Treatment of MDR/XDR TB patients

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DR/MDR TB in Russia, 2008

- DR among new TB cases - 33.2%
- MDR among new TB cases - 13.6%
- DR among relapse cases - 52.2%
- MDR among cases - 28.8%
Treatment efficacy in newly detected TB patients—57.8% (RF, 2008)
CTRI
Therapy Department

- MDR department – 80 beds
- TB department - 50 beds
DST results in newly detected TB patients
CTRI, 2008

- Sensitive: 38.5%
- MDR: 40.6%
- DR: 14.3%
- monoDR: 4.4%
- XDR: 2.2%
DST results in previously treated TB patients

CTRI, 2008

- MDR 61.6%
- XDR 16.5%
- monoDR 0.9%
- S 16.1%
- DR 16.5%
Spectrum of additional drug resistance in primary MDR

- S: 42.5%
- K: 31.7%
- E: 7.5%
- Fq: 4.2%
- Z: 3.3%
- Pt: 3.3%
- Pas: 3.3%
Chemotherapy of newly-detected TB patients

- Sensitive /mono DR TB: SSCC is effective

- Primary MDR TB: ???

  ↓

Chemotherapy of MDR TB patients is based on DST results
Period of obtaining DST results

- Traditional bacteriology method (absolute concentration) – 42-93 days
- Biochip technology – 24 h after sputum collection
Treatment of MDR/XDR TB patients (CTRI)

Detection of point mutations using biochips:

H $\rightarrow$ DR (HS, HE, HES)
HR $\rightarrow$ MDR TB
HR Fq $\rightarrow$ XDR TB

- Case history
- Data of DR/MDR TB in region
Biochip and culture data

- **Biochip technology:**
  - Resistance to HR Fq - in 31

- **Absolute concentration method:**
  - Resistance to HR Fq+ K/Am – in 31
Treatment tactics in 3 groups of newly-detected TB patients

Gr 1

Biochip results:
MDR
4 Category

Gr 2

Biochip results:
no mutations
1 Category

Gr 3

No data of DST
1 Category

DST results by absolute concentrations method
Category IV treatment for MDR TB (Gr1,3)
The dynamics of sputum conversion confirmed by culture in newly-detected TB patients
Frequency of cavity closure in newly-detected TB patients

- 2 months: Group 1 - 45.3%, Group 2 - 57.3%, Group 3 - 0.0%
- 4 months: Group 1 - 68.0%, Group 2 - 77.3%, Group 3 - 28.9%
- 6 months: Group 1 - 86.7%, Group 2 - 94.6%, Group 3 - 60.0%
Complex treatment of MDR/XDR TB patients (CTRI)

- Chemotherapy with second-line drugs based on Biochip/Medium DST
  - Chemotherapy of XDR TB:
    - Cm Moxi Cs PAS Linz Cl/Amox

- Artificial pneumothorax (AP) and/or pneumoperitoneum (PP)
- Surgery (resection, lobectomy, pneumonectomy)
- Accompany therapy
Comparative assessment of treatment efficacy

The dynamics of sputum conversion in previously treated MDR TB patients

- Chemotherapy + AP/PP
- Chemotherapy

<table>
<thead>
<tr>
<th>Time (months)</th>
<th>Chemotherapy + AP/PP</th>
<th>Chemotherapy</th>
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<tr>
<td>3</td>
<td>40.4%</td>
<td>7%</td>
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<td>83%</td>
<td>44%</td>
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</table>
Comparative assessment of treatment efficacy
Frequency of cavity closure
in previously treated MDR TB patients

- Chemotherapy + AP/PP
- Chemotherapy
Example I

- Male patient, 27 yrs., ill during 3 years
- Case history:
  Treatment during 3 years produced no effect
  DST - ?
  TB has been progressing
Example I

**CTRI**
- Biochip: DR to **HRFq**
- **DST**: DR to HRSE ZKFqEt
- Treatment—24 months
  
  Cap Moxi Cs PAS Z Lzd Clr
  (Cap Lzd – 12 мес.)

- **PP** – 2 years

3 year follow-up:
**Culture (−)**
Put on weight to 14 kg
Female patient, 21 yrs., ill during 3 years.
Treatment during 3 years produced no effect
DST - ?
TB has been progressing
Smear/Culture (+++)

CTRI
DR to: HRSE ZKFqEtPas
Example II
Example II

Before surgery: 12 months
- Chemotherapy
  Cap Cs Moxi  PAS Lz Cl/Amv
- PP: 10 months
  ↓
  - Clinical improvement
  - Microscopy (-)
  ↓
  Pneumonectomy
Example I

After surgery: 15 months
- Chemotherapy
  **Cap Cs Moxi PAS Lz**
- PP

18 months follow-up:

**Culture (-)**
Put on weight to 5 kg
Conclusion

Success of MDR TB treatment depends on:

- time and quality of MDR/XDR detecting
- adequate long-time treatment regimens
- quality of second line TB drugs
- using of collapsotherapy and surgical methods
- early management of adverse effects
- management of MDR/XDR TB treatment
Thank you for attention!