High dose Rituximab (anti-cd20 monoclonal antibody) in children with chronic refractory immune thrombocytopenic purpura: efficacy and safety of treatment, single center experience (preliminary result)

Mohammad O. Olfat, MD, Ahmad M. Tarawah, MD

Maternity and Children Hospital, King Abdullah Medical City
Madinah, Saudi Arabia
Immune Thrombocytopenic Purpura (ITP)

- Incidence 2.3 – 5.3 \( \times 10^5 \)
- Chronic ITP (> 12 months) 20%

**First-line management**
- Prednisone
- HD Dexamethasone
- Immunoglobulin
- Anti-D immunoglobulin

**Second-line therapy**
- Rituximab
- TPO-RA
- Cyclosporine
- cyclophosphamide
- Azathioprine
- Vincristine
- Danazol
- Hydroxychloroquine
- Mycophenolate Mofetil

Rituximab


Rituximab

- Rituximab is a chimeric, monoclonal anti-CD20 antibody that targets B lymphocytes and causes Fc-mediated cell lysis.

Platelet response to rituximab

<table>
<thead>
<tr>
<th>Platelet Count Response, ( \times 10^9 ) cells/L</th>
<th>Pooled Estimate (95% CI), %</th>
<th>Contributing Reports (Patients), ( n ) (( n ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall response ((&gt;50))</td>
<td>62.5 (52.6–72.5)</td>
<td>19 (313)</td>
</tr>
<tr>
<td>Complete response ((&gt;150))</td>
<td>46.3 (29.5–57.7)</td>
<td>13 (191)</td>
</tr>
<tr>
<td>Partial response (50–150)</td>
<td>24.0 (15.2–32.7)</td>
<td>16 (284)</td>
</tr>
</tbody>
</table>

• 18 studies

• 352 patients (0.5 to 19 years old)

• Doses of rituximab
  • 375 mg/m²/week for 1~6 dose escalation to 750 mg/m²/dose
  • 100 mg/dose/week for 4 doses
  • 500 mg/m²/dose every 2 weeks for 2 doses

• Response
  • Response (platelet count ≥30×10⁹ /L) 68%
  • Complete response (platelet count ≥100×10⁹ /L) 39%

• Time to response 0.3 to 17.0 weeks

Rituximab plus standard of care for treatment of primary immune thrombocytopenia: a systematic review and meta-analysis

Outcomes 5 years after response to rituximab therapy in children and adults with immune thrombocytopenia

High dose Rituximab (anti-cd20 monoclonal antibody) in children with chronic refractory immune thrombocytopenic purpura: efficacy and safety of treatment, single center experience (preliminary result)
High dose Rituximab (anti-cd20 monoclonal antibody) in children with chronic refractory immune thrombocytopenic purpura: efficacy and safety of treatment, single center experience (preliminary result)

METHODS

• Single arm, single center, open label prospective study.
• Study has been opened on June 2015 – on going.
  • Children 2-14 years
  • Chronic refractory ITP.
• Rituximab (anti-CD20) 500 mg/m² IV on day 1 and day 15.
• Course can be repeated after 13 weeks if no response after first course.
High dose Rituximab (anti-cd20 monoclonal antibody) in children with chronic refractory immune thrombocytopenic purpura: efficacy and safety of treatment, single center experience (preliminary result)

RESULTS

• 8 patients
• 5 girls and 3 boys.
• Current median age is 9.8 years (4.7-14)
• Median age at diagnosis was 6.4 years (1.2-8.5).
• All subjects have shown unsuccessful or non-persistent response to oral prednisolone at dose of 2m/kg.
• Splenectomy performed in one patient
High dose Rituximab (anti-cd20 monoclonal antibody) in children with chronic refractory immune thrombocytopenic purpura: efficacy and safety of treatment, single center experience (preliminary result)

• RESULTS

![Graph showing the effect of Rituximab on platelet counts over 6 months.](chart.png)

- Platelet counts are measured over 6 months.
- Rituximab is administered at the start of the 6-month period.
- A significant rise in platelet counts is observed after Rituximab treatment.
High dose Rituximab (anti-cd20 monoclonal antibody) in children with chronic refractory immune thrombocytopenic purpura: efficacy and safety of treatment, single center experience (preliminary result)

• RESULTS
High dose Rituximab (anti-cd20 monoclonal antibody) in children with chronic refractory immune thrombocytopenic purpura: efficacy and safety of treatment, single center experience (preliminary result)

• RESULTS
High dose Rituximab (anti-cd20 monoclonal antibody) in children with chronic refractory immune thrombocytopenic purpura: efficacy and safety of treatment, single center experience (preliminary result)

RESULTS

• Adverse effects
  • Leukopenia 1
  • Major infection 0
  • Recurrent infection 0
  • Other side effects 0
High dose Rituximab (anti-cd20 monoclonal antibody) in children with chronic refractory immune thrombocytopenic purpura: efficacy and safety of treatment, single center experience (preliminary result)

CONCLUSION
High dose Rituximab (anti-cd20 monoclonal antibody) in children with chronic refractory immune thrombocytopenic purpura: efficacy and safety of treatment, single center experience (preliminary result)