TELECONFERENCE 03/10/2020 ICU from Lombardy (Milan, Monza, Bergamo, Pavia, Lecco) area of maximum diffusion of COVID 19 in Italy since February 2020.

Clinical data that is NOT published yet

CHARACTERISTICS OF INTENSIVE PATIENTS

- Intensive patient age between 65 and 75, most frequent age 70
- comorbidity with higher risk of death is OBESITY
- Very strong prevalence of males
- Upon admission to the ICU, generally P / F <100
- The most frequent radiological pattern is: Interstitial pneumonia chest plate bilateral (also frequent cases of asymmetry with bacterial superinfection since present upon admission to the ICU)
- Young patients with very high fever, the older the less
- nasal sample is the one that can give more false negatives
- If there is strong clinical suspicion, the best sample is a BAL (BAL can be positive after two negative nasal samples)

MONITORING

- Chest plate on admission to the unit, repeated plates have been made at the beginning of the epidemic and then they have been stopped systematically because the plaque evolution is NOT strictly related to clinical evolution
- Chest CT is NOT indicated (high risk of diffusion with transport and transportation hard)
- Chest ECO, is the most indicated technique for day-to-day monitoring (requires only the doctor and does not expose more professionals to the contagion)
    - Pattern 1 = Fuzzy B lines = PEEP answer

- Pattern 2 = anterior with air (lines A or B) posterior with Consolidations = RESPONSE TO PRONATION
- Assessment of ultrasound response to increased PEEP

- Echo of the heart = disturbances of cardiac functionality are frequent (myocarditis by COVID?)

MOST FREQUENT LABORATORY STANDARDS

- PCT = 0 (apart from cases that are already admitted with bacterial superinfection)
- PCR ↑↑↑↑↑
- LDH ↑↑↑↑↑ especially in younger patients
- CPK ↑↑ especially in younger patients and those with more fever

- Bilirubin ↑ +/- associated with alteration of transaminases (here it is not yet clear if this is secondary to pharmacological treatment (kaletra + hydroxychloroquine) or if there is clear liver involvement due to SARS VOC 2
- Blood glucose disorders of very difficult control, some patients develop ketoacidosis (these disorders can also be associated with therapy with antiretrovirals)
- Albumine ↓↓↓
- Lymphopenia with special CD4 involvement if subpopulations are studied
- normal BNP

SPECIFIC PHARMACOLOGICAL TREATMENT

- KALETRA = Lopinavir / ritonavir 200/50 2cp / 12h
- Chlorochine 500mg / 12h or idrossichlorochine 200mg / 12h
- Antibiotic prophylaxis in intubated patients, this is highly variable in all centers that have participated in the conference: most use pipe / tazo or ceftriaxone
- ALL use Acetylcysteine 300 mg / 6h, describe that not all patients develop many secretions, but those who make secretions do many and very very dense and they cover the tubes
- Corticosteroids, NEVER in acute phase, only in some selected cases in phase late and with signs of development of pulmonary fibrosis

- Tocilizumab (IL-6 receptor inhibitor). An essay to this is being developed purpose, but used experimentally and has NO routine indication or early.

INTENSIVE TREATMENT

- Deep sedation
- Generally relaxed patients when prone, with relaxation window when they are supine
- negative water balance
- VENTILATION:
  - ❖ PEEP normally high> 15
  - ❖ pH tolerated up to 7.3
  - ❖ Generally compliant lungs (in this quite different from ARDS from other causes), usually ventilated with elevated PEEP and driving protective pressures, respond very well to PEEP
  - ❖ **PRONATION !!!!**
    - ➢ cycles of 18 and up to 24 hours
    - ➢ **IT IS DIFFERENTLY THE MOST EFFECTIVE THERAPY FOR THESE SICK**
    - ➢ GENERALLY pronation many cycles, **on average 6 or 7**

- ➢ BEWARE !!! not to trust the first clinical improvement after pronation, CONTINUE with the pronation cycles until reaching true signs of response to treatment
- ➢ Consider creating a team dedicated to pronation given the high number of pronations in the units (all these units had arrived to have a team for this)
- ❖ TRACHEOTOMY generally within the first 7 days (the respiratory weaning has been achieved before in some cases but the risk of reintubation is very high (it should also be noted that Italians love to do rattles and do them early, and

there are schools of intensive medicine in other countries that do not so early, and tracheo has not been shown to be better early in patients with respiratory disease))

- SUBSTITUTE KIDNEY TREATMENT: they have not given a percentage of how many sick have had to filter. If they have stressed the fact that they reserve this treatment ONLY to highly selected patients who have an exit, because:
    - greatly increases the workload of nurses within a box isolated
    - makes pronation more difficult

- NITRIC OXIDE = has been used in difficult cases but everyone's opinion is that has not yielded important results, it is to buy time
- ECMO = In the vast majority of cases it is NOT necessary because patients respond to ventilatory treatment and especially to prolonged pronation and repeated. They are also patients in whom the component is very prevalent. hypoxic and usually have compliant lungs that can be ventilated from protective way without difficulty. Of all the ICUs that have participated in this teleconference, one is that of Monza (prof Pesenti) and one other is that of Milan Polyclinic (Prof Gattinoni and later Pesenti) which are two of the most ECMO centers big in europe, so they have experience and want to put ECMOS, and they They themselves have not seen it indicated in these patients. Of all the ICUs that have participated only Pavia currently had two COVID 19 patients in ECMO, and two patients have been **ECMO VA** , one by haemodynamic failure due to myocarditis due to COVID and the other due to hypoxic cardiac arrest.

RESPIRATORY WEAN

- USEFUL INDICATORS TO APPROACH WEANING
    - NO FEVER
    - PEEP <12
    - P / F> 150
    - FIO2 <50%

- DO NOT RELY ON THE FIRST CLINICAL IMPROVEMENT, these patients have relapses and frequent new worsening, especially in the first week of disease.

HOSPITAL ORGANIZATION

- Important to have these separate patients
- ideal organization (to which all these hospitals in the end have had to come after the high number of patients, some have ended up opening new ICUs):

    1. ICU of admission of patients until confirmation of diagnosis COVID
    2. ICU COVID 19 with ONLY COVID patients
    3. ICU "cleans" with all other patients and post-operated, in a different atmosphere and with different staff

- Establish clear paths for patient mobilization
- ideally not use the same corridors to transport patients with and without COVID
- ICU staff enter the unit from a different entrance than the patients COVID
- Clear routes to dispose of COVID garbage (organic and not)