OVERVIEW OF PAEDIATRIC SURGICAL ONCOLOGY SERVICES IN KENYA

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KENYA PAEDIATRIC ASSOCIATION
ANNUAL SCIENTIFIC CONFERENCE
ELDORRET - APRIL 2016
Kenyan Population

- 2009 – 38,610,097 (Census)
- 2015 – 46,445,079
  - 42.2 %: < 15 years
  - 55.1%: 16-64 years
  - 2.7%: ≥ 65 years

- Doctors
- Consultants
- Consultant Surgeons
- Paediatric Surgeons- 12
  ( Nairobi-7, Eldoret-2, Coast -1, Kijabe-1 , Kisumu-1 )
Kenya Healthcare Delivery System

NB – Public – 60-70%
  - Private – 30-40%

Level 1 – Community
Level 2 – Dispensaries
Level 3 – Health centers
Level 4 – County Hospital & Sub-County Hospitals
Level 5 – County Referral Hospitals
Level 6 – National Referral Hospitals

Bed availability
Government 48% private sector 35% FBO 15% NGO 2%
Kenya Health Sector Financing

- 2014-2015 budget
  Health – 47.4 billion (4.5% of national budget)
- Per-capita allocation to health is < 33 USD
- NHIF- Primary provider of health insurance
  - 35% population covered
- Underfunded and relies heavily on out pocket payments
- 50% of the population live below the poverty line (< 1.25 USD / day)
Organized Treatment Sites for childhood cancer

- Kenyatta National Hospital (KNH)
- Moi Teaching and Referral Hospital (MTRH)
- Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH)
Cancer Epidemiology in children

- World wide with incidence of 1-2.5 per 1000 children
- Relatively constant though the world particularly the developing is experiencing epidemic proportions
- Childhood cancer may present a diffuse spectrum
- Most patients present with late incurable disease
Childhood Cancers

- **Haematological**
  - Leukaemia
    - Acute: AML, ALL
    - Chronic: CML
  - Lymphoma
    - Hodgkins
    - NHL

- **Non – haematological (Solid tumor):**
  cancer of various organs
  - Brain
  - Eye (Retina)
  - PNS
  - Muscles
  - Kidneys
  - Adrenal Glands
  - Bone
  - Skin
  - etc
Childhood Cancers

- Both Haematological and Non-Haematological
- High potential for cure
- Effective Management is crucial
- Diagnostic, staging and treatment services

<table>
<thead>
<tr>
<th>Diagnostic</th>
<th>Staging</th>
<th>Treatment Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FNAC</td>
<td>X-ray</td>
<td>FBC</td>
</tr>
<tr>
<td>Biopsy for histology</td>
<td>Ultrasonography</td>
<td>LFT</td>
</tr>
<tr>
<td>IHC</td>
<td>CT scan</td>
<td>RFT</td>
</tr>
<tr>
<td></td>
<td>LP</td>
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</tr>
</tbody>
</table>

- Turn around time should be optimum
- Supportive care back up should be adequate
- Team work is recommended
Pediatric cancer survival: high vs low-income countries

G. Masera, Haematologica 2000; 85:785
What does it mean to children?

<table>
<thead>
<tr>
<th></th>
<th>Children treated per year</th>
<th>Children who survive</th>
<th>Children who die</th>
<th>Survival rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIC</strong></td>
<td>53,000</td>
<td>42,000</td>
<td>11,000</td>
<td>80%</td>
</tr>
<tr>
<td><strong>LIC</strong></td>
<td>211,000</td>
<td>53,000</td>
<td>158,000</td>
<td>25%</td>
</tr>
</tbody>
</table>

LIC account for 80% of children with cancer and 92% of children who die of cancer.
Pattern in Kijabe

- Burkitt’s lymphoma 16.6%
- Non-Hodgkin’s lymphoma 8.5%
- Hodgkin’s lymphoma 7.6%
- Kaposi’s sarcoma 7.6%
- Osteosarcoma 7.3%
- Gonadol germ cell 5.8%
- Rhabdomyosarcoma 3.5%
- Nephroblastoma 3.4%
- Epithelial sarcoma 2.8%
- Fibrosarcoma 1.9%

(Paediatric Surgery Int. 2010)
# Burden of Childhood Cancers in Western Kenya

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>0-19 Years</td>
<td>0-14 years</td>
</tr>
<tr>
<td><strong>Total Number</strong></td>
<td>436</td>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>Male – 59%</td>
<td>Female – 41%</td>
</tr>
<tr>
<td><strong>Haematological</strong></td>
<td>NHL - 34 %</td>
<td>HL - 15 %</td>
</tr>
<tr>
<td><strong>Non-Haematological</strong></td>
<td>KS - 5%</td>
<td>Nephroblas – 8%</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>(19%)</td>
<td></td>
</tr>
</tbody>
</table>
Pattern in Western Kenya (1979)

- Burkitt’s 33.5%
- Non-Hodgkin’s 21.8%
- Retinoblastoma 11.5%
- Kaposi’s sarcoma 6.1%
- Nephroblastoma 4.5%
- Hodgkin’s 4.1%
- Fibrosarcoma 3.2%
- Epithelial 2.6%
- Osteosarcoma 2.3%
- Rhabdomyosarcoma 1%
BURDEN OF CHILDHOOD MALIGNANCY AT MTRH

- Total cases: 4088; childhood - 382 (9.3%)
- Incid: 54.57/million, mean 94.5  R: 82-108

Figure 1: Yearly distribution of childhood cancers
MAJOR CHILDHOOD CANCERS AT MTRH

Figure 2: Top 10 childhood cancers at MTRH (n=382)
DISTRIBUTION BY AGE-AT MTRH

- Bimodal peak: 4 yrs and 10 yrs, median: 7yrs, mean: 7.2yrs
- Age group 1-5yrs: 40.8%; 6-10yrs: 34.1%; 11-14yrs: 25.1% (n=382)

Figure 3: Distribution of childhood cancers by age
DISTRIBUTION BY GENDER

- Male: 61.3% (n=382), Female: 38.7%. M:F = 1.6:1

Figure 4: Distribution of childhood cancers by gender
Challenges

• Significant morbidity and mortality despite the fact that most childhood cancers are potentially curable
  - Poor Availability, Accessibility and Affordability of the specific treatment
  - Significant burden of co-morbidities
  - Weak supportive care backup

• Weak referral system
  - Limited access to health care
  - Late presentation

• Little consensus on the appropriate regimen at various stages
  - Inadequate information on cancer outcome for the various protocols

• Available Data is incomplete
  - Cancer registries not comprehensive
  - Response to treatment and survival rates
  - Relapse rates

• Weak follow up mechanisms
  - Irregular follow up
  - High rate of loss to follow up/ Treatment Abandonment
Availability of resources

- **Health Facilities**
  - Diagnostic, Staging and Treatment Services
  - Level 4, 5 and 6 facilities

- **Personnel**
  - Oncology Team
  - Paediatric Surgeons - Crucial
  - Paediatrician/ Physician

- **Specific Treatment**
  - Support groups and philanthropists
  - Donations
  - Out of pocket purchase
  - Research support (Grants, Clinical Trials)

- **Supportive care**
  - **Nutritional support**
  - Medical supplies

- **Hospital bills**
  - Medical insurance
  - NHIF (Hope for Cancer Kids)
  - Out of Pocket Payments
The CDM/Cancer Treatment Centre
Oncology team to drive the agenda of cancer management; roles - Education
ROLES OF HEALTH PROVIDERS IN ADVANCING CANCER CONTROL AGENDA

• CARE
  Ensure the patients receive appropriate care
  Coordination of activities –
  Strengthen the referral systems
  Appropriate management protocols

• EDUCATION
  Health care providers
  Patients
  Care givers/relatives
  Training institutions ( Universities, MTC )

• RESEARCH
  Issues to do with cancer
  Paediatric cancer registry
  Several research activities going on- various disciplines.
Way Forward

- Activities directed towards reducing the morbidity and mortality
- Strengthen the referral system and empower level 4&5 hospitals to manage cancers
- Build consensus on appropriate treatment protocols
- Strengthen the cancer registries
- Enhance research in the area of Childhood Cancers