WHAT IS MDS?

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BLOOD AND ITS PRODUCTION

- **Red cells**: Carry oxygen
- **White cells**: Fight with infection
- **Platelets**: Help stopping bleeding
WHAT IS MDS?

- Most often we don’t know what caused mutations
- Sometimes mutations are caused by chemotherapy or other chemicals
- Very rarely people are born with mutations that cause MDS
LOW BLOOD COUNTS

DNA damage

Blood stem cell

Low Red cells
Carey oxygen

Low White cells
Fight with infection

Low Platelets
Help stopping bleeding

Leukemia

Anemia: Tiredness, dizziness, shortness of breath and chest pain

Neutropenia: predisposition to infections

Thrombocytopenia: predisposition to easy bruising and bleeding
HOW WE DIAGNOSE MDS

- Low blood cell counts
  1. Rule out other causes of low counts
  2. Blood tests and Bone marrow biopsy to look for any of below:
     - Abnormal cells in the marrow
       - dysplastic cells
       - sideroblasts
       - leukemia cells (blasts) <20%
     - Genetic mutations
       - cytogenetics,
       - molecular mutations
ESTIMATING RISKS

• What are the chances of early death due to MDS?
• What are the chances of MDS converting into leukemia?
ESTIMATING RISK: IPSSR

Variables (units) [usual range] | Value
---|---
Hemoglobin (g/dL) [4-20] | 9
A possible conversion for Hb values:
10 g/dL = 6.2 mmol/L, 8 g/dL = 5.0 mmol/L
Absolute Neutrophil Count (x10⁹/L) [0-15] | 0.7
Platelets (x10⁹/L) [0-2000] | 60
Bone Marrow Blasts (percent) [0-30] | 2
Cytogenetic Category

- Very Good
- Good
- Intermediate
- Poor
- Very Poor

IPSS-R SCORE | IPSS-R CATEGORY
---|---
3 | low

Blood test
Bone marrow

https://www.mds-foundation.org/ipss-r-calculator/
ESTIMATING RISK: IPSSR

**Lower-risk MDS**

<table>
<thead>
<tr>
<th>Score</th>
<th>≤1.5 Very Low</th>
<th>&gt;1.5–3 Low</th>
<th>&gt;3–4.5 Intermediate</th>
<th>&gt;4.5–6 High</th>
<th>&gt;6 Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Survival (mean)</td>
<td>8.8 years</td>
<td>5.3 years</td>
<td>3.0 years</td>
<td>1.6 years</td>
<td>0.8 years</td>
</tr>
<tr>
<td>Risk of AML in 25% of patients (median)</td>
<td>Not reached</td>
<td>10.8 years</td>
<td>3.2 years</td>
<td>1.4 years</td>
<td>0.73 years</td>
</tr>
</tbody>
</table>

**Higher-risk MDS**

- IPSS-R does not include patients who receive treatments that can extend survival
- IPSS-R risk is used to guide treatment

https://www.mds-foundation.org/ipss-r-calculator/
Priorities in low-risk MDS

1. Improvement of cytopenia(s)
   - Less transfusions
   - Less iron overload

2. Tolerability of a given treatment
   - Quality of life

3. Delay disease progression
   - Improve survival

4. Cure

Priorities in high-risk MDS

1. Delay disease progression
   - Improve survival
   - Cure

2. Reduction of disease burden
   - Improvement of cytopenia(s)
   - Less transfusions

3. Tolerability of a given treatment

4. Quality of life
THANK YOU