IN CHILDREN

- Biopsy/definitive diagnosis prior to initiation of therapy
- Use of immunophenotyping and cytogenetics
- Staging
- Local therapy
  - Surgery
  - Radiotherapy
  - Chemotherapy
- Systemic chemotherapy
  - Leukaemia
  - BMT



## LEUKAEMIA: SIGNS AND SYMPTOMS

- Bone marrow infiltration
  - Anaemia with pallor, lethargy, dyspnoea
  - Low platelets with bleeding, bruising, petechiae
  - Neutropenia with fevers and infection
  - Bone pain with limp and irritability



## LEUKAEMIA SIGNS AND SYMPTOMS

- Extramedullary spread
  - Lymphadenopathy
  - Hepatosplenomegaly
  - Dyspnoea, cough (mediastinal mass)
  - Testicular enlargement
  - Gingival hyperplasia
  - Fever of malignancy



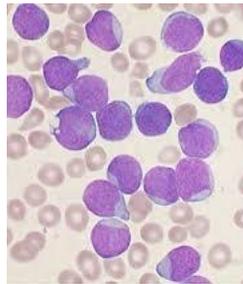
## LEUKAEMIA:PROGNOSIS

- Initial white cell count is most significant (WBC>1,000 has poor prognosis)
- Children < 1 yr and >10yrs have worse outcome
- Girls do better than boys



## LEUKAEMIA :DIAGNOSIS

- Peripheral blood smear
- Immunophenotyping and cytogenetics
- Bone marrow analysis
- LP



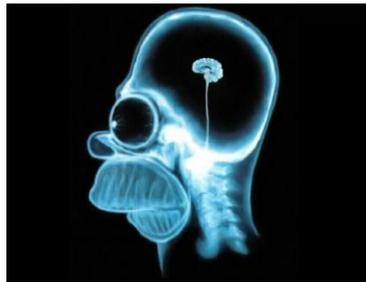
## LEUKAEMIA:TREATMENT

- Intensive multiagent chemotherapy
  - Induction: achieve remission
  - Consolidation/ extramedullary therapy
  - Delayed intensification
  - Maintenance therapy
  - BMT (in certain high risk groups)



## BRAIN TUMOURS

- Commonest malignant solid tumour in childhood
- Leading cause of cancer related death <15yrs
- Greatest assoc morbidity



## BRAIN TUMOURS

- Dilemma of seeking to improve survival whilst wishing to avoid or diminish toxicity
- Multidisciplinary team required:
  - Specialist doctors
  - Nurses
  - Therapists
  - Psychologists
  - Social care workers
  - educationalists



## BRAIN TUMOURS: PRESENTATION AND DIAGNOSIS

- Greatest diagnostic delay of all childhood cancers
- Determinants inc
  - Age
  - Tumour type
  - Anatomical site

### Signs include:

- Raised Intracranial Pressure
  - Focal neurological deficit
  - Endocrinopathies
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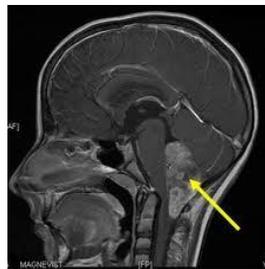
## BRAIN TUMOURS: PRESENTATION

- Increased intracranial pressure
    - Loss of developmental milestones
    - Poor school performance
    - Headaches, progressively worsening
    - Vomiting (morning)
    - Papilloedema (late)
    - Double vision
    - Bulging fontanelle
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## BRAIN TUMOURS: DIAGNOSIS

- Neuro imaging is essential in diagnosing CNS tumours
  - CT widely used initially
  - MRI is usually preferable and superior
- Histological diagnosis where possible



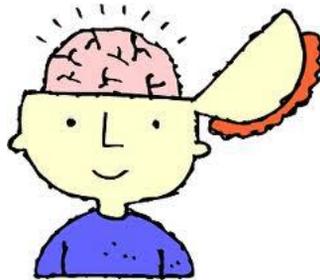
## BRAIN TUMOURS

- Astrocytomas - 43%
  - Throughout childhood, no pattern by sex or age
  - 75% low grade
- Embryonal tumours - 19%
  - 75% medulloblastoma
  - Frequently in younger children
- Ependymomas - 10%
  - Highest incidence in 1 year olds



## BRAIN TUMOURS: TREATMENT

- Neurosurgery (tumour removal to biopsy)
- Chemotherapy (to shrink pre op or prevent recurrence post op)
- Radiotherapy





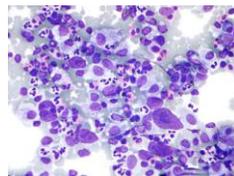
## NHL :DIAGNOSIS AND TREATMENT

- Biopsy
- Staging
- Chemotherapy is treatment of choice



## HODGKINS LYMPHOMA

- Less common than NHL
- Hodgkin's lymphoma is characterized by the orderly spread of disease from one lymph node group to another
- systemic symptoms with advanced disease.
- When Hodgkins cells are examined microscopically, multinucleated Reed–Sternberg cells (RS cells) are the characteristic histopathologic finding.



## HD: PRESENTATION

- Painless cervical lymphadenopathy 80%
  - Mediastinal involvement 60%
  - Constitutional symptoms
    - Unexplained fever
    - Night sweats
    - weight loss
    - pruritis
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## HD: DIAGNOSIS AND TREATMENT

- Tissue biopsy
  - Accurate staging,
    - comprehensive evaluation of possible sites of disease by imaging and sampling (biopsy)
    - Constitutional or B symptoms
  - Chemotherapy +/- radiotherapy
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## SPECIAL CONSIDERATIONS

- Because cancer usually strikes children at a young age, their families are often very young as well. There may also be other small children at home to look after.
- Sometimes, one or both parents must stop working in order to care for the sick child.



- Siblings are often put to the wayside. Some may be constantly shuttled around and may have problems maintaining a normal schedule.
- They are worried, resentful, and feel abandoned.
- These children may develop behavioral problems, anxiety, or depression.
- Counseling specifically for siblings is often necessary.



## UNIQUE ASPECTS OF PAEDIATRIC ONCOLOGY

- Overall prognosis generally good with 65% cure rate
- Usually otherwise healthy
- May have specific sensitivities to treatment
- Long-term survivors have increased chance of
  - secondary malignancy
  - treatment side effects inc infertility

