

SUPPLEMENTARY MATERIAL

Table S1. Demographic, clinical and laboratory characteristics of patients before, at and after COVID-19 diagnosis

CHARACTERISTIC	N non missing	VALUE
<i>Pre-COVID-19 diagnosis</i>		
Months before COVID-19 onset, median (IQR)	125	1.4 (0.8-3.0)
<i>MPN diagnosis</i>		
ET		38 (30.4%)
PV		37 (29.6%)
MF		36 (28.8%)
pre-PMF		14 (11.2%)
Age, median (IQR)	125	68.9 (57.2-78.6)
<i>Sex</i>		
Female		58 (46.4%)
Male		67 (53.6%)
Comorbidities (at least one)	125	88 (70.4%)
Palpable splenomegaly	107	28 (26.2%)
<i>Laboratory parameters, median (IQR)</i>		
Hemoglobin, g/dL	117	13.0 (11.4-14.2)
Hematocrit, %	106	40.6 (35.0-43.2)
White blood cells count, x10 ⁹ /L	116	7.0 (5.4-9.1)
Platelets count, x10 ⁹ /L	116	336.5 (234.0-508.0)
<i>MPN directed treatments</i>		
Hydroxyurea		60 (48.0%)
Ruxolitinib		25 (20.0%)
Anagrelide		5 (4.0%)
Interferon		4 (3.2%)
<i>At COVID-19 diagnosis</i>		
Age, median (IQR)	125	69.5 (57.6-78.9)
Years from MPN diagnosis, median (IQR)	125	6.0 (3.1-10.4)
<i>Patient disposition</i>		
Home		38 (30.4%)
Regular ward		80 (64.0%)
Intensive care unit		7 (5.6%)
<i>Oxygen supplementation</i>		
Non-invasive	125	53 (42.4%)
Invasive		6 (4.8%)
<i>Laboratory parameters, median (IQR)</i>		
Hemoglobin, g/dL	101	12.6 (10.4-13.5)
Hematocrit, %	96	39.0 (32.0-42.8)

White blood cells count, x10 ⁹ /L	102	6.4 (4.5-9.2)
Platelets count, x10 ⁹ /L	100	260.5 (170.5-437.5)
Neutrophil/Lymphocyte ratio	90	5.0 (3.3-8.6)
C-reactive protein, mg/dL	77	66.0 (17.2-118.4)
D-Dimer, ng/mL	61	597.0 (305.0-1392.0)
<i>COVID-19 directed treatment</i>	125	
Steroids	118	28 (23.7%)
Antibiotics	117	77 (65.8%)
hydroxyc	122	73 (59.8%)
Antivirals	120	43 (35.8%)
Lopinavir/Ritonavir		33 (27.5%)
Other		7 (5.8%)
Experimentals	123	11 (8.9%)
Tocilizumab		7 (5.7%)
Ruxolitinib		2 (1.6%)
Other		2 (1.6%)
Antithrombotics	121	70 (57.9%)
Low molecular weight heparin		66 (54.5%)
DOACs		2 (1.7%)
Warfarin		1 (0.8%)
At 6-month follow-up after COVID-19 recovery		
Days since hospital discharge/home resolution, median (IQR)	125	185.0 (150.0-215.0)
Oxygen saturation, median (IQR)	40	97.0 (95.5-98.0)
<i>Laboratory parameters, median (IQR)</i>		
Hemoglobin, g/dL	113	13.0 (11.3-14.2)
Hematocrit, %	108	39.7 (35.0-43.7)
White blood cells count, x10 ⁹ /L	113	7.3 (5.8-9.1)
Platelets count, x10 ⁹ /L	111	320.0 (221.0-465.0)
Neutrophil/Lymphocyte ratio	98	2.8 (2.0-4.7)
C-reactive protein, mg/dL	41	1.2 (0.3-6.0)
D-Dimer, ng/mL	22	361.5 (270.0-464.0)
<i>Instrumental examinations</i>		
Chest X-ray investigation	23	
Normal		16 (69.6%)
Abnormal		7 (30.4%)
Chest CT scan investigation	19	
Normal		6 (31.6%)
Abnormal		13 (68.4%)
<i>Clinical evaluation</i>		
Palpable splenomegaly	98	30 (30.6%)
Cm below costal margin, median (IQR)	30	3.0 (2.0-7.0)
Hepatomegaly	101	9 (8.9%)
Lymphadenopathy	100	1 (1.0%)
Localization		

Thorax		1 (1.0%)
Need of blood transfusion	110	13 (11.8%)
No. of tranfusions, median (IQR)	13	6.0 (3.0-18.0)
<i>MPN directed treatments</i>		
Hydroxyurea	114	57 (50.0%)
Ruxolitinib	114	27 (23.7%)
Interferon	114	5 (4.4%)
Anagrelide	114	3 (2.6%)
Antiplatelets	114	77 (67.5%)
Aspirin		68 (59.6%)
Clopidrogel/Tiklid		9 (7.9%)
Anticoagulants	114	20 (17.5%)
VKA		8 (7.0%)
DOACs		6 (5.3%)

Figure S1. Symptoms at and 6-months after acute COVID-19 phase

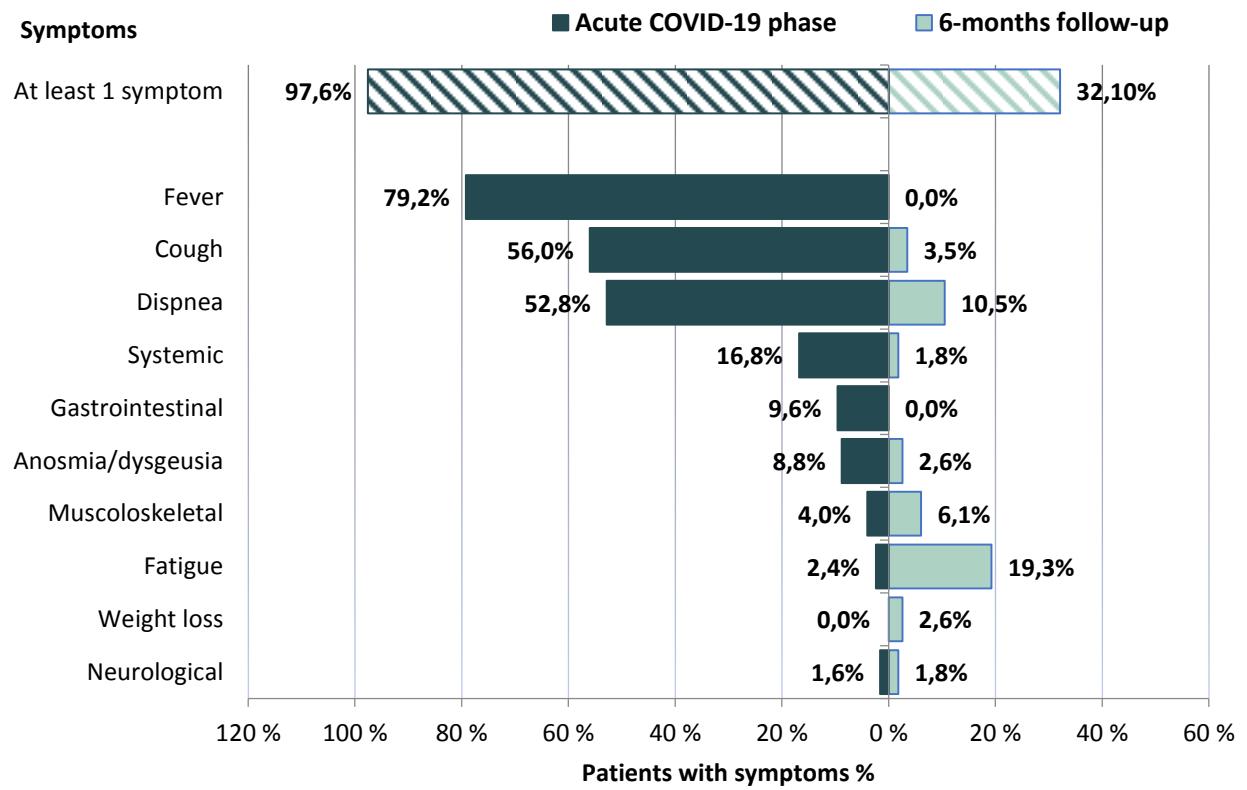


Table S2. Laboratory and genetic characteristics of 3 MPN patients evolved into AML after COVID-19 recovery

Patient characteristics	Patient #1	Patient #2	Patient #3
Primary MPN Diagnosis	MF	ET	Pre-PMF
Sex (Female/Male)	M	F	M
Blood counts at last chronic phase control			
Hemoglobin (g/dl)	12.8	11.8	13.1
White Blood Cells (X10 ⁹ /L)	6.07	5.5	15
Blasts (%)	NA	NA	NA
Platelets (X10 ⁹ /L)	642	300	671
Blood counts at progression			
Hemoglobin (g/dl)	7.5	8.2	9.3
White Blood Cells (X10 ⁹ /L)	6.8	1.8	25.3
Blasts (%)	NA	1	NA
Platelets (X10 ⁹ /L)	91	239	98
Bone Marrow Blast (%)	NA	12	NA
Karyotype			
During Chronic Phase	NA	NA	NA
At progression	45,XY,der(3;16)(q10;p10),-5,t(6;17)(p25;q11),+8,dic(8;9)(p21;p24),add(14)(q24),der(?)t(?;3)(?;q12)[25].ish der(3;16)(wcp3+),der(?)t(?;3)(?;q12)(wcp3+)[5],der(3;16)(RPN1+,MECOM+),der(?)t(?;3)(?;q12)(RPN1+,MECOM+)[5],der(14)t(5;14)(p13;q24)(wcp5+),der(?)t(?;3)ins(?;5)(wcp5+)[5],der(14)t(5;14)(p13;q24)(D5S23/D5S721+)[5]	47,XX,+mar[11]/46,XX[17]	46,XY,add(6)(p25)[6]/47,XY,-5,add(6)(p25),+r,+mar[4]/46,XY,del(1)(q32),5,add(8)(p23),-12,add(13)(p13),+mar1,+mar2,[8]/46,XY[2]
Molecular Genetics			
During Chronic Phase	CALR c.1099_1150del, VAF 42%	JAK2 V617F, VAF 31%	ASXL1 c.1934dupG, VAF 15%, IDH1 c.395G>A, VAF 1%, IDH2 c.440T>A, VAF 15%, MPL c.1544G>T, VAF 1%, SRSF2 c.284C>A, VAF 22%
At progression	WT for the investigated variants (JAK2 V617F and exon 12, NPM1 , FLT3 , hot spot mutations IDH1/2)	DNMT3A p.Y528_Q534dup, VAF 45%, IDH2 p.R140Q, VAF 32%, RUNX1 p.F131V, VAF 3%, SH2B3 p.L414R, VAF 29%, STAG2 c.1638+2T>C, VAF 4%, JAK2 V617F<1%	ASXL1 c.1934dupG, VAF 35%, IDH1 c.395G>A, VAF 44%, MPL c.1544G>T, VAF 59%, TP53 c.524G>A, VAF 91%, RUNX1 c.320G>A, VAF 44% SRSF2 c.284C>A, VAF 44%