Outcome of Adult Acute Lymphoblastic Leukaemia with standard chemotherapy (remission induction & consolidation) in a tertiary hospital of Bangladesh

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Background

- Acute Lymphoblastic Leukaemia (ALL)

- A heterogeneous group of lymphoid neoplasm resulting from the proliferation of malignant lymphoid cells

Background

- Complete remission rate with induction therapy in adult ALL 60-90%
- 5-year disease free survival 25-35%
- Childhood ALL - complete remission rate & overall survival 80%

Background

- In adults- poor outcome associated with –

- older age
- male gender
- high white cell count
- Philadelphia chromosome positivity

Aims & Objectives

- General Objectives:

To describe the treatment outcome of adult ALL patients with standard chemo-therapy (remission induction & consolidation)

Aims & Objectives

- Specific Objectives:

- To describe the clinical presentations of adult ALL patients
- To describe the clinical outcome of adult ALL patients
- To see the frequency of toxic effects of chemotherapy

Methodology

- Study design

  Observational/ descriptive study with prospective record of outcome

- Place of study

  Dept. of Haematology & Medicine, SSMC & MH, Dhaka

Methodology

- Duration of study:

  1st January, 2011 to 31st December, 2011

- Study population:

  All Adult ALL patients admitted to Haematology & Medicine wards of SSMC & MH, Dhaka over study duration

- Sample size: 20 cases

Methodology

- Inclusion Criteria

- Cases of ALL ≥ 15year age group
- ALL confirmed by bone marrow exam

Methodology

- Exclusion Criteria

- Patients with severe dysfunction of liver or kidney or with major ECG abnormality
- Patients unwilling to sign written informed consent
- History of treatment for ALL

Study Design

- Cases- recruited both from Haematology & Medicine Department of SSMCH

- Data collection by-

- Detailed history taking
- Thorough clinical examination

- Recorded in a structured data collection sheet

Study Design

- Pre-treatment investigation

- CBC with PBF
- Bone marrow examination
- Blood chemistry including liver and renal function tests
- Serum uric acid
- Serum electrolytes

- Only morphological evaluation
- Immunological & cytogenetic features – not evaluated

Study Design

- Medical Research Council United Kingdom ALL (MRC UKALL) X protocol

- remission induction therapy
- early intensification
- interim maintenance
- cranial irradiation

Study Design

- Remission induction therapy

- Inj. Daunorubicin 45mg/m^2 on day 1 & 2 iv
- Inj. Vincristine 1.5mg/m^2 on days 1, 8,15 & 22 iv
- Inj. L-asparaginase 6000mg/m^2 iv on days 10-18
- Prednisolone 45mg/m^2 PO on days 1 to 28
- Methotrexate 12.5mg IT – 2 doses

Study Design

- Early intensification

- Inj. Vincristine 1.5mg/m^2 i.v. bolus on Day-1
- Inj. Methotrexate 12.5mg IT on Day 1
- Inj. Daunorubicin 45mg/m^2 i.v. Day 1 & 2
- Prednisolone 45mg/m^2 PO on days 1 to 5
- Inj. Cytarabine 100mg/m^2 i.v. 12hourly on Days 1 to 5
- Inj. Etoposide 100mg/m^2 i.v. on days 1 to 5
- Thioguanine 20mg/m^2 PO on days 1 to 5

Study Design

- Interim maintenance

- Inj. Vincristine 1.5mg/m^2 iv on Day 1 (monthly)
- Prednisolone 45mg/m^2 PO on Days 1 to 5 (monthly)
- 6-mercaptopurine (80mg/m^2) PO daily
- Methotrexate (20mg/m^2) PO weekly

- Cranial irradiation:

1800cGy in 10 fractions over 2 weeks

Study Design

- During induction-
- Blood count on days 3,7,14 & 21
- At the end of each cycle (on D29)–
- BME & evaluation of marrow cellularity & marrow differential

Follow-up

- Upto end of study period from completion of consolidation therapy

Result

Result

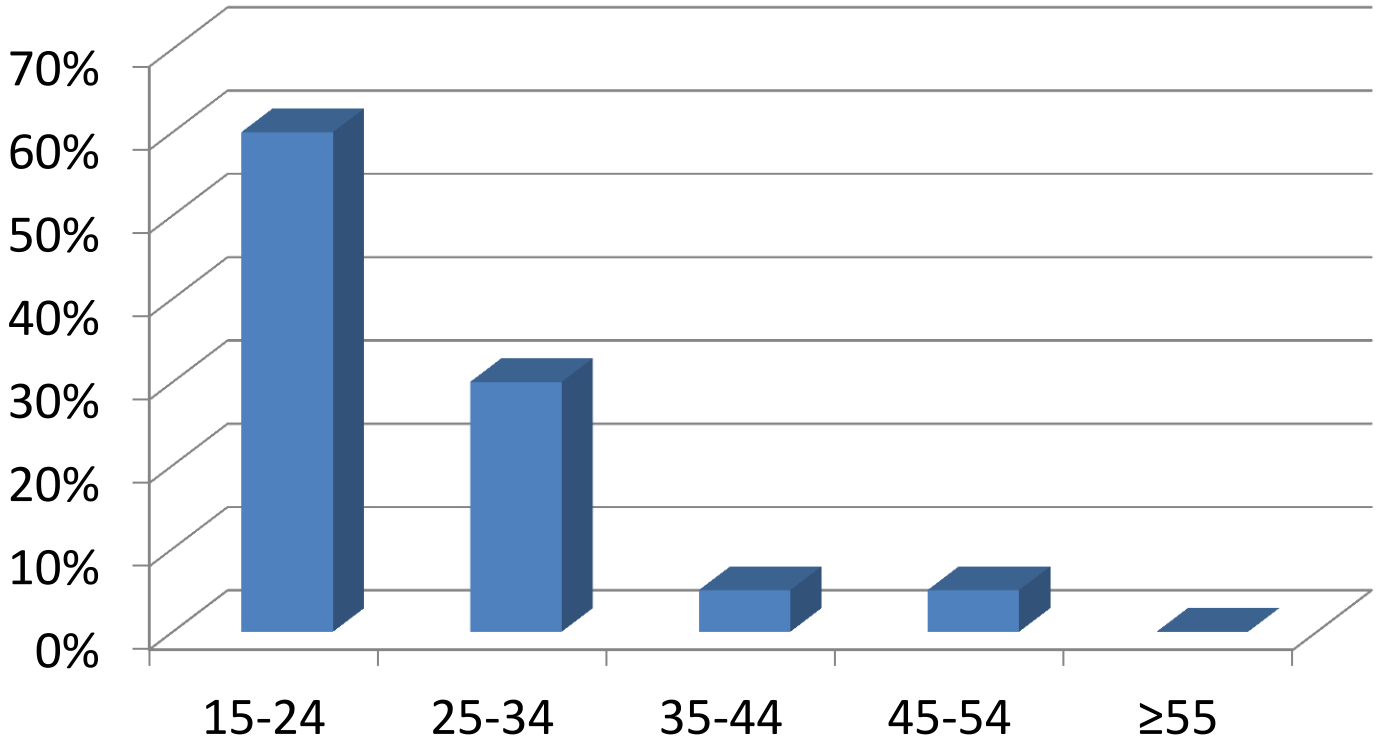

Fig 1: Age(in years) distribution of the patients(N=20)

Result

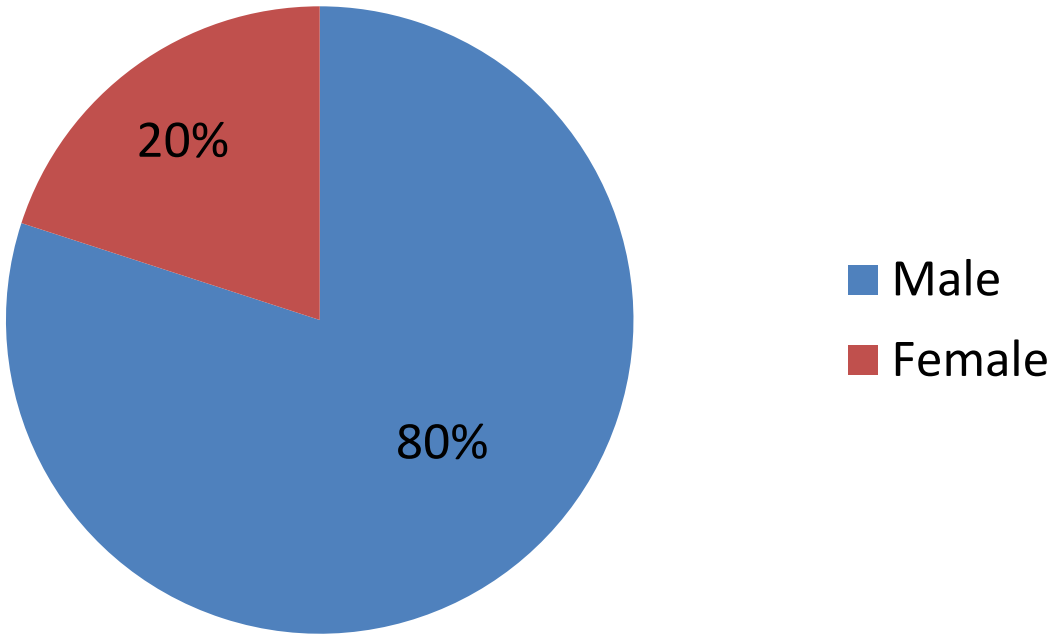

Fig 2: Sex distribution of the patients

Result

Table 1: Distribution of patients by principal presentation(N=20)

Presentation	No. of patients	Percentage(%)
Fever	17	85
Fatigue	18	90
Bleeding	11	55
Bone & joint pain	10	50

Result

Table 2: Distribution of patients by other clinical manifestation(N=20)

Presentation	No. of patients	Percentage(%)
Sore throat	05	25
Cough	04	20
Anorexia	08	40
Abdominal pain	06	30
Headache & blurring of vision	01	05

Result

Table 3: Distribution of patients by clinical findings (N=20)

Clinical findings	No. of patients	Percentage(%)
Anaemia	18	90
Superficial lymphadenopathy	11	55
Mediastinal lymphadenopathy on CXR	02	10
Splenomegaly	14	70
Hepatomegaly	09	45

Result

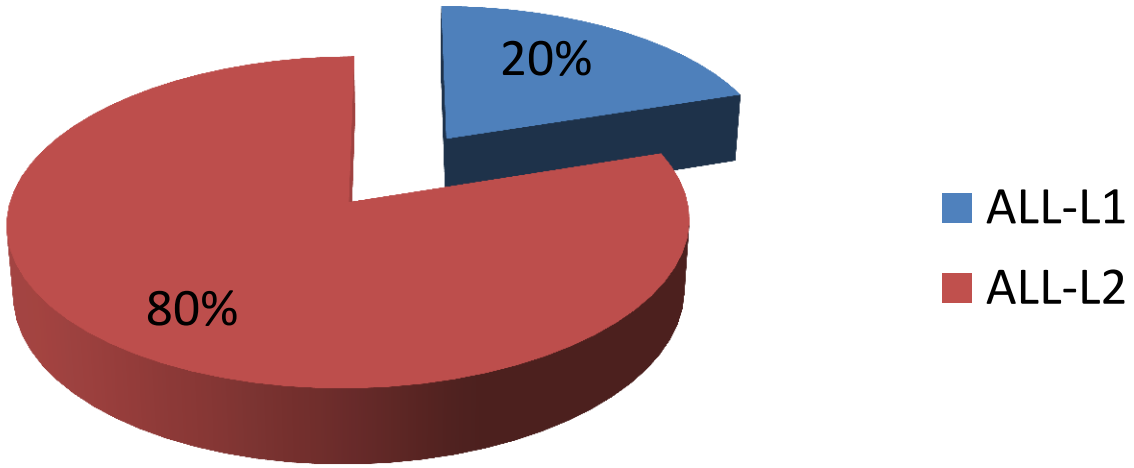

Fig 3: Distribution of patients by FAB subtype(N=20)

Result

Table 4: Distribution of patients by laboratory parameter(N=20)

WBC $\times 10^9$/L	No. of patients	Percentage
≤4	04	20
4.1-10	01	05
10.1-50	06	30
>50	09	45
Total	20	100

Table 4: Distribution of patients by laboratory parameter(N=20)

Hb(gm/dl)	No. of patients	Percentage(%)
<6	08	40
6.1-10	10	50
>10	02	10
Total	20	100

Platelet $\times 10^9$	No. of patients	Percentage(%)
<30	12	60
30-100	06	30
>100	02	10
Total	20	100

Result

Table 5: Overall toxicity of chemotherapy

Complications	No. of patients	Percentage (%)
A. Haematological toxic effects during treatment		
1. Febrile neutropenia	09	45
2. Severe thrombocytopenia TPC $<10\times10^9$/L	05	25
3. Severe pancytopenia(TC-0.5×10^9/L L-100%)	02	10

Table 5: Overall toxicity of chemotherapy

Complications	No. of patient	Percentage (%)
B. Other adverse events during Tx		
1. Nausea and vomiting	18	90
2. Oral thrush	10	50
3. Abdominal pain	02	10
4. Diarrhoea	02	10
5. Jaundice	02	10
6. Paraesthesia,weakness,muscle pain	08	40
7. Constipation	05	25
8. Cushing's syndrome	06	30
9. Hyperglycaemia	01	05
10. Alopecia	14	70

Result

Table 6: Overall treatment outcome after remission induction & consolidation (n=20)

Outcome	No. of patients	Percentage(%)
Complete remission & on maintenance therapy	15	75
No remission	02	10
Death	02	10
Discontinued treatment	01	05
Relapse	00	00

Limitation

- Small sample size – collected from one tertiary hospital only - limiting generalisability & representativeness
- Immunologic & cytogenetic features of ALL- not be evaluated
- Very short follow-up - unequal for comparison or conclusion

Conclusion

- Overall treatment outcome - quite similar to international data
- Further large scale study with long term follow up is recommended
- to determine the overall & disease free survival of adult ALL patients treated with standard chemotherapy in Bangladeshi patients

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THANK YOU