
POLICITEMIA VERA NEL 2023:

qualcosa è cambiato

# Management del Ropeginterferon-alfa-2b nella real-life

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# Disclosures of Name Surname

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# 1. Women of childbearing age who intend to become pregnant

- **pregnancy category D**
- Drugs which have caused, are suspected to have caused or may be expected to cause, an increased incidence of human fetal malformations or irreversible damage.

## Hydroxyurea

- **pregnancy category C teratogen**
- Drugs which, owing to their pharmacological effects, have caused or may be suspected of causing, harmful effects on the human fetus or neonate without causing malformations.

## Ruxolitinib

- **pregnancy category C teratogen**
- Animal reproduction studies have shown an adverse effect on the fetus and **there are no adequate studies in humans**
- **Potential benefits may warrant use of IFN despite potential risks.**

## Interferons

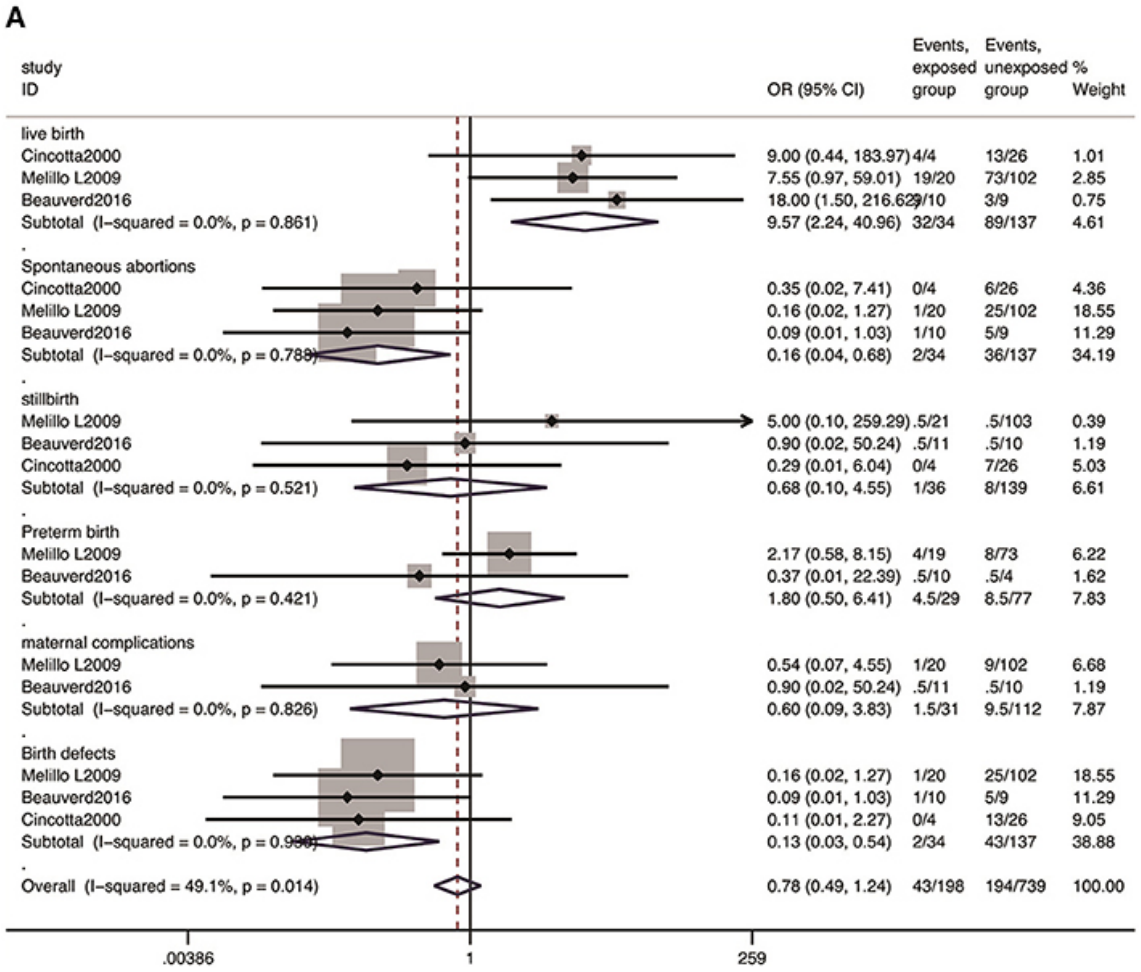
# 1. Women of childbearing age who intend to become pregnant

A recent comprehensive meta-analysis concerning the IFN-α and IFN-β exposure demonstrated that the risks of

- live birth (OR 0.89)
- spontaneous abortion (OR 1.09)
- stillbirth (OR 1.38)
- preterm delivery (OR 1.24)
- maternal complications (OR 0.72)

were not increased in female patients exposed to IFNs due to hepatitis or MPNs

**IFN should be used during pregnancy if the benefit outweighs the risk**




Zhang M et al, Front. Reprod. Health, 12 August 2021

# 1. Women of childbearing age who intend to become pregnant

B Interferon vs observation

| Source | Interferon Events | Interferon Total | Observation Events | Observation Total | OR (M-H, Random, 95% CI |
|---|---|---|---|---|---|
| Cincotta et al,[9] 2000 | 4 | 4 | 6 | 16 | 14.54 (0.67-316.69) |
| Giraudet et al,[31] 2011 | 3 | 3 | 1 | 1 | Not estimable |
| Lapoirie et al,[32] 2018 | 4 | 6 | 0 | 2 | 9.00 (0.30-271.65) |
| Niittyvuopio et al,[33] 2004 | 2 | 2 | 15 | 30 | 5.00 (0.22-112.88) |
| Puyade et al,[36] 2017 | 5 | 5 | 2 | 4 | 11.00 (0.37-324.52) |
| Robinson et al,[3] 2005 | 3 | 3 | 5 | 14 | 12.09 (0.52-280.40) |
| **Total (95% CI)** | | **23** | | **67** | **9.72 (2.31-41.01)** |
| **Total events** | **21** | | **29** | | |

Heterogeneity: $\tau^2 = 0.00$; $\chi^2 = 0.27_4$; $P = .99$; $I^2 = 0\%$
Test for overall effect: $z = 3.10$; $P = .002$

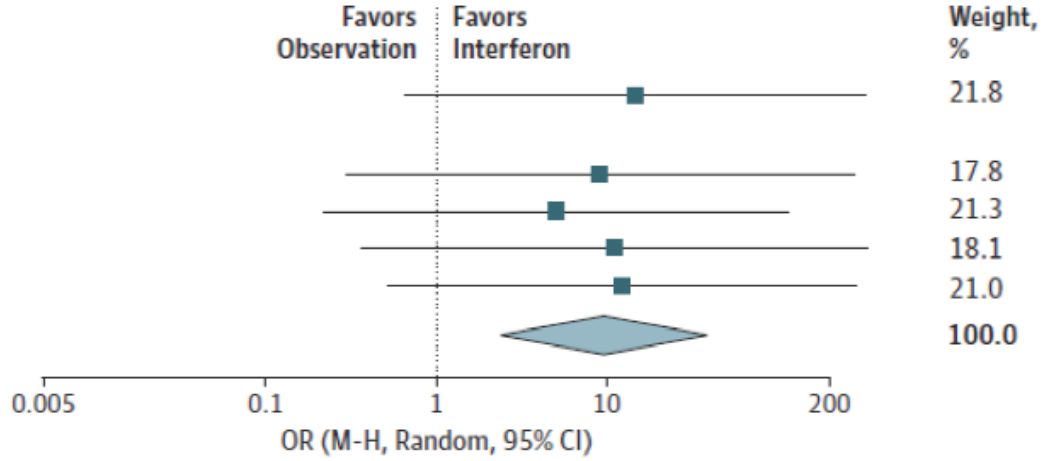



Figure: Live Births in Pregnant Patients with Myeloproliferative Neoplasms, Effect of interferon (Maze *et al.*, 2019).

Evidence with IFN alpha has been documented in about 90 pregnancies in patients with ET and PV. Live birth rate in these treated patients was 94%, rates of thrombosis and major bleeding was seen in 1.3% and 2.6% of cases.

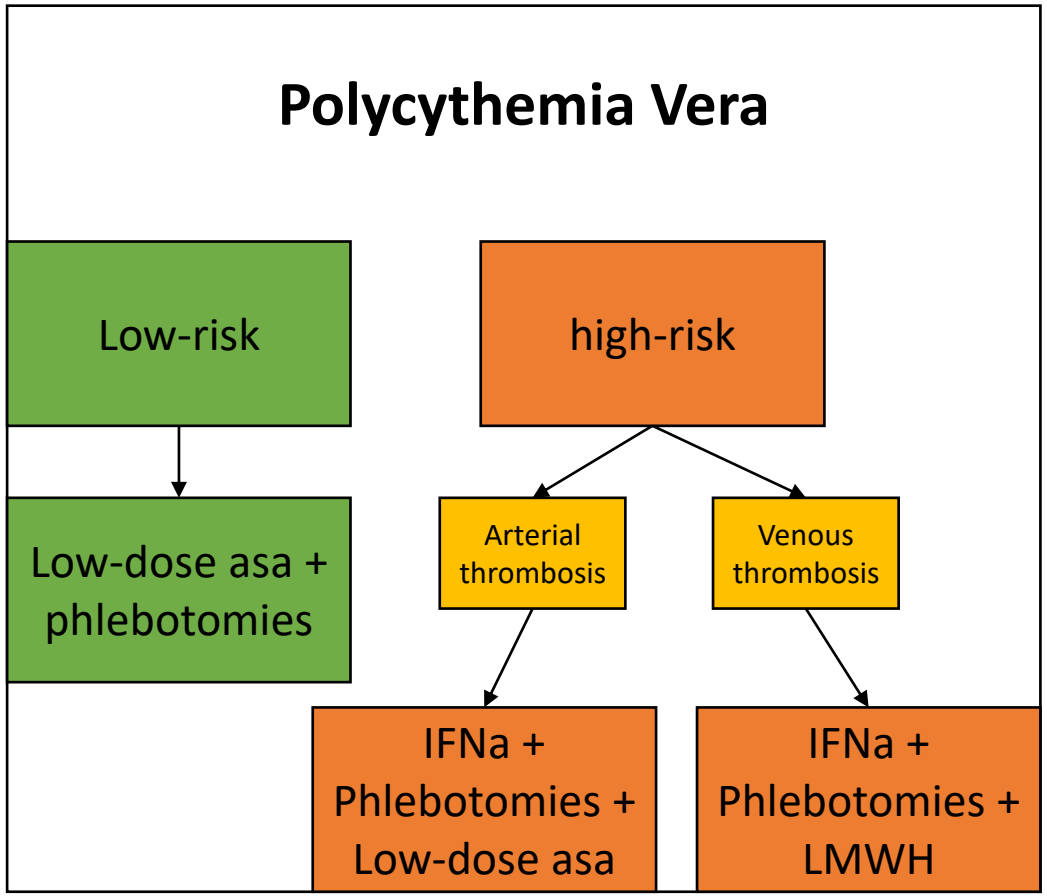
**Use of IFN alpha was shown to improve life birth rates in MPN pregnancies**

Maze et al., 2019

# 1. Women of childbearing age who intend to become pregnant

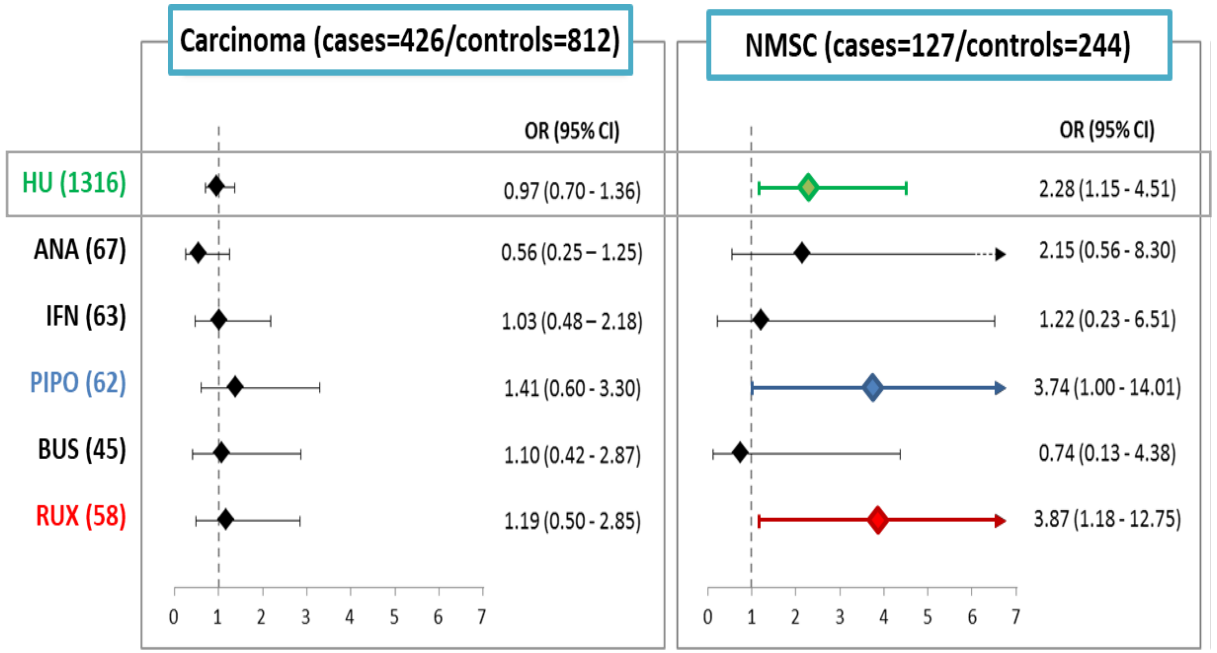
In 3 recent reviews, suggested treatment options for PV pregnancies are:

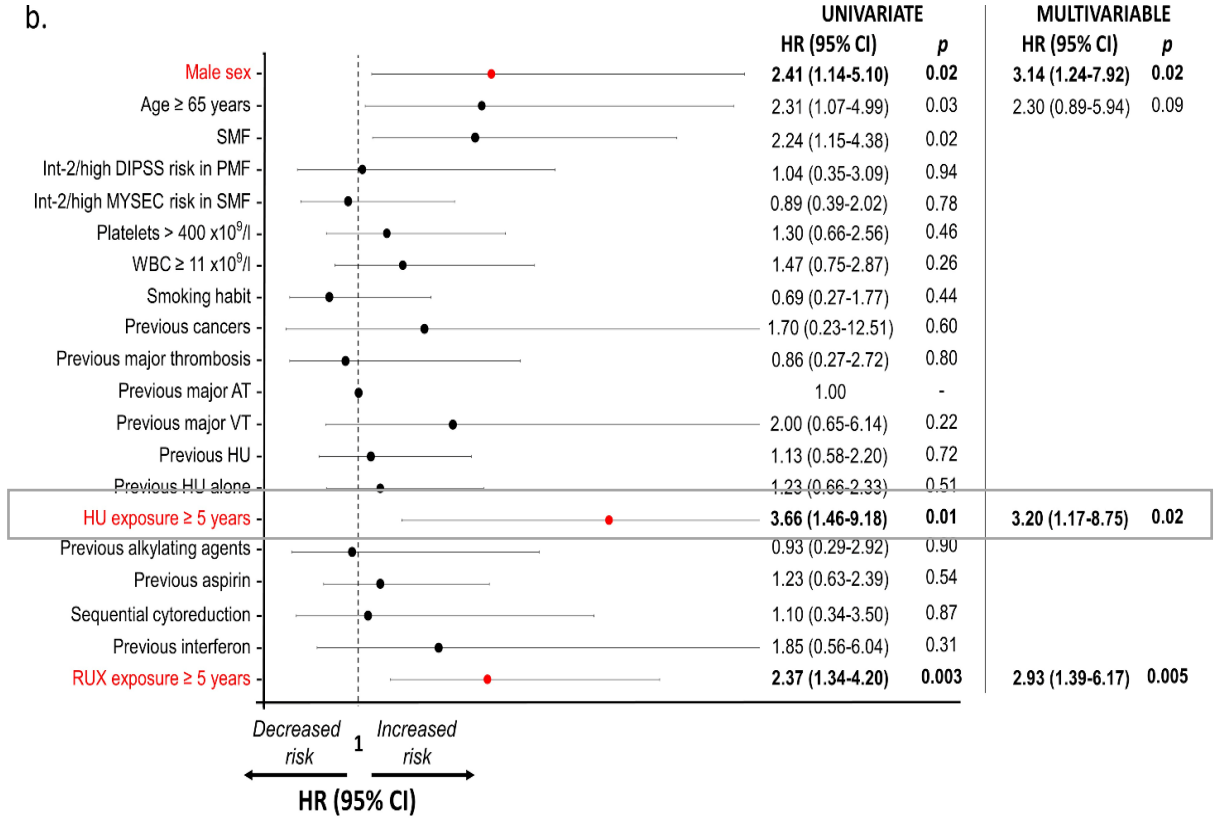
1. Low-dose aspirin
2. Close monitoring of the blood counts and (strict) control of hematocrit (<45%) by phlebotomy
3. Anticoagulation with low molecular weight heparin (LMWH) for patients with a history of thrombosis
4. **Interferon alpha for high-risk patients** requiring cytoreductive treatment. IFN alpha can also be considered for **low-risk patients with a history of recurrent fetal loss, marked splenomegaly or insufficient control of hematocrit** with phlebotomy.




Griesshammer et al., 2018; Robinson and Harrison, 2020; Gangat et al., 2020

# 2. Individuals with a history of skin cancer



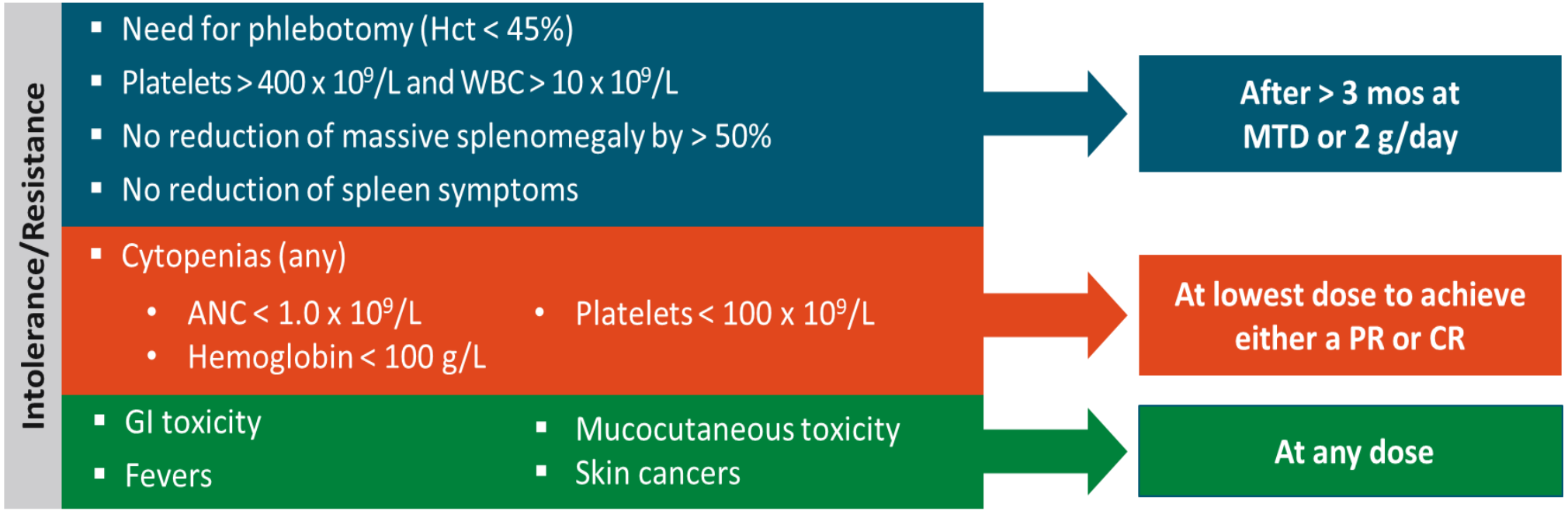




A large international nested case-control study (MPN-K) 647 MPN patients with SC, were matched with 1234 MPN controls After a median exposure of 3 years, HU use was associated with an increase in non-melanoma skin cancers

In a retrospective analysis on 700 RUX-treated MF patients, previous exposure to HU > 5 years was associated with an increase in non-melanoma skin cancers but not with second primary malignancies

Barbui T, Leukemia 2019, 33: 1996–2005; Polverelli N, Palandri F, Br J Haematol. 2020 Nov 21

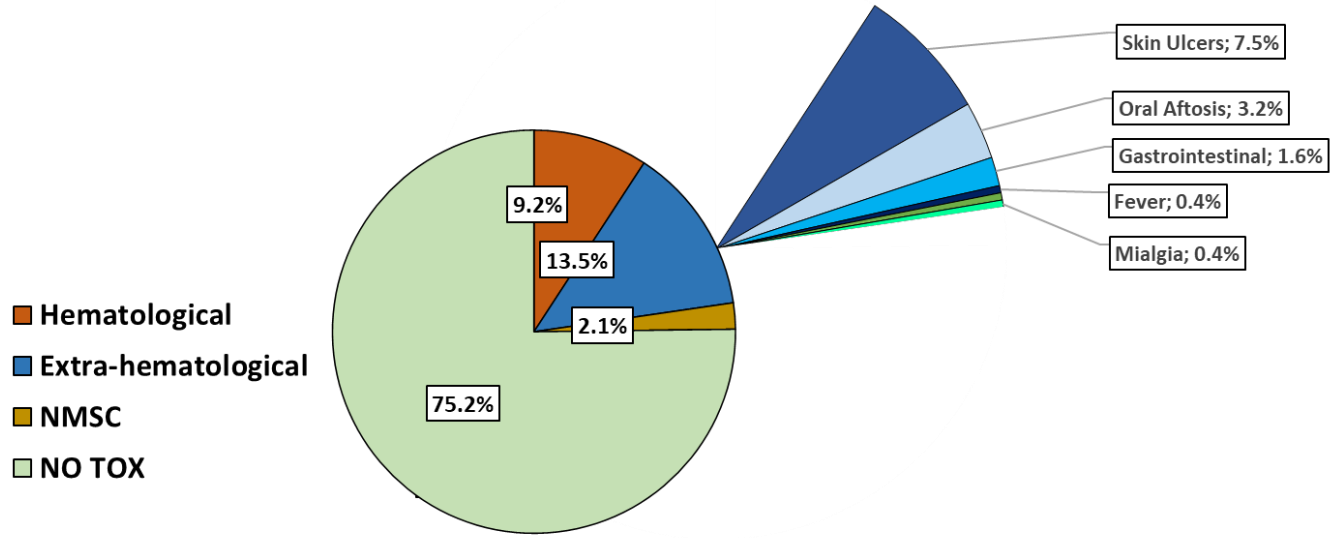
# 3. Individuals intolerant to HU

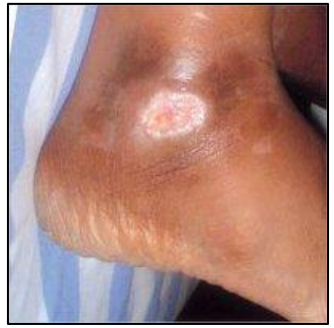


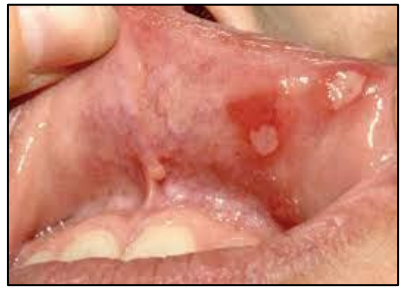

Barosi G, Blood. 2009;113(20):4829-4833

# 3. Individuals intolerant to HU


- In several retrospective studies, 10-15% of patients were intolerant to HU, mainly due to extra-hematological toxicity.
- In the Italian PV-ARC retrospective cohort of 563 PV patients treated with HU for ≥12 months, ≥1 HU-related AE occurred in 128 patients (22.7%).
- 50 patients (8.9%) discontinued HU because of toxicity
- Median HU dose ≥1 g/d was associated with increased incidence of HU-related AEs





Antonioli E et al. *Am J Hematol*. 2012;87:552-554. Harrison C et al. *N Engl J Med*. 2005;353:33-45; Hernández-Boluda JC et al. *Br J Haematol.* 2011;152:81-88; Mesa RA, et al. *Cancer*. 2017;123:449-458. Palandri F et al, SIE2021

# Appropriate management of polycythaemia vera with cytoreductive drug therapy: European LeukemiaNet 2021 recommendations – HU SWITCH

## HU switch must be recommended
**(at any HU dose)**

- **Non hema intolerance**
  G3–4 or prolonged G2 toxicity
- **Hema intolerance**
  Hb<10 g/dL, PLT<100 ×$10^9$/L, or PMN<1 ×$10^9$/L) at the lowest dose to achieve a response
- **NMSC**
- **Vascular events**
  (clinically relevant bleeding, venous or arterial thrombosis)

## HU switch must be considered
**(after ≥1.5 g/d for 4 mos)**

- TSS ≥20 and/or Itching ≥5 for >6 mos
- PLT>1000 x $10^9$/L for >3 mos
- Symptomatic/progressive splenomegaly
- Progressive/persistent leukocytosis
- ≥ 6 PHL to keep HCT<45%

Symptomatic/progressive splenomegaly: increased spleen size by more than 5 cm from the left costal margin in one year

Leukocytosis
progressive (at least 100% increase if baseline count is <10 x$10^9$/L or >50% increase if baseline count is > 10 x$10^9$/L) persistent (WBC> 15 x$10^9$/L for >3 mos)

Marchetti M et al, Lancet Haematol . 2022 Apr;9(4):e301-e311.

# Appropriate management of polycythaemia vera with cytoreductive drug therapy: European LeukemiaNet 2021 recommendations – RUX vs IFN AFTER HU FAILURE

| | Favoured shift to interferon alfa? | Quality of evidence | Favoured shift to ruxolitinib? | Quality of evidence |
|---|---|---|---|---|
| Disease transformation* | Yes | Moderate[26,37] | Yes | Low†[14,17] |
| Vascular events* | Yes | Low[36-38] | Yes | Moderate[50,51,60] |
| Symptoms* | Yes | Moderate[45] | Yes | High[17,19] |
| Haematocrit control | Yes | Moderate[37,38] | Yes | Moderate[14,16,60] |
| Phlebotomy frequency | Yes | High[37,38] | Yes | High[14] |
| Haematological response | Yes | Moderate[36,38] | Yes | High[16] |
| Quality of life | Yes | Moderate[15] | Yes | High[32,61] |
| Adverse effects | No | High[7,37,41,62] | No | High[7,41,62,63] |
| Secondary malignancies | Yes | Moderate[8,37,40,48] | No | Moderate[8,14,16,38,48] |
| Molecular response | Yes | High[15,37] | Yes | Moderate[14,16] |
| Overall survival | Yes | Low[26,37] | Yes | Low[16,64] |

- RopegIFNa2b is approved for the 1L and 2L therapy of PV
- RopegIFNa2b is reimbursed for the PV intolerant to HU, females desiring a pregnancy and in case of NMSC

**The ELN expert panel decided not to provide specific recommendations for interferon alfa or ruxolitinib after HU failure** but rather to allow clinicians to tailor cytoreductive drug therapy for patients who have previously been treated with HU according to clinical features, such as symptom burden and haematological or marrow findings, symptomatic splenomegaly, or patient preference.

Marchetti M et al, Lancet Haematol . 2022 Apr;9(4):e301-e311.

# Main IFN Contraindications

Cirrhosis of the liver (Child-Pugh B or C)

End-stage renal disease (GFR < 15 mL/min)

Combination with telbivudine (HBV)

Thyroid disease

Psychiatric disorders

Severe cardiovascular disease or recent stroke

Immunosuppressed transplant recipient

# Severe major organ failure

- Decompensated cirrhosis (Child-Pugh B or C)
- End-stage renal failure (creatinine clearance < 15 ml/min)
- Clinically relevant pulmonary infiltrates or pneumonia/pneumonitis
- Immunodepression (HIV infection, either controlled or uncontrolled; organ transplants
- Congestive heart failure (NYHA class ≥2)
- Serious cardiac arrhythmia
- Significant CAD
- Recent stroke or recent myocardial infarction
- Uncontrolled arterial hypertension

**Close cooperation with heart, liver and lung specialists**

# Thyreopathy & autoimmune diseases

- Not adequately controlled thyroid function in patients with known thyreopathy
- History or presence of documented autoimmune disease

TSH and thyroid hormones

Autoimmunity tests (i.e., ANA, Rheuma-test, antiPL Ab, anti-thyroglobulin & anti- thyroid peroxidase Ab)

**Close cooperation with endocrinologists and with rheumatologist**

# Psychiatric disorders

- History of severe psychiatric disorders, particularly severe depression, suicidal ideation or suicide attempt
- History of severe uncontrolled seizures
- HADS score ≥11
- History of alcohol abuse in the last year

**Hospital Anxiety and Depression Scale (H. A. D. S.)**

**Indichi per ogni affermazione la risposta più vicina al suo stato emozionale:**

| | |
|---|---|
| D.1 Mi sono sentito teso e molto nervoso: | D.8 Mi sono sentito rallentato nei movimenti: |
| 1.1 Per la maggior parte del tempo | 8.1 Quasi sempre |
| 1.2 Per molto tempo | 8.2 Molto spesso |
| 1.3 A volte | 8.3 A volte |
| 1.4 Mai | 8.4 Mai |
| D.2 Sono riuscito ancora a provare piacere per le cose che ho sempre fatto volentieri: | D.9 Mi sono sentito nervoso, come con un senso di tensione allo stomaco: |
| 2.1 Proprio come una volta | 9.1 Mai |
| 2.2 Non proprio come una volta | 9.1 A volte |
| 2.3 Solo in parte | 9.3 Piuttosto spesso |
| 2.4 Per niente | 9.4 Molto spesso |
| D.3 Ho provato un sentimento di paura come se potesse accadere qualcosa di terribile: | D.10 Ho perso interesse per il mio aspetto fisico: |
| 3.1 Sicuramente e in maniera intensa | 10.1 Completamente |
| 3.2 Si, ma in maniera non troppo intensa | 10.2 Non me ne prendo cura quanto dovrei |
| 3.3 Un po' ma non da preoccuparmene | 10.3 Forse non me ne prendo cura abbastanza |
| 3.4 Per niente | 10.4 Me ne prendo cura come al solito |
| D.4 Sono riuscito a ridere e a vedere il lato divertente delle cose: | D.11 Mi sono sentito irrequieto e incapace di stare fermo: |
| 4.11 Proprio come ho sempre fatto | 11.1 Moltissimo |
| 4.2 Non proprio come un tempo | 11.2 Molto |
| 4.3 Sicuramente non come un tempo | 11.3 Non molto |
| 4.4 Per niente | 11.4 Per niente |
| D.5 Mi sono venuti in mente pensieri preoccupanti: | D.12 Penso al futuro con ottimismo: |
| 5.1 Per la maggior parte del tempo | 12.1 Così come ho sempre fatto |
| 5.2 Per molto tempo | 12.2 Un po' meno di una volta |
| 5.3 A volte, non troppo spesso | 12.3 Sicuramente meno di una volta |
| 5.4 Solo in qualche occasione | 12.4 Per niente |
| D.6 Mi sono sentito di buon umore: | D.13 Mi sono venute improvvise crisi di panico: |
| 6.1 Mai | 13.1 Molto spesso |
| 6.2 Raramente | 13.2 Piuttosto spesso |
| 6.3 A volte | 13.3 Non molto spesso |
| 6.4 Per la maggior parte del tempo | 13.4 Mai |
| D.7 Ho potuto sedermi sentendomi rilassato e a mio agio: | D.14 Ho provato piacere leggendo un buon libro o seguendo la radio o la televisione: |
| 7.1 Sempre | 14.1 Spesso |
| 7.2 Spesso | 14.2 A volte |
| 7.8 Qualche volta | 14.4 Non di frequente |
| 7.9 Mai | 14.5 Molto raramente |

# Eye diseases

- Severe retinopathy or clinically relevant ophthalmological disorder
- Ophthalmological visit before ropegIFN start, particularly in patients with comorbid conditions associated with retinopathy (i.e., diabetes, hypertension)

**Close cooperation with eye specialist**

# Baseline clinical and laboratory evaluation is very important

**Medical history**

- CV diseases
- Thyroid and rheumatic disorders
- Psychiatric disorders
- Drug history

**Lab tests**

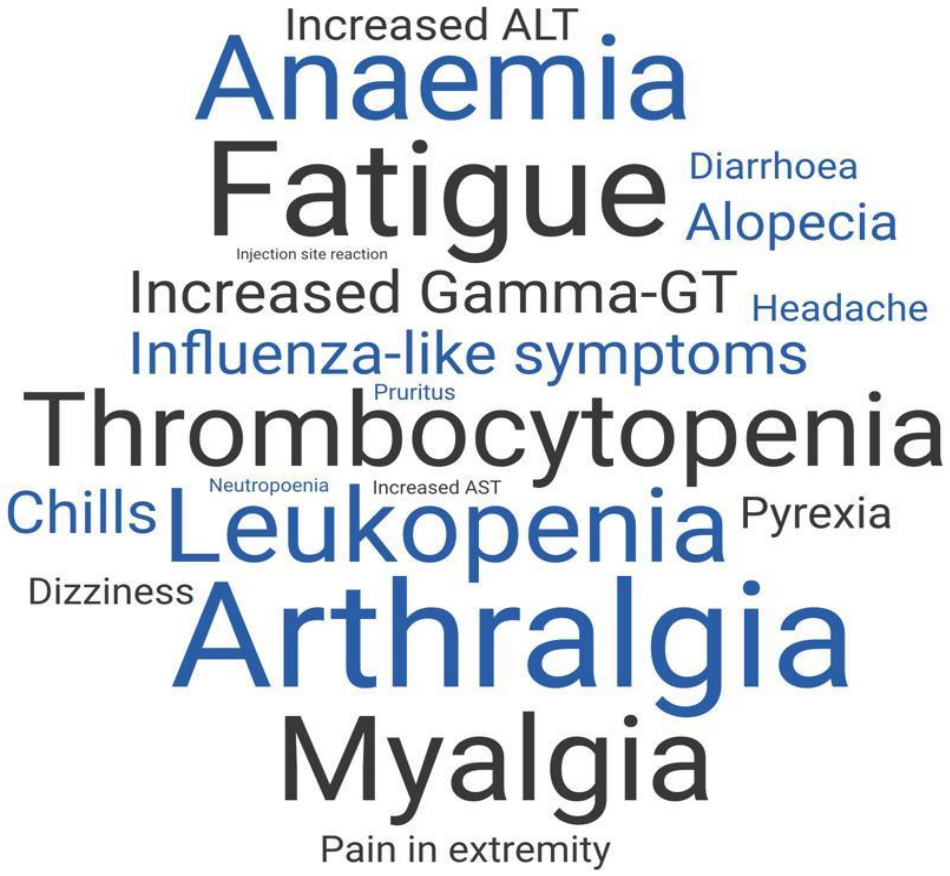
- Liver and renal function tests
- TSH and thyroid hormones, anti-thyroglobulin & anti-thyroid peroxidase antibodies
- autoimmunity tests (antinuclear Ab; antiendomysial Ab, etc)

**Other tests**

- HADS (Self-reported Hospital Anxiety and Depression Scale)
- Eye examination

If necessary, refer the patient to the most appropriate medical specialist

# Adverse events



| ADVERSE EVENTS | |
|---|---|
| LEUKOPENIA (19.1%) | ANAEMIA (7.9%) |
| THROMBOCYTEMIA (18.5%) | PAIN IN EXTREMITY (6.7%) |
| ARTHRALGIA (12.9%) | ALOPECIA (6.7%) |
| FATIGUE (12.4%) | NEUTROPENIA (6.7%) |
| INCREASED GAMMA-GLUTAMYLTRANSFERASE (11.2%) | INCREASED ASPARTATE AMINOTRANSFERASE (6.2%) |
| FLU-LIKE SYMPTOMS (10.7%) | HEADACHE (6.2%) |
| MYALGIA (10.7%) | DIARRHOEA (5.6%) |
| PYREXIA (8.4%) | CHILLS (5.1%) |
| PRURITUS (8.4%) | DIZZINESS (5.1%) |
| INCREASED ALANINE AMINOTRANSFERASE (8.4%) | INJECTION SITE REACTION (5.1%) |

| SERIOUS ADVERSE REACTIONS |
|---|
| DEPRESSION (1.1%) |
| ATRIAL FIBRILLATION (1.1%) |
| ACUTE STRESS DISORDER (0.6%) |

# Disease monitoring during treatment is very important

| RESPONSE | TOXICITY |
| --- | --- |
| • CBC every 4 weeks for 6 months or up to achievement of CHR, then every 3 months<br>• Palpable spleen evaluation any 3 months<br>• Abdominal echo scan every 12 months or if palpable splenomegaly<br>• MPN-10 TSS evaluation every visit<br>• JAK2VAF not required for clinical practice unless signs of disease progression<br>• BM biopsy if signs of disease progression | • Liver enzymes every 3 months<br>• Autoimmune status every 6 months or in case of clinical indication<br>• Thyroid function every 6 months or in case of clinical indication<br>• HADS Mental health test every 6 months<br>• Eye exam every year or in case of clinical indication |

# Therapy phases


Targets:

- WBC 4-11.000/mmc
- PLT 200-450.000/mmc
- Hct < 45% (not during induction)

# Therapy phases

**INDUCTION** → **TITRATION** → **MAINTENANCE**

- In newly diagnosed high risk patient **possible combination** of ropegIFN with cytoreductive agents for 3-12 weeks
- RopegIFN starting doses:
  - 100 mcg every two weeks for single-agent first line treatment
  - 50 mcg every two weeks  if other cytoreductive agents are ongoing
  - higher doses can be considered if BMI > 30 (or BSA > 2.2 $m^2$)
  - If VGF 15-29 ml/min, maximum initial dose is 50 mcg every two weeks
- Possible premedication with paracetamol

# Therapy phases


- Dose can be increased by 50 mcg every two weeks based on  Hct value, **leukocytes and platelet count**
- Maximal dose: 500 mcg every two weeks
- The target **hematocrit** < 45% may be achieved after a few months; thus, phlebotomies may be required in the initial treatment phase

# Therapy phases


- **Once complete hematological response is maintained for at least 18 months, the ropegIFN dose can be decreased and/or the intervals between administrations can be prolonged from every 2 to every 3 to 4 weeks**

# Practical tips: Switch from other therapies

PegIFNα2a

Multiply the four-weekly dose of PegIFNα2a by a **factor of 0.7** to determine the four-weekly dose of RopegIFNa2b

**PegIFNα2a**
**90 mcg/wk**
**360 mcg/months**

360 * 0.7 = 252
RopegIFNa2b 125 mcg
every two weeks

# Practical tips: Switch from other therapies

**HU**

**Hu may be continued in combination with ropeg in the first phase of therapy. HU dose may be gradually reduced and discontinued once good hematological control is achieved**

**RUXOLITINIB**

**Currently minimal specific experience**
**RUX tapering is advised to avoid RDS**

# Case series

# Patient 1
# C.B. male DOB 06/12/1958

| | 01/2016 | 06/2017 | 06/2018 | 06/2019 | 04/2020 | 03/2022 | 01/2023 |
|---|---|---|---|---|---|---|---|
| cyto reduction | | **Ropeg-IFN-α-2b** 100 mcg/2w «LOW-PV» trial | | End of RCT | Peg-IFN-α-2a itching | **Ropeg-IFN-α-2b** 100 mcg/2w EC approval | |
| HCT (%) | 51.5 | 44.9 | 44.8 | 42 | 44.2 | 43 | 44.5 |
| WBC ($x10^9$/L) | 10.6 | 10.3 | 9 | 8.8 | 6.2 | 6.2 | 7 |
| PLT ($x10^9$/L) | 452 | 460 | 380 | 350 | 660 | 580 | 370 |
| Spleen from BLCM | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TSS | 9 (itching) | 8 | 0 | 0 | 10 (itching) | 2 | 0 |
| Events | | | | | | | |

Median phlebotomies/year

# Patient 2.
# D.R. male DOB 04/10/1981

| date | 12/2018 | 12/2019 | 02/2020 | 01/2021 | 04/2021 | 12/2021 | 04/2022 | 12/2022 |
|---|---|---|---|---|---|---|---|---|
| cyto reduction | | | HU<br>PLT count | Ropeg-IFN-α-2b 100 mcg/2w<br>Fatherhood desire | | | | |
| HCT (%) | 50.1 | 44.5 | 44.7 | 49 | 46.7 | 44 | 44.5 | 47,.3 |
| WBC ($x10^9$/L) | 8.78 | 10.1 | 8.6 | 6.5 | 6.0 | 6.2 | 6.43 | 4.90 |
| PLT ($x10^9$/L) | 1118 | 1400 | **1503** | 816 | 796 | 579 | 550 | 584 |
| Spleen from BLCM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TSS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Events | | | Gastrointestinal intolerance → | | | | | |

Median phlebotomies/year

# Patient 3.
# S.L. female DOB 18/01/1976

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **date** | **11/2014** | **04/2019** | **06/2020** | **01/2021** | **06/2021** | **01/2022** | **12/2022** |
| cyto reduction | | HU (PLT count) | IFN-α-2a (motherhood desire) | **Ropeg-IFN-α-2b (100 mcg/2w)** (EC approval) | | | |
| HCT (%) | 55.2 ●●● | 42.6 ●●● | 49 ●●● | 43 ● | 43.7 ● | 48 ● | 43.7 |
| WBC (x10$^9$/L) | 8.5 | 13.3 | 10.4 | 7.7 | 7.7 | 7.34 | 5.5 |
| PLT (x10$^9$/L) | 462 | **1165** | 447 | 453 | 413 | 508 | 380 |
| Spleen from BLCM | 4 | 5 | 5 | 5 | 5 | 5 | 3 |
| TSS | 15 | 23 | 21 | 18 | 37 | 27 | 19 |
| Events | | | Flu like sdr → | | **Gynecological bleeding (unrelated)** | | |

Median phlebotomies/year

# Patient 4.
# C.S. female DOB 26/11/1973

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **date** | **03/1992** | **03/2011** | **12/2020** | **03/2021** | **06/2021** | **12/2021** | **12/2022** |
| cyto reduction | IFN-β-2b PLT count | | STOP because of intolerance | HU PLT count | Ropeg-IFN-α-2b 100mcg/2w motherhood desire | 175mcg/2w | 200 mcg/2w |
| HCT (%) | 49 | 43.6 | 44.2 | 38.5 | 44.0 | 48 | 41.4 |
| WBC (x10$^9$/L) | 7.46 | 4.3 | 10.8 | 6.45 | 6.5 | 10.3 | 4.73 |
| PLT (x10$^9$/L) | 860 | 669 | **1147** | 464 | 660 | 985 | 638 |
| Spleen from BLCM | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TSS | | 10 | 30 | 36 | 18 | 8 | 8 |
| Events | Headache → | | | | | | |

**COVID19 g1**

Median phlebotomies/year

# Patient 5.
# B.R. male DOB 12/04/1954

| date | 01/2019 | 01/2020 | 12/2020 | 03/2021 | 08/2021 | 12/2021 | 04/2022 | 01/2023 |
|---|---|---|---|---|---|---|---|---|
| cyto reduction | Patient refuse cytoreduction | HU (High risk (age)) | STOP because of intolerance | Ropeg-IFN-α-2b 100mcg/2w (Refuse oral drugs) | | | | |
| HCT (%) | 48.6 | 45.8 | 47.5 | 48 | 45 | 44 | 49.9 | 43.4 |
| WBC (x10$^9$/L) | 8.2 | 8.4 | 7.9 | 8 | 6.7 | 6.1 | 6.4 | 6.5 |
| PLT (x10$^9$/L) | 415 | 516 | 549 | 480 | 318 | 287 | 277 | 280 |
| Spleen from BLCM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TSS | 2 | 2 | 15 (fever, fatigue) | 2 | 0 | 0 | 0 | 0 |
| Events | | Fever → | | | | | | |

Median phlebotomies/year

# Patient 6.
# G.A. female DOB 27/10/1981

| date | 08/2006 | 09/2011 | 10/2013 | 01/2016 | 04/2021 | 12/2021 | 04/2022 | 01/2023 |
|---|---|---|---|---|---|---|---|---|
| cyto reduction | | IFN-α-2b (PLT count) | STOP because of intolerance | HU (PLT count) | | Ropeg-IFN-α-2b 100 mcg/2w (matherhood desire) | | |
| HCT (%) | 51.6 | 47.6 | 46 | 48 | 44.2 | 41 | 44.5 | 39.6 |
| WBC (x10$^9$/L) | 8.1 | 11.2 | 10.68 | 11.36 | 6.2 | 8.2 | 6.03 | 3.68 |
| PLT (x10$^9$/L) | 622 | **1100** | 936 | **1534** | 660 | 529 | 575 | 312 |
| Spleen from BLCM | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| TSS | | | | 13 | 21 | 15 | 10 | 10 |
| Events | | Flu like sdr | | | | Nurse training needed for RopegIFN administration | | |

Median phlebotomies/year

# Patient 7.
# B.M. male DOB 18/03/1969

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **date** | **04/2018** | **04/2019** | **04/2020** | **04/2021** | **01/2022** | **04/2022** | **10/2022** |
| cyto reduction | HU<br>High risk (thrombosis) | | | | **Ropeg-IFN-α-2b** 100 mcg/2w<br>**Fatherhood desire** | | |
| HCT (%) | 49.1 | 46.6 | 49 | 46 | 40 | 45 | 41.3 |
| WBC (x10$^9$/L) | 10.1 | 8.6 | 8.6 | 8 | 5.4 | 5.1 | 4.1 |
| PLT (x10$^9$/L) | 397 | 398 | 360 | 320 | 192 | 214 | 129 |
| Spleen from BLCM | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TSS | 0 | 0 | 5 | 14 | 9 | 18 | 10 |
| Events | **Splanchnic Vein Thrombosis** | **Gastrointestinal intolerance** → | | | **Flu-like sdr g1** → | | |

Median phlebotomies/year



Median phlebotomies/year

# Patient 8.
# M.F. male DOB 26/09/1977

| date | 05/2021 | 01/2022 | 04/2022 | 11/2022 |
|---|---|---|---|---|
| cyto reduction | | HU<br>High number of phlebotomies need | Ropeg-IFN-α-2b 100 mcg/2w<br>Fatherhood desire | 125 mcg/2w |
| HCT (%) | 49.8 | 47.3 | 48.1 | 50 |
| WBC ($x10^9$/L) | 7.6 | 6.1 | 6.3 | 8.3 |
| PLT ($x10^9$/L) | 670 | 530 | 521 | 643 |
| Spleen from BLCM | 0 | 0 | 0 | 0 |
| TSS | 10 | 12 | 8 | 10 |
| Events | | COVID19 g1 | | |

Median phlebotomies/year


Median phlebotomies/year

# Patient 9.
# A.M. male DOB 26/08/1983

| | 02/2020 | 02/2021 | 12/2021 | 03/2022 | 04/2022 | 11/2022 |
|---|---|---|---|---|---|---|
| cyto reduction | | HU<br>High number of phlebotomies need | | Ropeg-IFN-α-2b 100 mcg/2w.<br>Fatherhood desire | 125 mcg/2w | 150 mcg/2w |
| HCT (%) | 59,1 | 51.0 | 52.6 | 53.3 | 52 | 53.6 |
| WBC (x10$^9$/L) | 13.4 | 6.8 | 7.2 | 7.4 | 7 | 6.7 |
| PLT (x10$^9$/L) | 299 | 304 | 338 | 264 | 230 | 192 |
| Spleen from BLCM | 0 | 0 | 0 | 0 | 0 | 0 |
| TSS | 0 | 0 | 0 | 0 | 0 | 0 |
| Events | | | | | | TSH increasing |

Median phlebotomies/year


Median phlebotomies/year

| Pt | Age | Pre Thro | HU pre | HU refractoy or intolerant | IFN indication | Months on IFN | Response | Adverse events |
|---|---|---|---|---|---|---|---|---|
| BC | 58 | no | no | - | High PHL need; itching; HU refusal | 34 | CR | No AEs |
| DR | 39 | no | yes | intolerant | High PLT count, fatherhood desire | 24 | NR | No AEs |
| SL | 45 | no | yes | refractory | High PLT count, matherhood desire | 23 | PR | No AEs |
| CS | 47 | no | yes | refractory | High PLT count, fatherhood desire | 21 | PR | No AEs |
| BR | 66 | no | yes | intolerant | HU intolerance, RUX refusal | 22 | PR | No AEs |
| GA | 40 | no | yes | refractory | High PLT count, matherhood desire | 14 | PR | No AEs |
| BM | 52 | yes | yes | intolerant | HU intolerance | 10 | PR | Flu-like syndr. G 1 |
| MF | 44 | no | yes | refractory | HU refractory, fatherhood desire | 11 | NR | No AEs |
| AM | 38 | no | yes | refractory | HU refractory, fatherhood desire | 9 | NR | No AEs |

CR: HCT <45%, PLT <400x$10^9$/L, WBC <10x$10^9$/L, no spleen, no symptoms. Partial HR: HCT <45% or ≥3 of other criteria

BOLOGNA
17 FEBBRAIO 2023
NH De La Gare

# POLICITEMIA VERA NEL 2023:

## qualcosa è cambiato

# GRAZIE!

Dott. Giuseppe Auteri
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