

315 Second *Versus* First Wave of COVID-19 in Patients with MPN

Program: Oral and Poster Abstracts

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Session: 634. Myeloproliferative Syndromes: Clinical and Epidemiological: Transplantation, COVID-19 and Biology Insights

Hematology Disease Topics & Pathways:

Epidemiology, Non-Biological, Clinical Research, Clinically Relevant, Diseases, SARS-CoV-2/COVID-19, Infectious Diseases, Therapies, Myeloid Malignancies, Pharmacology

Saturday, December 11, 2021: 4:30 PM

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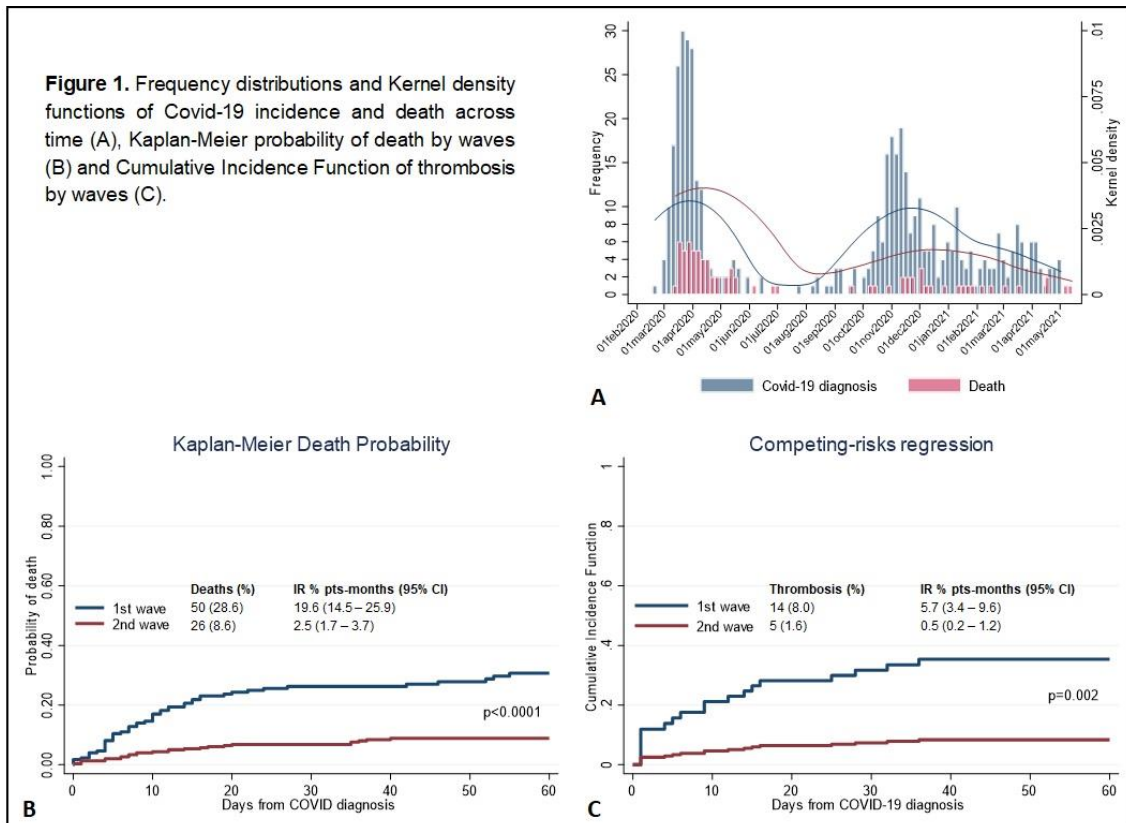
Introduction. MPN–COVID is a European LeukemiaNet cohort study, launched in March 2020 in patients with myeloproliferative neoplasms (MPN) with COVID–19. The first cohort of 175 cases was analyzed at the end of first wave (July 2020) and results provided estimates and risk factors of overall mortality (Barbui T. *Leukemia*, 2021), thrombosis incidence (Barbui T. *Blood Cancer J*, 2021), and post–COVID outcomes (Barbui T. *Blood Cancer J*, 2021). In the second wave of pandemic (June 2020 to June 2021), case–fatality risk in the general population has been found variable across different countries, and no information is available in MPN patients with COVID–19 diagnosed during the second wave in comparison with those of the first wave.

Methods. In an electronic case report form, we registered a total of 479 cases of ET (n=161, 34%), PV (n=135, 28%), pre-PMF (n=49, 10%) and overt MF (n=134, 28%), from 39 European hematology units (Italy, Spain, Germany, France, UK, Poland, Croatia). Of these, 304 were diagnosed COVID-19 during the second wave.

Results.

- Patients in the second wave were significantly different from those in the first wave, including parameters such as age (median: 63 vs. 71 years, $p < .001$), sex (females: 52% vs. 42%, $p = 0.037$), MPN category (MF 24% vs. 34%, $p = 0.020$), comorbidity (at least one comorbidity 63% vs. 74%, $p = 0.012$), disposition (home: 68% vs. 23%, regular ward: 29% vs. 66%, ICU: 3% vs. 11%, $p < .001$), need of respiratory support (28% vs. 59%, $p < .001$) and degree of systemic inflammation (C-Reactive Protein: 51% vs. 74%, $p = 0.008$; Neutrophil to Lymphocyte Ratio: 4.1 vs. 5.4, $p = 0.038$).
- In regard to COVID-19-directed therapy, in the second wave steroids were more frequently prescribed (28% vs. 40%, $p = 0.007$), while the use of antibiotics, antivirals, hydroxychloroquine and experimental therapies was significantly less frequent ($p < .001$ for all the differences). Interestingly, only 4 out of 46 patients (8.7%) discontinued Ruxolitinib during second-wave acute COVID (all MF admitted to regular ward).
- In the two waves, distribution probability of COVID-19 incidence by Kernel method showed a substantially similar shape, whereas the two incidence peaks were associated with very different mortality, as reported in Fig. 1A. The difference between the probability of death was highly significant during the first (n=175) vs. second (n=304): 31% vs. 9% at 60 days from COVID-19 diagnosis, respectively ($p < .001$) (Fig. 1B). Of note, among 26 deaths, 4 (15%) occurred at home, 19 (73%) on regular wards and 3 (12%) in the ICU, and death more frequently afflicted patients with (n=17, 65%) than ET (n=5, 19%) and PV (n=4, 15%) ($p < .001$).
- Independent risk factors for death in a multivariate Cox regression model fitted on the whole cohort and adjusted for the wave to which patients belonged, were age over 70 years (HR=5.2, 95% CI 1.8–15.1, $p = 0.002$), male sex (HR=1.9, 95% CI 1.1–3.1, $p = 0.016$), COVID-19 severity revealed by the need for respiratory support (HR=4.5, 95% CI 1.9–10.7, $p = 0.001$), and Ruxolitinib discontinuation (HR=3.0, 95% CI 1.3–6.9, $p = 0.011$). Conversely, in patients who continued this drug, no risk was documented (HR=1.21, $p = 0.566$).
- Taking into account death as competing event, the second outcome of interest was the incidence of thrombosis, which occurred in a significantly lower proportion of patients in the second wave compared to the first one (n=5 [1.6%] vs. n=14 [8.0%] at +60 days, respectively, SHR=0.20, $p = 0.002$) (Fig. 1C). All the events, but one (n=4/5) were venous and were reported in patients with ET (SHR=4.4, 95% CI 1.8–10.7, $p = 0.001$).

Conclusions. This is the largest series of MPN patients who incurred COVID-19 from June 2020 onward, namely during the “second COVID-19 wave”. Compared to the first wave, the second one recorded a lower overall COVID-19 severity, but Ruxolitinib discontinuation still remained a risk factor for a dismal outcome. Greater vulnerability of ET than PV in developing venous thrombosis was confirmed also during the second wave. This finding suggests that ET warrants a specific antithrombotic prophylaxis in addition to heparin.



Disclosures: **Barbui:** *AOP Orphan:* Membership on an entity's Board of Directors or advisory committees, Research Funding; *Novartis:* Membership on an entity's Board of Directors or advisory committees, Research Funding. **Iurlo:** *Novartis:* Speakers Bureau; *Incyte:* Speakers Bureau; *Pfizer:* Speakers Bureau; *Bristol Myers Squibb:* Speakers Bureau. **Sobas:** *Celgene:* Consultancy, Honoraria; *Novartis:* Consultancy, Honoraria. **Fox:** *Novartis:* Honoraria; *Sierra:* Honoraria. **Palandri:** *AOP:* Membership on an entity's Board of Directors or advisory committees; *CTI:* Consultancy; *Sierra Oncology:* Membership on an entity's Board of Directors or advisory committees; *Celgene:* Membership on an entity's Board of Directors or advisory committees; *Novartis:* Membership on an entity's Board of Directors or advisory committees. **Benevolo:** *Novartis:* Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *Janssen:* Membership on an entity's Board of Directors or advisory committees; *Takeda:* Membership on an entity's Board of Directors or advisory committees; *BMS:* Membership on an entity's Board of Directors or advisory committees; *Amgen:* Speakers Bureau. **Harrison:** *Gilead Sciences:* Membership on

an entity's Board of Directors or advisory committees, Speakers Bureau; *Roche*: Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *Sierra Oncology*: Honoraria; *Galacteo*: Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *Promedior*: Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *CTI BioPharma*: Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *Celgene*: Honoraria, Membership on an entity's Board of Directors or advisory committees, Research Funding, Speakers Bureau; *Shire*: Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *Incyte Corporation*: Speakers Bureau; *BMS*: Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *Keros*: Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *Janssen*: Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *Novartis*: Membership on an entity's Board of Directors or advisory committees, Research Funding, Speakers Bureau; *Geron*: Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *AOP Orphan Pharmaceuticals*: Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *Constellation Pharmaceuticals*: Research Funding; *Abbvie*: Membership on an entity's Board of Directors or advisory committees, Speakers Bureau. **Bonifacio**: *Pfizer*: Membership on an entity's Board of Directors or advisory committees; *Novartis*: Membership on an entity's Board of Directors or advisory committees; *Bristol Myers Squibb*: Membership on an entity's Board of Directors or advisory committees; *Amgen*: Membership on an entity's Board of Directors or advisory committees. **Kiladjian**: *Taiho Oncology, Inc.*: Research Funding; *Bristol Myers Squibb*: Membership on an entity's Board of Directors or advisory committees; *Incyte Corporation*: Membership on an entity's Board of Directors or advisory committees; *Novartis*: Membership on an entity's Board of Directors or advisory committees; *PharmaEssentia*: Other: Personal fees; *AOP Orphan*: Membership on an entity's Board of Directors or advisory committees; *AbbVie*: Membership on an entity's Board of Directors or advisory committees. **Patriarca**: *Incyte*: Honoraria; *Takeda*: Honoraria; *Argenix*: Honoraria; *Novartis*: Honoraria; *Amgen*: Honoraria; *Pfizer*: Honoraria. **Griesshammer**: *Janssen*: Consultancy, Honoraria; *Roche*: Consultancy, Honoraria; *Shire*: Consultancy, Honoraria; *Pfizer*: Consultancy, Honoraria; *Celgene*: Consultancy, Honoraria; *Novartis*: Consultancy, Honoraria; *Amgen*: Consultancy, Honoraria; *AOP Orphan*: Consultancy, Honoraria; *CTI*: Consultancy, Honoraria; *Gilead*: Consultancy, Honoraria; *Astra Zeneca*: Consultancy, Honoraria. **Garcia Gutierrez**: *Pfizer*: Consultancy, Honoraria, Research Funding; *Incyte*: Consultancy, Honoraria, Research Funding; *BMS*: Consultancy, Honoraria, Research Funding; *Novartis*: Consultancy, Honoraria, Research Funding. **Osorio**: *Janssen*, *Abbvie*, *Roche*: Consultancy. **Koschmieder**: *CTI*: Membership on an entity's Board of Directors or

advisory committees, Other; *BMS*: Consultancy, Honoraria, Membership on an entity's Board of Directors or advisory committees, Other: (e.g. travel support); *Bristol-Myers Squibb*: Honoraria, Membership on an entity's Board of Directors or advisory committees, Other: Travel support, Research Funding; *Baxalta*: Membership on an entity's Board of Directors or advisory committees, Other; *Abbvie*: Other: Travel support; *Alexion*: Other: Travel support; *Karthos*: Other: Travel support; *Sanofi*: Membership on an entity's Board of Directors or advisory committees, Other: Travel support; *Image Biosciences*: Other: Travel support; *AOP Pharma*: Honoraria, Membership on an entity's Board of Directors or advisory committees, Other: (e.g. travel support), Research Funding; *Celgene*: Honoraria, Membership on an entity's Board of Directors or advisory committees, Other: (e.g. travel support); *Incyte*: Honoraria, Membership on an entity's Board of Directors or advisory committees, Other: (e.g. travel support); *Janssen*: Honoraria, Membership on an entity's Board of Directors or advisory committees, Other: (e.g. travel support), Research Funding; *Geron*: Honoraria, Membership on an entity's Board of Directors or advisory committees, Other: (e.g. travel support), Research Funding; *Roche*: Honoraria, Membership on an entity's Board of Directors or advisory committees; *Novartis*: Honoraria, Membership on an entity's Board of Directors or advisory committees, Other: Travel support, Research Funding; *Ariad*: Honoraria, Membership on an entity's Board of Directors or advisory committees, Other: (e.g. travel support); *Pfizer*: Honoraria, Membership on an entity's Board of Directors or advisory committees, Other: (e.g. travel support); *Shire*: Honoraria, Other. **Vannucchi**: *Incyte*: Honoraria, Membership on an entity's Board of Directors or advisory committees; *Novartis*: Honoraria, Membership on an entity's Board of Directors or advisory committees; *BMS*: Honoraria, Membership on an entity's Board of Directors or advisory committees; *AbbVie*: Membership on an entity's Board of Directors or advisory committees.