Characteristics and Outcomes of Paediatric and Adolescent Patients with Eating Disorders - Epidemiological Study
National University Hospital, Singapore.

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SINGAPORE
Singapore is a small city state with a multi-ethnic and multi-cultural population.

Data on the prevalence of Eating Disorders among children and adolescents in Singapore are summarized.

There are 2 paediatric tertiary care Govt. hospitals in Singapore

National University Hospital is a teaching hospital and our paediatric department has an eating disorder program for children and adolescents.
Singapore
About NUH

• Total no. of beds – 1230
• Staff strength – 7465

➢ In-patient facilities
• Wards- 44
• Delivery rooms- 8
• Operating rooms- 29
➢ Specialist out-patient clinics – 42
➢ 24-hour Emergency Facilities
• Accident and Emergency (Adult)
• Children's Emergency
Objective

• Anorexia is the 3rd most common chronic illness among adolescents. 95% of those who have eating disorders are between the ages of 12 and 25.

• The objective of this study was to study the characteristics of patients with eating disorders managed by our eating disorder program and evaluate their outcomes.

• This is the first study in children and adolescents with eating disorders from this region.
Retrospective study

• Even with an increased prevalence, the diseases being not so common, prospective studies are difficult. (Halmi at al. 2005)

• Retrospective studies relying on the data collected as a part of clinical practice remain critical in gathering knowledge about the disease and generating key hypotheses for future prospective studies.
Epidemiological study

• The case notes of all patients (n=63) followed up by the Eating Disorder Program under the adolescent medical service at the National University Hospital (NUH) Singapore between January 2011 and December 2014 (4 years)

• Patient characteristics and outcome data were gleaned to better understand our patient population.
Our Eating Disorder program

• Khoo Teck Puat - National University Children’s Medical Institute has a multi-disciplinary Eating Disorders program which manages paediatric patients (less than 18 years old).

• The Eating Disorder Team comprises of paediatricians trained in adolescent medicine, adolescent nurses, psychiatrists, psychologists, dietitians, medical social workers and art therapists.
Population at risk

- In Singapore there is a significant at risk population, with one earlier study finding that 7.4% of young Singaporean females (ages 12-26 years) were at risk of eating disorders based on the EAT and EDI questionnaires.

  (Ho et al. 2006)
Recent trends

• There have also been increases in new cases at other eating disorder units in Singapore in recent times

• We have see about 20% increase in the no. of new cases every year.
Study method

• Retrospective review of the case notes of patients followed up by our eating disorder management team who were diagnosed with Eating Disorders.

• *DSM-IV* was used prior to June 2013 and *DSM-V* thereafter.

• The period of the study was between January 2011 and December 2014.
Eating Disorders at NUH

- AN: 92%
- BN: 2%
- EDNOS: 6%
BN vs AN

- Most studies have demonstrated higher rates of BN than AN, however a large UK study (Nicholls, Lynn and Viner, 2011) also found a low incidence of BN compared to AN, which they attributed to under diagnosis.
- There is limited prevalence data on BN in Asian populations but our numbers are quite disparate compared to the relative proportion of BN versus AN in some small studies based on other Asian populations.
Ethnic composition of our patient population

- Chinese: 85%
- Malay: 13%
- Indian: 2%

Ethnic composition of Singapore population

- Chinese: 77%
- Malay: 14%
- Indian: 9%

Dept. of statistics, Singapore, 2014
Psychiatric co-morbidities

- MDD: 29%
- Self-Harm: 11%
- Suicidal: 6%
The average age of onset of symptoms was 14.6 years compared to 15.5 years from a previous Singaporean study published in 2005

(H.Y. Lee et al 2005)
<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients required in-patient treatment</td>
<td>36 (57%)</td>
</tr>
<tr>
<td>Number of patients requiring admission for ≥ 7 days</td>
<td>31 (49%)</td>
</tr>
<tr>
<td>Average cumulative length of stay (for those requiring ≥ 7 days admission)</td>
<td>67 days (range 7 to 240 days)</td>
</tr>
<tr>
<td>Number of patients requiring intensive care admission</td>
<td>1 (2 %)</td>
</tr>
<tr>
<td>Number of patients with refeeding syndrome</td>
<td>6 (10 %)</td>
</tr>
<tr>
<td>Number started on NG feeding</td>
<td>1 (2 %)</td>
</tr>
</tbody>
</table>
In-patient treatment

• > 50% of our patients required inpatient treatment throughout the course of their illness because of medical instability or failed outpatient treatment.

• These rates are similar to a UK study (50%) (Nicholls et al. 2011) and lower than an Australian study (70%) (Madden et al. 2009).

• The length of stay of such hospitalizations has been around 3 months in the UK (Robinson. P.1993), United States (Kahn. C et al. 2001), Switzerland (Steinhausen HC et al. 1993) and between 2 and 7 months in Japan (Nozoe S. et al. 1995).
Bone Mineral Density

<table>
<thead>
<tr>
<th>Status</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osteoporosis</td>
<td>12 (19%)</td>
</tr>
<tr>
<td>Osteopenia</td>
<td>11 (17%)</td>
</tr>
<tr>
<td>Normal</td>
<td>18 (29%)</td>
</tr>
<tr>
<td>BMD not done</td>
<td>22 (35%)</td>
</tr>
<tr>
<td>Outcome</td>
<td>Value</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Number of patients discharged from follow up</td>
<td>12 (19%)</td>
</tr>
<tr>
<td>Mortality</td>
<td>0</td>
</tr>
<tr>
<td>Number of patients lost for follow up (drop out)</td>
<td>12 (19%)</td>
</tr>
</tbody>
</table>
Model of care - Paradigm shift in ED treatment

We are changing towards FBT for all our patients from the present model of adolescent focused Individual therapy.

We are setting up an integrated ambulatory day care program which will help in reducing the length of hospital stay and early transition of the patient to a family-based treatment program.
FBT

- 50-60 % patients achieve full remission in 1 year and 25-35% partially recover.
- Only 15% are non-responsive.

- FBT has shown to induce early remission and less relapses.
- FBT is emerging as the first-line therapy in paediatric EDs.
Thank You!