Impact of COVID-19 on health services: the results of the global study of the Global Tuberculosis Network (GTN)

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Conflict of interest

None
**Presentation overview**

- Similarities and differences between COVID-19 and TB with focus on impact on health services
- Role of active TB and TB sequelae
- A global review (McQuaid, IJTLBD 2021)
- Initial evidence
- First global GTN study 2020 (EID)
- Second global GTN study 2021
- Exception confirming the rule: the example of Virginia and Singapore
- Conclusions

**Some of the arguments discussed in this presentation are summarized in this Pulmonology 2021 review, the most updated available so far on the topic**

**TB and COVID-19**

**Similarities**
- Stress on health systems
- Need for rapid testing and public awareness
- Stigma
- Uncomplete data

**Differences**
- Funding: limited for TB, much more for COVID-19
- Policies: well established although not always perfectly applied for TB, rapid and strong response for COVID-19 (although not always rational)

Global rapid response for COVID-19, huge financial and political commitments / insufficient public awareness and resources for TB
Relevant research/programmatic questions derived from the preliminary information available

1. Does COVID-19 increase progression from LTBI to TB?
2. What 'additional' risk is brought by COVID-19 on mortality?
3. Which other factors (poverty, malnutrition, etc.) may contribute?
4. Is BCG protective?
5. What are the most important drug-drug interactions?
6. Are the TB / COVID-19 pts more difficult to manage (oxygen, ventilation)?
7. Will the co-infection really impact dramatically health services in high TB incidence countries?

We try to answer in the coming slides

Global TB and COVID-19 study by the Global Tuberculosis Network (GTN)

> 700 cases from 40 countries

Out of 686 patients with information:
- 450/686 (65.8%) with active TB
- 196/686 (28.6%) with sequelae of TB (post TB lung disease)

PTLD is a risk group, clinically, but also an issue for impact on health services as resources will be absorbed in the future to manage rehabilitation of these patients

Similarities and differences

<table>
<thead>
<tr>
<th>TB</th>
<th>COVID-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposed to humans</td>
<td>No</td>
</tr>
<tr>
<td>Established case definition</td>
<td>Yes</td>
</tr>
<tr>
<td>Vague</td>
<td>Yes</td>
</tr>
<tr>
<td>Bacteria on health service</td>
<td>Yes</td>
</tr>
<tr>
<td>Availability of established programmatic efficacy</td>
<td>No</td>
</tr>
<tr>
<td>Rapid disease progression</td>
<td>No</td>
</tr>
<tr>
<td>Can be prevented</td>
<td>Yes</td>
</tr>
<tr>
<td>Can be treated</td>
<td>Yes, prompt treatment of active TB, specific antituberculosis treatment, preventive therapy</td>
</tr>
<tr>
<td>Contact tracing</td>
<td>Yes</td>
</tr>
<tr>
<td>Rapid diagnosis available</td>
<td>Yes</td>
</tr>
<tr>
<td>Can be cured with antibiotics</td>
<td>Yes</td>
</tr>
<tr>
<td>No risk factors</td>
<td>Yes, limited efficacy in case of treatment-resistant disease</td>
</tr>
<tr>
<td>Vaccine available</td>
<td>Yes</td>
</tr>
<tr>
<td>Economic impact</td>
<td>Yes, US $30 million annually, primarily in developing countries</td>
</tr>
</tbody>
</table>

Need for rehab in post-acute COVID-19 patients

• We have seen in the clinical presentation that patients with TB and COVID-19 may have a cumulative effect of the respective sequelae, thus making them a group potentially in need of further attention.
• In terms of programmatic activities, this means to consider evaluating patients at the end of TB/COVID (at least those with 'problems') and their rehabilitation, with impact on health services.
• The UNION has just completed a first document on the Clinical Standards for evaluation and rehabilitation of these patients.

Absorption of resources

<table>
<thead>
<tr>
<th>Ventilation during COVID-19 treatment</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No ventilation</td>
<td>467/578 (80.8)</td>
</tr>
<tr>
<td>Invasive mechanical ventilation</td>
<td>44/578 (7.6)</td>
</tr>
<tr>
<td>Non-invasive mechanical ventilation</td>
<td>67/578 (11.6)</td>
</tr>
<tr>
<td>Supplemental Oxygen</td>
<td>197/575 (34.3)</td>
</tr>
</tbody>
</table>

We discussed the slide under a different perspective during the clinically-oriented presentation:

>30% of patients needing oxygen and >10% needing ventilation produce an important burden on health services in countries with high burden of cases.

- Stock-out of oxygen?
- Not enough ventilators?
- Which services/staff to take care?

What staff in the frontline against COVID-19: an example

Mexico City
Former MDR-TB reference center, equipped with negative pressure ventilation monitored rooms.

Transformed (permanently?) into COVID hospital.

No alternative for severe TB patients.
Varese, top pressure on a modern and efficient hospital during the second wave of COVID-19.

Main issues:
- monitored/ICU beds
- oxygen supply
- keeping other services in place

Sierra Leone: Impact of COVID-19 on health (TB) services

- Cohort analysis of TB cascade of care among patients followed at the TB clinic in Brescia in the period 1 March – 30 April 2020 compared to the same period in 2019
- Significant reduction of the number of TB diagnoses and an increase in the proportion of patients who were lost to follow up or died
- Reasons of decreased diagnoses and higher lost to follow up can be: decreased attention to TB by healthcare systems, difficulties in accessing health services, lockdown measures, fear of stigma and contagion
- The pandemic can seriously jeopardise TB prevention, diagnosis and treatment
COVID-19 can negatively impact (but can also boost) the (LTBI) management at different levels of the treatment cascade.

N° examinations, TB cases and LTBI diagnosed between February and March 2020 vs 2019 in 33 centres, 16 countries, 5 continents,

Globale Study by GTN 'impact on health systems'

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Migliori
Asia-Pacific Region: India and Philippines: active TB

TB: Mexico, Argentina, Brazil

ActiveTB: Kenya, Niger, Sierra Leone
Second GTN Global study 'Impact on health systems'

N° telehealth examinations; TB cases (DS- and DR-TB, patients hospitalized and managed as OP) and LTBI (pts.
N° of examinations) diagnosed in 2020 vs 2019 in >35 centers, 19 countries, 5 continents
Interim analysis
TB: 2019 vs 2020

Interim analysis
LTBI 2019 vs 2020

TB: Latin-America and Africa
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Gigliori
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Q & A: TB/ COVID-19

- Is TB the main 'victim' of COVID-19?
- Are we going to expect a new U-shaped curve of concern?
- What does it imply for programmes?
- TB staff in most countries are the frontline: they are 'removed' from TB activities
- Do we need to invest NOW on TB services (training, equipment, fine tuning/reprogramming? etc.)
- What are the implications for infection control?

Conclusions

1. Overall, clear impact of COVID-19 on TB services in high TB and COVID-burden countries
2. Countries/settings with low burden and good services improve detection of TB and LTBI
3. The issue of rehabilitation of post-TB and post-COVID sequelae clearly emerging as an issue
4. It is urgent to respond and invest now in TB services, particularly in resource-limited settings
5. Infection control measures and contact tracing are crucial to limit the spread of both diseases!

Should we fear the ‘cursed duet’?

Thank you for your attention!!