Monitoring of Treatment of viral hepatitis C

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Monitoring of Hepatitis C Treatment

Aims of Monitoring :

- **Evaluate Efficacy.**
- **Detect and Manage Side Effects.**

Monitoring of Hepatitis C Treatment

For each patient

- **Visit at week 4 and week 12**
- **Visit every 12 weeks until the end of treatment**
- **Visit 24 weeks after the end of therapy**

Monitoring of Treatment Response

- **Genotype 1, 4, 5, 6**

  HCV RNA at week 4, 12, 24, 48 and 24 weeks after end of treatment.

- **Getotype 2, 3**

  HCV RNA at week 4,12, 24 and 24 weeks after end of treatment.

- **If triple therapy with boceprevir**

  HCV RNA at week 8

Monitoring of Treatment response

Chronic Hepatitis C Treatment Response categories		
Response	**Time Frame**	**Result**
RVR Rapid viral response.	After 4 weeks of treatment	HCV RNA undetectable
eRVR extended rapid viral response	After 4 and 12 weeks of treatment	HCV RNA undetectable
EVR Early viral response	After 12 weeks of treatment	≥ 2 log10 HCV RNA decrease
Null Responder	After 12 weeks of treatment	< 2 log10 HCV RNA decrease
Partial Responder	After 24 weeks of treatment	> 2 log10 HCV RNA decrease but still detectable
ETR End of treatment response	At end of treatment	HCV RNA undetectable
SVR Sustained viral response	24 weeks after treatment completed	HCV RNA undetectable
Relapse	Undetectable HCV RNA at the end of treatment, but detectable sometime after treatment is stopped.	

Monitoring of Treatment Response dual therapy duration

Genotype 1, 4, 5, 6

- If RVR : 48 or 24 weeks.
- If EVR and partial response : 48 or 72 weeks.

Genotype 2, 3

- If RVR : 16 weeks
- If RVR (-) : 24 weeks

Patients with cirrhosis

- Same treatment regimen

Coinfection HIV – HCV

- 48 weeks regardless of genotype

Monitoring of Treatment Response
Triple therapy duration

Boceprevir

- **Treatment naive with no cirrhosis**
  - **28 weeks if HCV RNA (-) at week 8 and 24**
  - **48 weeks if HCV RNA (+) w8,<100 IU/ml w12,(-) w24**
- **Prior relapser with no cirrhosis**
  - **36 weeks if HCV RNA (-) w8 and w24**
  - **48 weeks if HCV RNA (+) w8,<100 IU/ml w12,(-) w24**
- **Compensated cirrhosis**
  - **48 weeks**

Monitoring of Treatment Response
Triple therapy duration

Telaprevir

24 weeks

Naive or relapser with HCV RNA (-) at w 4 and 12

48 weeks

Naive or relapser or compensated cirrhosis with

HCV RNA < 1000 IU / ml at w 4-12 and (-) at w24

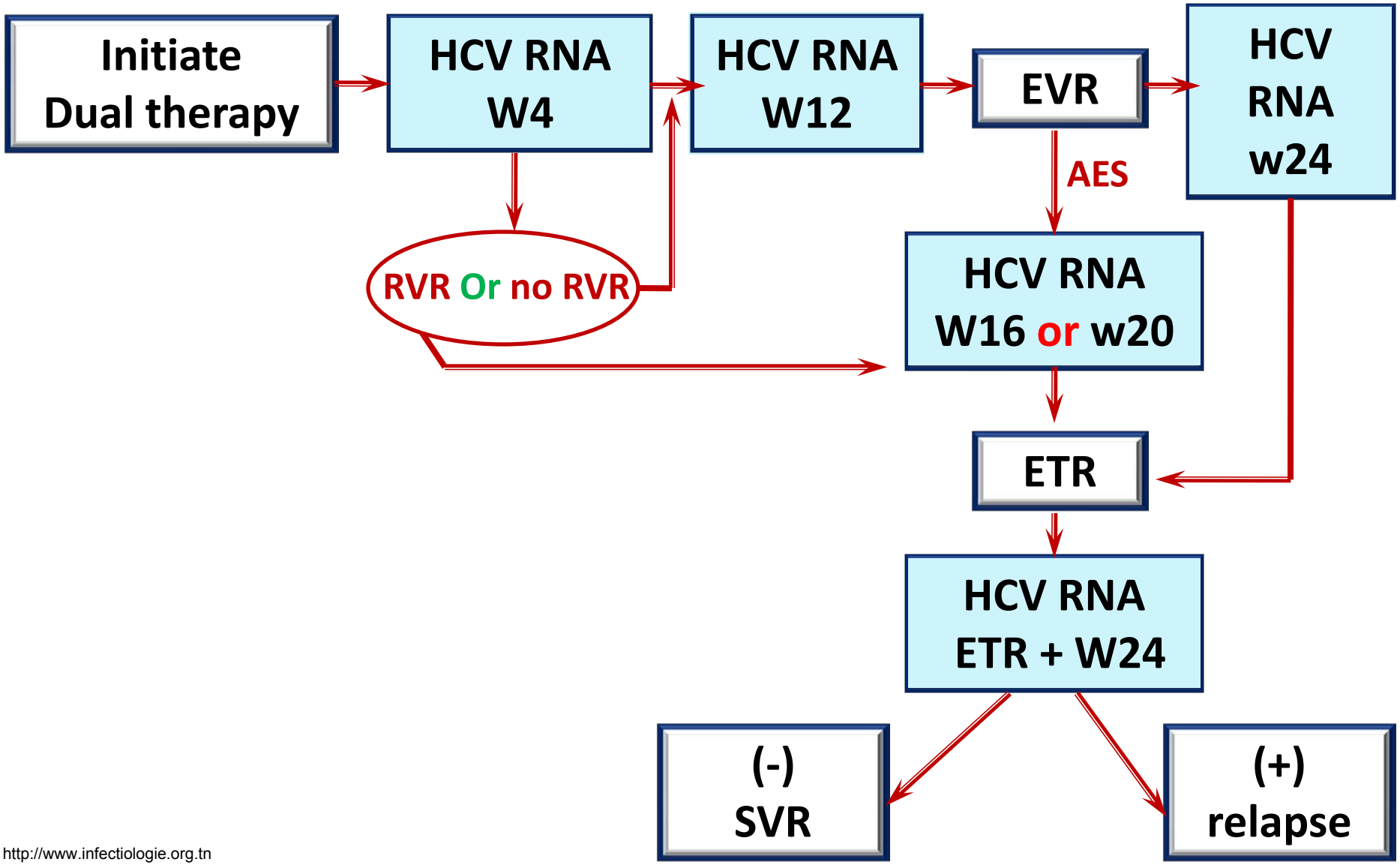
Monitoring of Treatment Response Discontinuation of dual Therapy

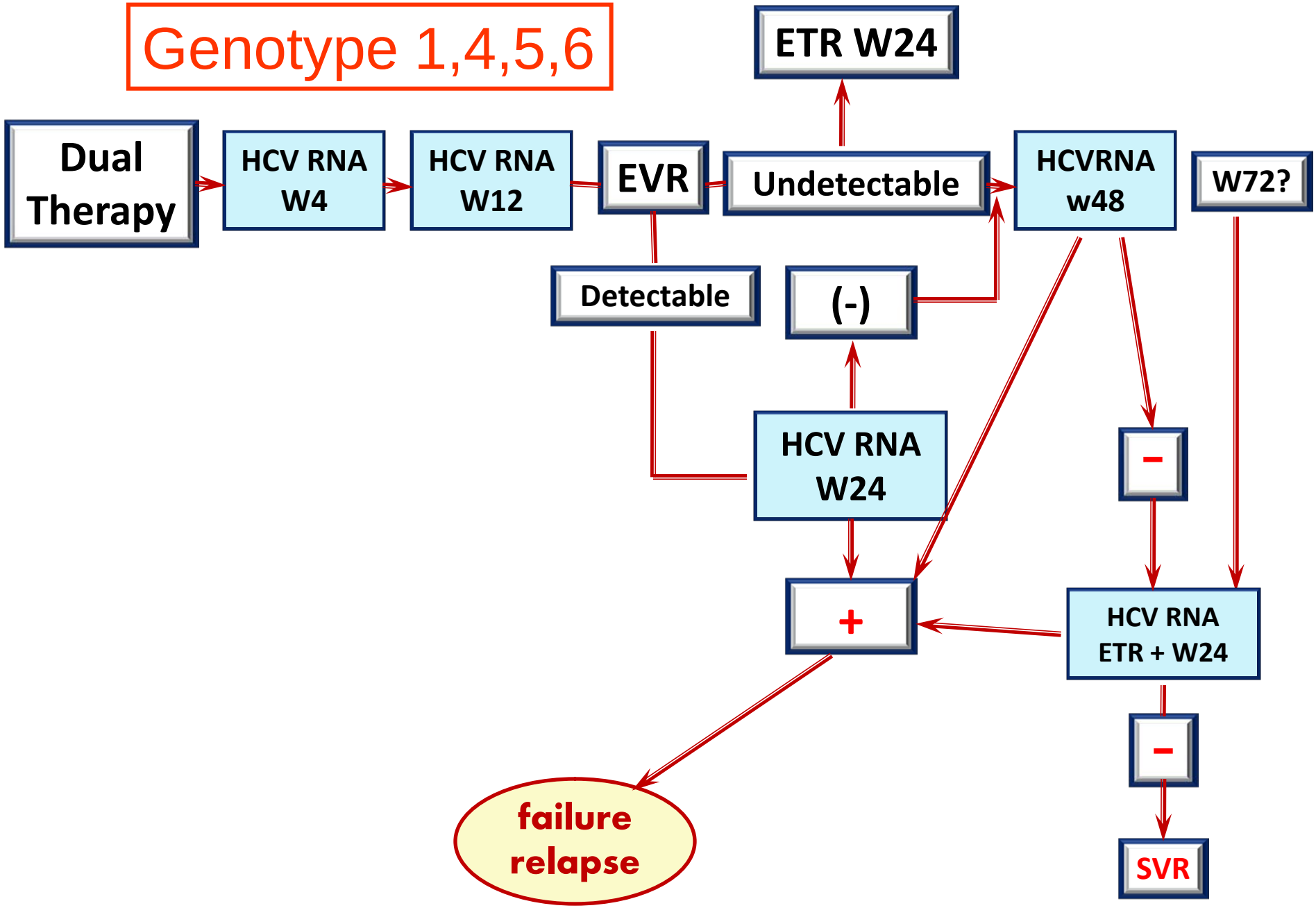
- **EVR (-) at W12**
- **EVR at w12 but detectable HCV RNA at w24**
- **Occurrence of side effects**

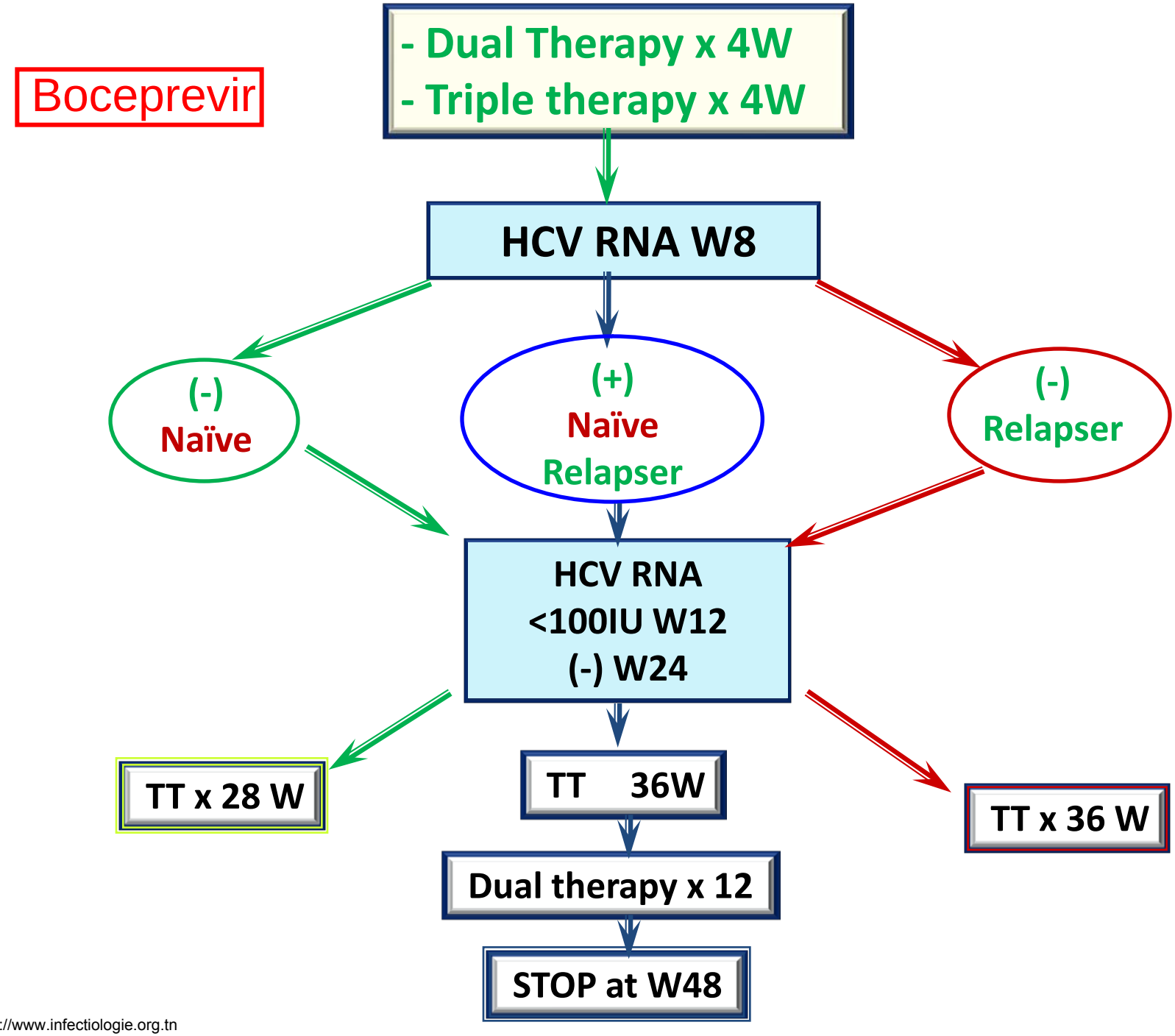
Monitoring of Treatment Response early discontinuation of triple therapy

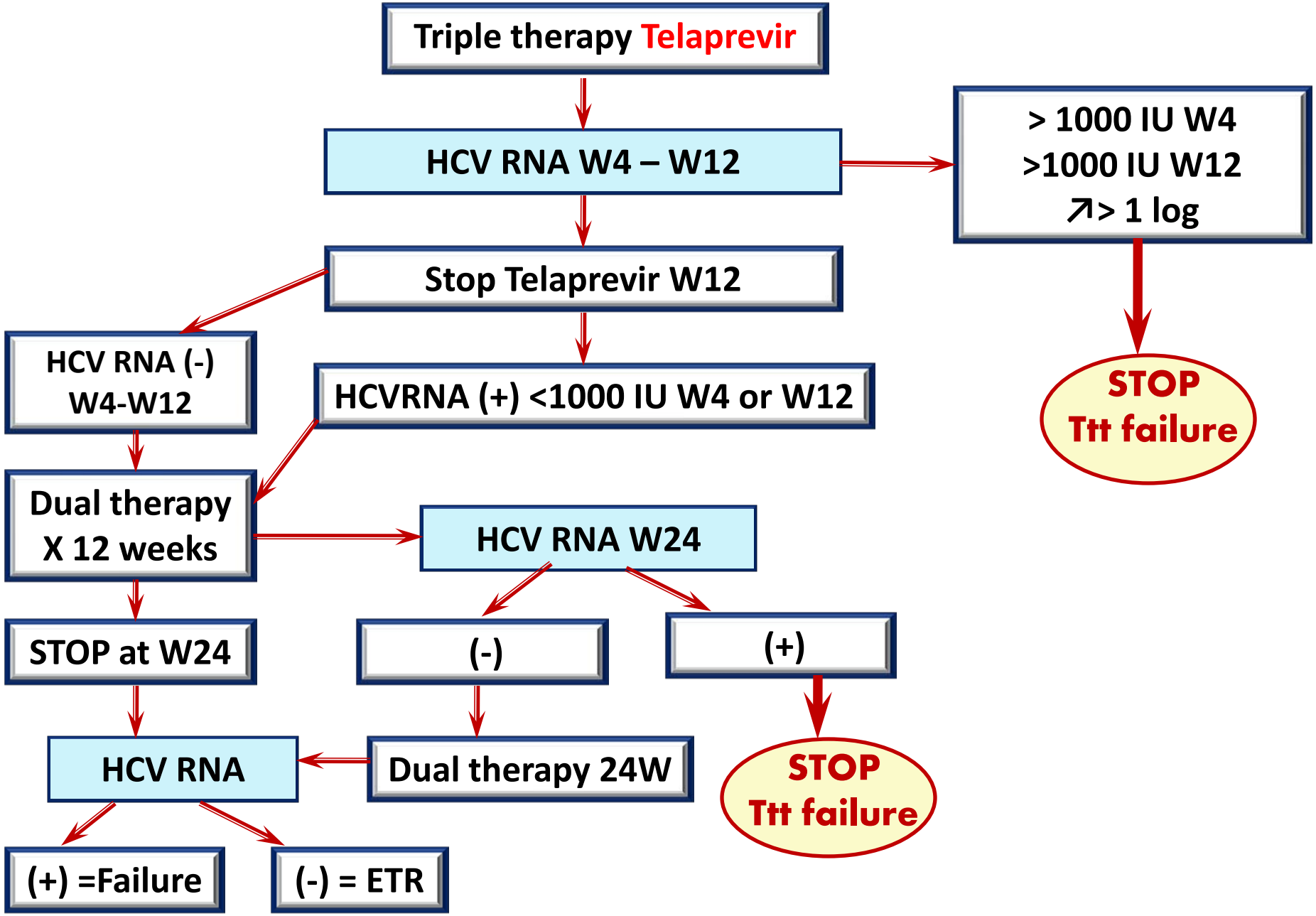
- **Boceprevir**
  - HCV RNA > 100 IU /ml at w12 *or*
  - HCV RNA (+) at w24 *or*
  - ↗HCV RNA > 1 log on treatment
- **Telaprevir**
  - HCV RNA > 1000 IU /ml at w 4 or 12 *or*
  - HCV RNA (+) at w24 *or*
  - ↗HCV RNA > 1 log on treatment

Genotype 2 and 3




Genotype 1,4,5,6
ETR W24
Dual Therapy
HCV RNA W4
HCV RNA W12
EVR
Undetectable
HCVRNA w48
W72?
Detectable
(-)
HCV RNA W24
-
+
HCV RNA ETR + W24
-
failure relapse
SVR


Boceprevir
- Dual Therapy x 4W
- Triple therapy x 4W
HCV RNA W8
(-)
Naïve
(+)
Naïve
Relapser
(-)
Relapser
HCV RNA
<100IU W12
(-) W24
TT x 28 W
TT 36W
TT x 36 W
Dual therapy x 12
STOP at W48


Triple therapy Telaprevir
HCV RNA W4 – W12
> 1000 IU W4
>1000 IU W12
↗> 1 log
STOP
Ttt failure
Stop Telaprevir W12
HCV RNA (-)
W4-W12
HCVRNA (+) <1000 IU W4 or W12
Dual therapy
X 12 weeks
HCV RNA W24
STOP at W24
(-)
(+)
HCV RNA
Dual therapy 24W
STOP
Ttt failure
(+) =Failure
(-) = ETR

Detection and Management of Side Effects

At each visit assess common toxicities

- Flu like symptoms.
- Mood changes.
- Dyspnea cough.
- Visual disturbances.
- Chest pain.
- Hair loss.
- Thyroid dysfunction
- Rashes.
- Dysgeusia.
- Hematologic toxicity.

Hemoglobin

value	
10-11 g/dl	❑ Peginterfon → No change ❑ Ribavirin ➢ if no or minimal symptoms, then no dose modification. ➢ if symptomatic, decrease ribavirin by 200 mg/day
8.5 -10 g/dl	❑ Peginterferon → No change ❑ Ribavirin ↓ to 600 mg daily (200 mg AM & 400 mg PM)
< 8.5 g/dl	❑ Perginterferon → No change ❑ Ribavirin Discontinue until resolved.

Candidates for erythropoietin

- **Rule out other causes of anemia, if anemia persists at 2 weeks after reducing Ribavirin then consider erythropoietin, especially if the patient demonstrates a virologic response.**
- **Erythropoietin should be considered primarily for patients who are cirrhotic, post-transplant, or HIV/HCV co-infected.**

- **Goal : hemoglobin 12 g/dl**
- **Note : if hemoglobin is < 12 g/dl for over 4 weeks at the reduced/adjuste dose, then discontinue Ribavirin.**

Absolute Neutrophil Count (ANC)

Value	
< 750	❑ **Peginterferon** ➢ **Peginterferon alfa 2a** → Reduce dose to 135 microgram/week (75 % dose). ➢ **Peginterferon alfa 2b** → Reduce to a 50 % dose ❑ **Ribavirin** → No change.
< 500	❑ **Peginterferon & Ribavirin** → Discontinue both until resolved.

Granulocyte Colony Stimulating Factor (G-CSF)

- **If the patient is responding to treatment and neutropenia persists despite reduced peginterferon dose**
- **Consider G-CSF for patients who are cirrhotic, post-transplant, or HIV/HCV co-infected.**
- **Goal : ANC >1500**

Value	Platelets
< 50.000	❑ Peginterferon ➢ Peginterferon alfa 2a → Reduce dosage to 90 micrograms/week (50 % dose) ➢ Peginterferon alfa 2b → Discontinue until resolved. ❑ Ribavirin if on Peg-Intron, then discontinue Ribavirin.
< 25.000	❑ Peginterferon → Discontinue until resolved. ❑ Ribavirin → Discontinue until resolved.

conclusion

- Monitoring of treatment response = HCVRNA
  - Tailored treatment
  - Duration of treatment
  - Early discontinuation
- Monitoring of safety
  - Skin toxicities
  - Mental disturbances
  - Haematologic toxicities