CoVid 19: summary of knowledge and reliable information sources, March 26th 2020

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The virus: SARS-CoV 2

• December 2019, cluster of patients presenting with pneumonia in Wuhan (China)

• Betacoronavirus identified in samples obtained from respiratory secretions and isolated on cell cultures

• New coronavirus, named SARS-CoV2, subgenus Sarbecovirus, subfamily Orthocoronavirinae.

• Differs from MERS-CoV and SARS-CoV, and from viruses responsible for common cold (229E, OC43, NL63, et HKU1)

• SARS-CoV2 is the 7th member of coronavirus family able to infect humans

Na Zhu et al.
NEJM, 2020, Jan., DOI: 10.1056/NEJMoa2001017
First described case
« Real time » distribution of cases

https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6
Viral transmission

- Initially probably a zoonosis: bats, pangolin? but zoonotic transmission is no longer significant
- Human to human transmission by droplets and smears
- Hand carriage
- Incubation: maximum 14 days, usually 3 to 7
- R0 2 to 3, in the absence of control measures
- Intergenerational interval: about 5 days in the absence of control measures
- Transmission can occur 1 to 2 days before onset

It has to be updated according increasing knowledge during the outbreak
Clinical presentation: summary

• Agueusia and/or anosmia are frequent at the early stage, before respiratory symptoms and are very evocative

• Infrequent diarrhea
• Upper respiratory tract « viral » symptoms : non specific
• Pneumonia +++

• Possible worsening of respiratory symptoms on day 7 to 10

• Severity:
  – direct link with respiratory failure (Acute Respiratory Distress Syndrom)
  – More frequent in male patients / elderlies / patients with underlying conditions

• Pediatric cases are infrequent
Viral load and clinical presentation

- **Mild, moderate**
  - Important viral inoculum since the onset, for 6 to 7 days and then it decreases. Nasal sampling is the standard.
  - Possible respiratory symptoms (LRT) for 2 to 3 days. Virus can be isolated in LRT samples in this case.

- **Initial mild or moderate and complication**
  - Same evolution of the viral load, but LRT symptoms are more severe and images on lung CT scan. At this stage, nasal sampling is possibly negative.

- **Initial complicated presentation**
  - High viral load in nasal and LRT samples.
Lung images


Initial typical images on CT scan:

- bilateral multilobar ground-glass opacification
- peripheral or posterior distribution, in the lower lobes
- less frequently within the right middle lobe.

Images at a later stage:

- increase in the number and size of ground-glass opacification
- progressive transformation of ground-glass opacification into multifocal consolidative opacities,
Treatment

• Supportive care, but no steroid nor non-steroid anti-inflammatory drugs

• Antiviral drugs
  ✓ Remdesivir: previously used in MERS Cov and Ebola infections. Trials ongoing

✓ Lopinavir/Ritonavir in severe cases: recent publication reporting failure in this indication.

 ✓ Interferons, monoclonal antibodies: ongoing trials
Hydroxychloroquine
https://doi.org/10.1016/j.medmal.2020.03.004

- Known to have *in vitro* antiviral activity
- A trial for the treatment of Chickungunya was stopped:
  - severe cardiac events
  - no clinical efficacy in the chloroquine arm.
- Used in dengue: no benefit vs placebo.

It is way too early to recommend it as a treatment
- Preliminary results only, study with important limitations
- Ongoing trial
Conclusion about drugs, on March 26th

So far, no specific drug is recommended as an antiviral treatment.

Trials are ongoing.
Current recommendations for IPC and outbreak control

• General population
  ➢ Mask for infected patients
  ➢ Hand washing as frequently as possible
  ➢ Lock-down in a significant number of countries
  ➢ Social distanciation for those essential to the functionning of countries or when lock-down is not possible

• Health care workers
  ➢ Surgical masks in hospital
  ➢ FFP2 masks during care giving
  ➢ Cancel/postpone non-essential healthcare activities
  ➢ Keep in mind other life-threatening infections/diseases can still occur
Reliable sources

➢ Public Health Agencies:
  • WHO https://www.who.int/emergencies/diseases/novel-coronavirus-2019
  • Reacting https://reacting.inserm.fr/literature-review/. Daily updated bibliography

➢ Journals with free access to CoViD 19 LITERATURE:
  • JAMA: https://jamanetwork.com/journals/jama/pages/coronavirus-alert. Papers for a lot of specialists, not only Infectious Diseases

➢ Scientific societies:
  • All national ID societies provide recommendations in local language
  • French Infectious Diseases Society, for French speaking physicians, collects all official texts in french: https://www.infectiologie.com/fr/
Take home points:

- Be prudent

- Take care of yourself, your patients and your loved ones