IRON CHELATION THERAPY

GUIDELINES

2ND EDITION

THALASSAEMIA
FEDERATION
OF PAKISTAN

Medical Advisory Board

IRON CHELATION TREATMENT GUIDELINES

- First edition of chelation guidelines was published in 2008 by Thalassemia Federation of Pakistan (TFP).
- This second edition has been formulated after a focus group meeting held on November 28, 2015 in Karachi.
- Following participants from across Pakistan attended the meeting and gave their valuable input.

Dr. M. Adil Akhter	*(Associate Professor, KMS Medical College, Sialkot)*
Prof. Dr. Nisar Ahmad	*(Professor, ICH & CH, Lahore)*
Dr. Saqib Ansari	*(National Institute of Blood Diseases, Karachi)*
Prof. Nadeem Samad	*(Bolan Medical College, Quetta)*
Prof. Dr. Saleem Leghari	*(Sheikh Zayed Medical College, Rahim Yaar Khan)*
Prof. Dr. Amir M. Jogezai	*(Fatmid Foundation, Quetta)*
Dr. M. Bilal Ghafoor	*(Sheikh Zayed Medical College, Rahim Yaar Khan)*
Dr. Shahtaj Khan	*(Hayatabad Medical Complex, Peshawar)*
Dr. Muhammad Arshad	*(Sarghoda Medical College, Sarghoda)*
Dr. Zeeshan	*(National Institute of Blood Diseases, Karachi)*
Dr. Nayla Asghar	*(District Headquarter Hospital, Sheikhupura)*
Dr. Khalid Mehmood	*(Pakistan Bait-ul-Maal, Islamabad)*
Prof. Akbar Nizamani	*(Liaqat University of Medical and Health Sciences, Jamshoro)*
Dr. Rumeela Memon	*(President, Thalassaemia Federation of Pakistan, Sindh)*
Dr. Sajjad Hussain	*(Zainabia Thalassaemia Center, Karachi)*

- Guidelines were finalized after consultation with Prof. Dr. Jovaria Mannan, Chairperson, Thalassaemia Federation of Pakistan.
- These guidelines have been endorsed by the Advisory Board of Thalassemia Federation of Pakistan.

Prof. Yasmin Rashid
Secretary,
TFP

Prof. Jovaria Mannan
Chairperson, Adivsory Board
TFP

KEY ASSUMPTIONS

Following points should be considered while referring to guidelines.

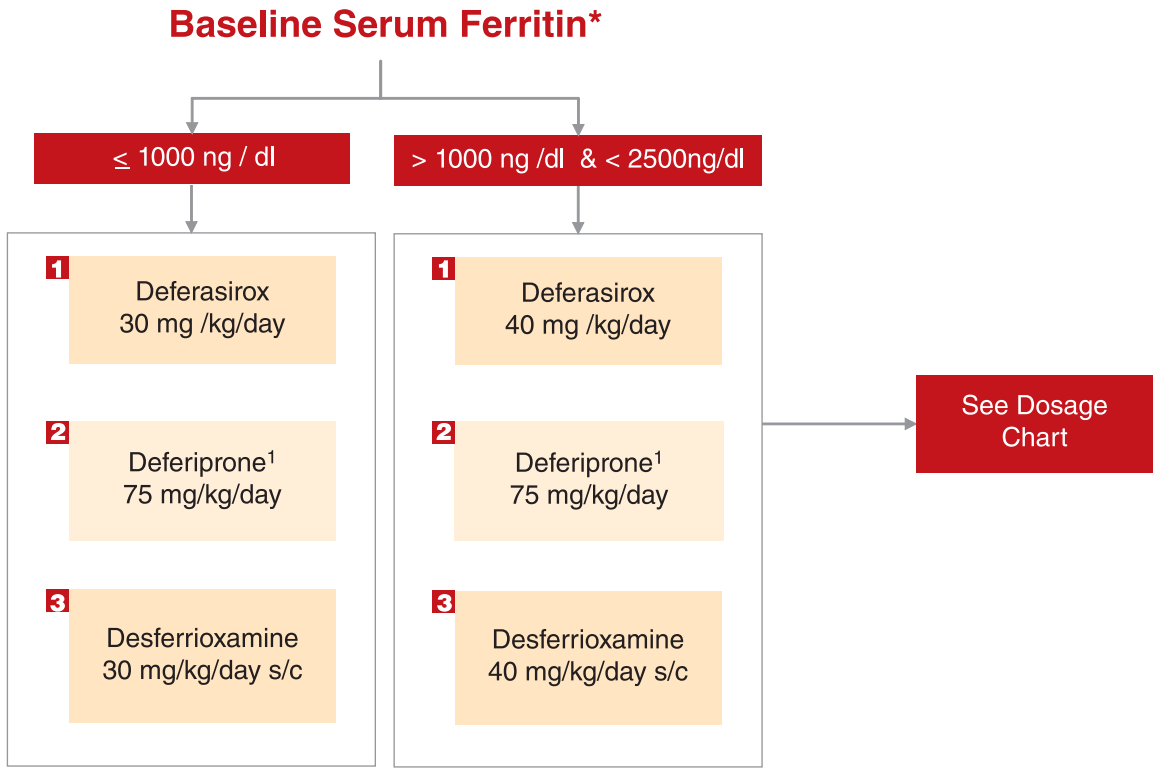
- The dosage mentioned for any iron chelator in the boxes is optimum dosage for that scenario and to achieve that, follow the dosage chart at the end of the document.
- Number mentioned against each drug denotes priority and choice order. Switching to next priority drug should be based on patient considerations.
- While monitoring serum ferritin, falsely increased readings could be encountered due to following reasons.
  - Inadequate dosage of iron chelators
  - Non Compliance with iron chelation
  - Excess of Vitamin C either prior to chelation or in the form of multivitamins
  - Acute flare up of Hepatitis
  - Acute Infections
  - Lab errors (Different labs)
- While monitoring serum ferritin, falsely decreased readings could be encountered due to following reasons.
  - Lab errors (Elisa or Dilutions)
  - Decreased Vitamin C levels
- None of the mentioned iron chelators should be used without careful monitoring of their potential side effects.
- The differentiation between transfusion dependent thalassaemia (TDT) and Non-transfusion dependent thalassaemia (NTDT) is a clinical diagnosis which should be made based on the following clinical considerations:
  - Steady state hemoglobin at diagnosis
  - Splenic size at diagnosis
  - Age of first transfusion.
  - Interval between next 2 -3 subsequent transfusions
  - Assessing rate of hemolysis per week
  - Electrophoresis report
  - If the above parameters do not fit with the usual thalassemia major patients, consult someone with extensive experience in managing NTDT.

GUIDELINES FOR CHELATION THERAPY

Transfusion Dependant Thalassemia (Thalassemia Major)

1st visit for Chelation

Age: (2yrs and above) / After 10 – 20 transfusions or serum ferritin ≥ 1000 ng/dl



Serum Ferritin:

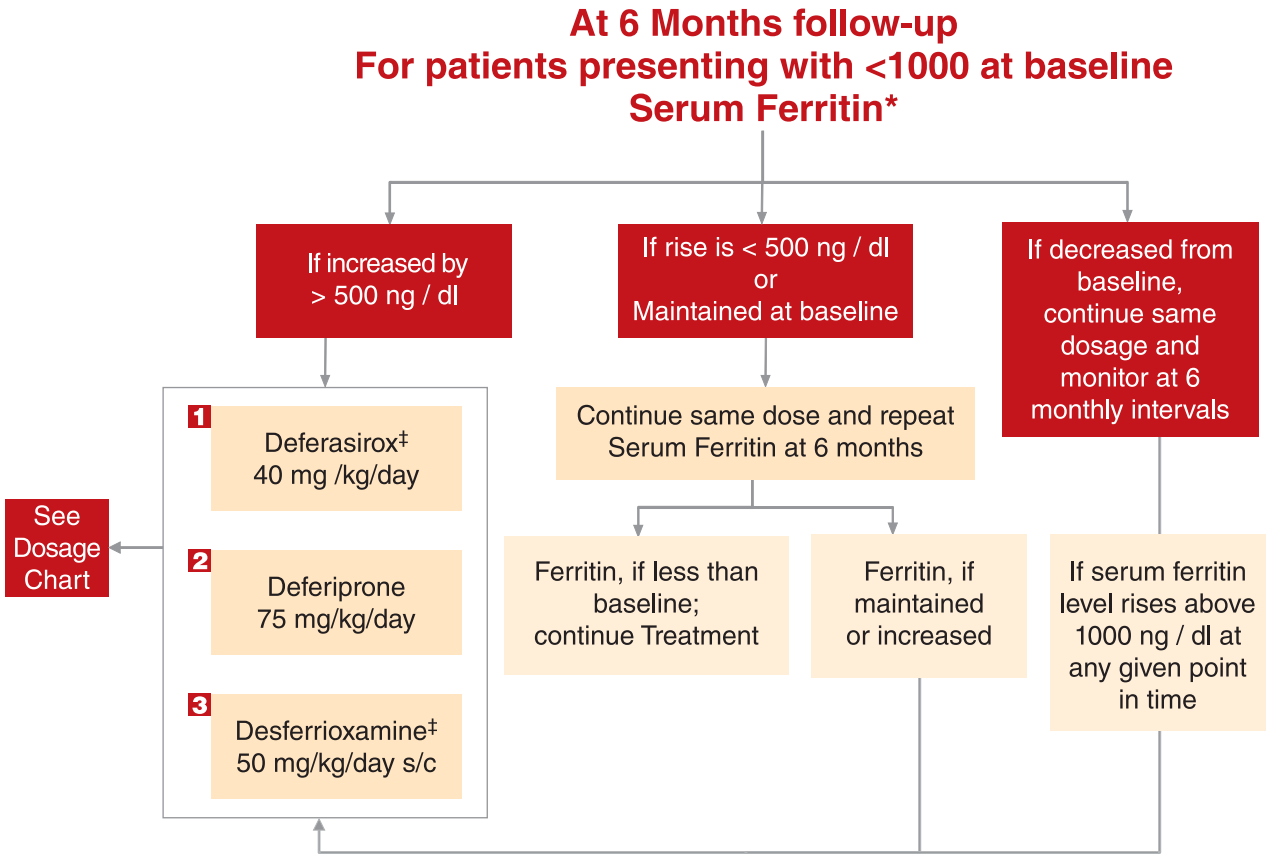
- *Do not test if there is any fever, acute infection of respiratory or GI tract, hepatitis or any other infections*
- *Follow – up ferritin levels should not be done earlier than 6 months*

[1]Deferiprone: Should not be considered if weekly CBC monitoring for neutropenia (Absolute Neutrophil Count < 1500 => TLC x % neutrophils) cannot be ensured

GUIDELINES FOR CHELATION THERAPY

Transfusion Dependant Thalassemia (Thalassemia Major)

Goal of Chelation → Serum ferritin level ≤ 500 ng / dl



‡ *This is the maximum recommended dose for the given scenario, to achieve this dosage please refer to dosage chart*

**Serum Ferritin:*

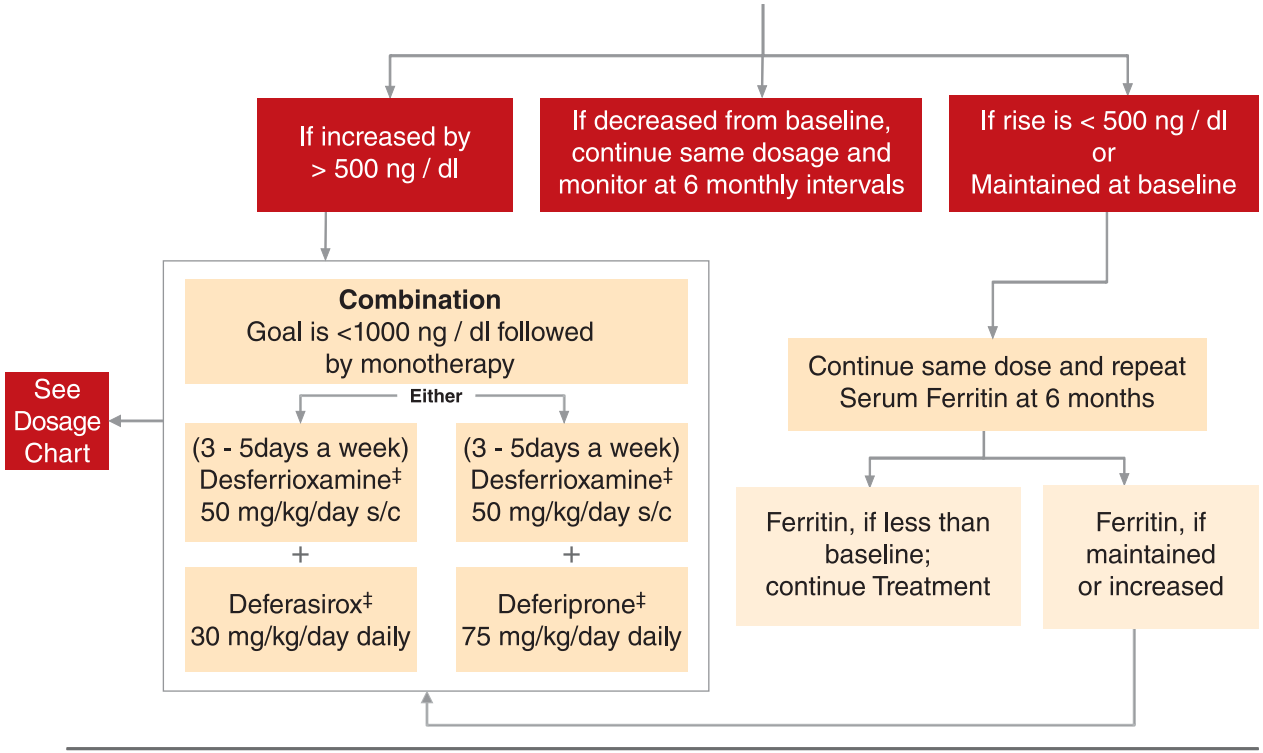
- *Do not test if there is any fever, acute infection of respiratory or GI tract, hepatitis or any other infections*
- *Follow – up ferritin levels should not be done earlier than 6 months*

GUIDELINES FOR CHELATION THERAPY

Transfusion Dependant Thalassemia (Thalassemia Major)

Goal of Chelation → Serum ferritin level ≤ 500 ng / dl

At 6 Months follow-up
For patients presenting with >1000 & < 2500 ng / dl at baseline or after any followup & at maximum dosage of any chelator as monotherapy
Serum Ferritin*



‡ *This is the maximum recommended dose for the given scenario, to achieve this dosage please refer to dosage chart*

**Serum Ferritin:*

- *Do not test if there is any fever, acute infection of respiratory or GI tract, hepatitis or any other infections*
- *Follow – up ferritin levels should not be done earlier than 6 months*

GUIDELINES FOR CHELATION THERAPY

Transfusion Dependant Thalassemia (Thalassemia Major)

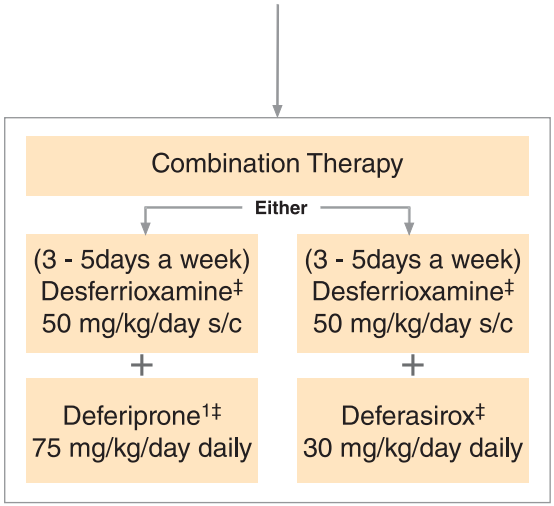
Goal of Chelation ⟶ Serum ferritin level ≤ 1000 ng / dl

1st visit for Chelation

- After achieving a ferritin level of <1000ng/dl, follow page 5
- Regardless of the raise in serum ferritin, the dosage will remain the same in combination therapy

Serum Ferritin*

For Pts >2500 ng / dl at baseline



‡ *This is the maximum recommended dose for the given scenario, to achieve this dosage please refer to dosage chart*

**Serum Ferritin:*

- *Do not test if there is any fever, acute infection of respiratory or GI tract, hepatitis or any other infections*
- *Follow – up ferritin levels should not be done earlier than 6 months*

[1]*Deferiprone: Should not be considered if weekly CBC monitoring for neutropenia (Absolute Neutrophil Count < 1500 => TLC x % neutrophils) cannot be ensured*

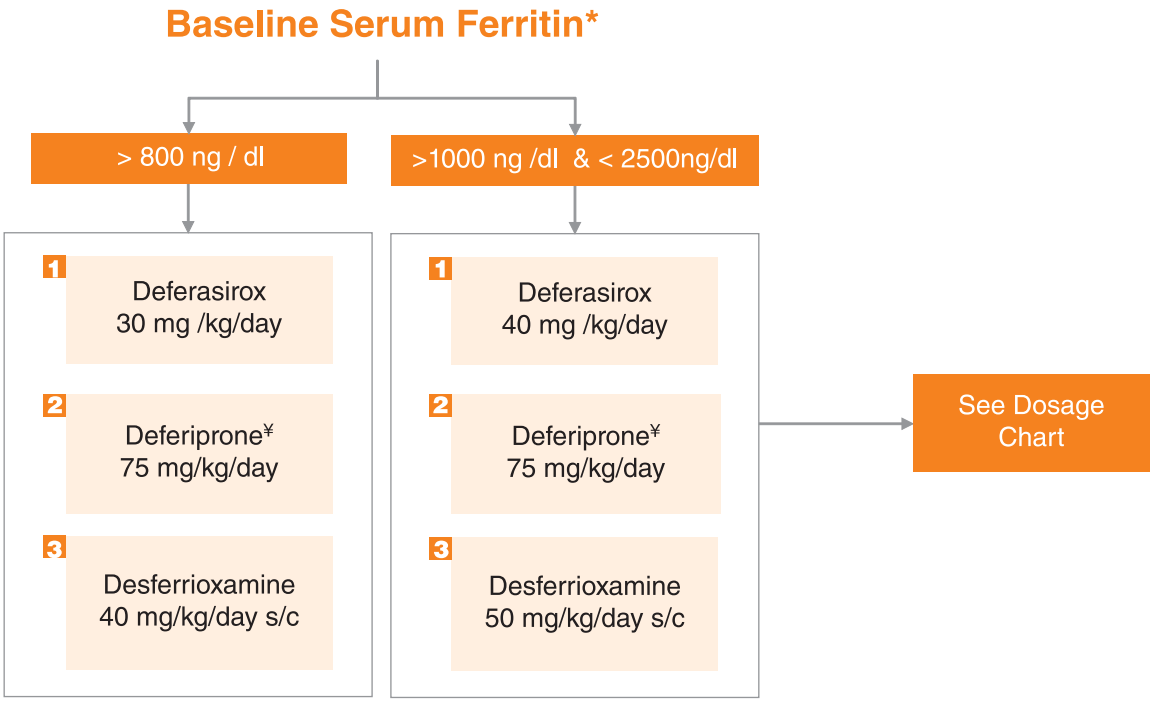
GUIDELINES FOR CHELATION THERAPY

Non Transfusion Dependent Thalassemia (NTDT)

Goal of Chelation ⟶ Serum ferritin level ≤ 300 ng / dl

1st visit for Chelation

- Number of transfusions regardless of age given during acute infections, surgical procedures or trauma: 20 or more or Serum Ferritin ≥ 800ng/dl
- Patients who have not received transfusions will generally need chelation at or around 10 yrs of age



¥Use of Deferiprone with Hydroxyurea is not recommended due to risk of potentiating the risk of neutropenia.

**Serum Ferritin:*

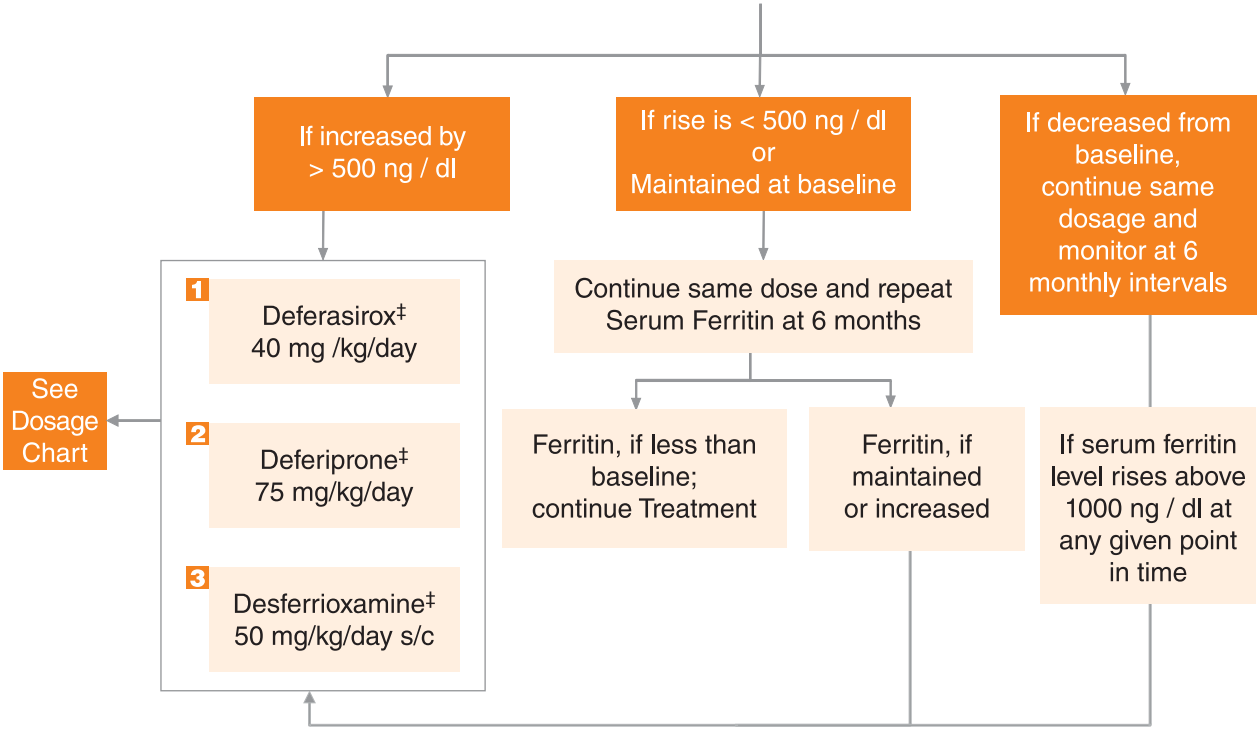
- *Do not test if there is any fever, acute infection of respiratory or GI tract, hepatitis or any other infections*
- *Follow – up ferritin levels should not be done earlier than 6 months*

GUIDELINES FOR CHELATION THERAPY

Non Transfusion Dependent Thalassemia (NTDT)

Goal of Chelation → Serum ferritin level ≤ 300 ng / dl

At 6 Months follow-up
For patients presenting with ≥800 but less than 1000 ng/dl at baseline
Serum Ferritin*



‡ *This is the maximum recommended dose for the given scenario, to achieve this dosage please refer to dosage chart*

**Serum Ferritin:*

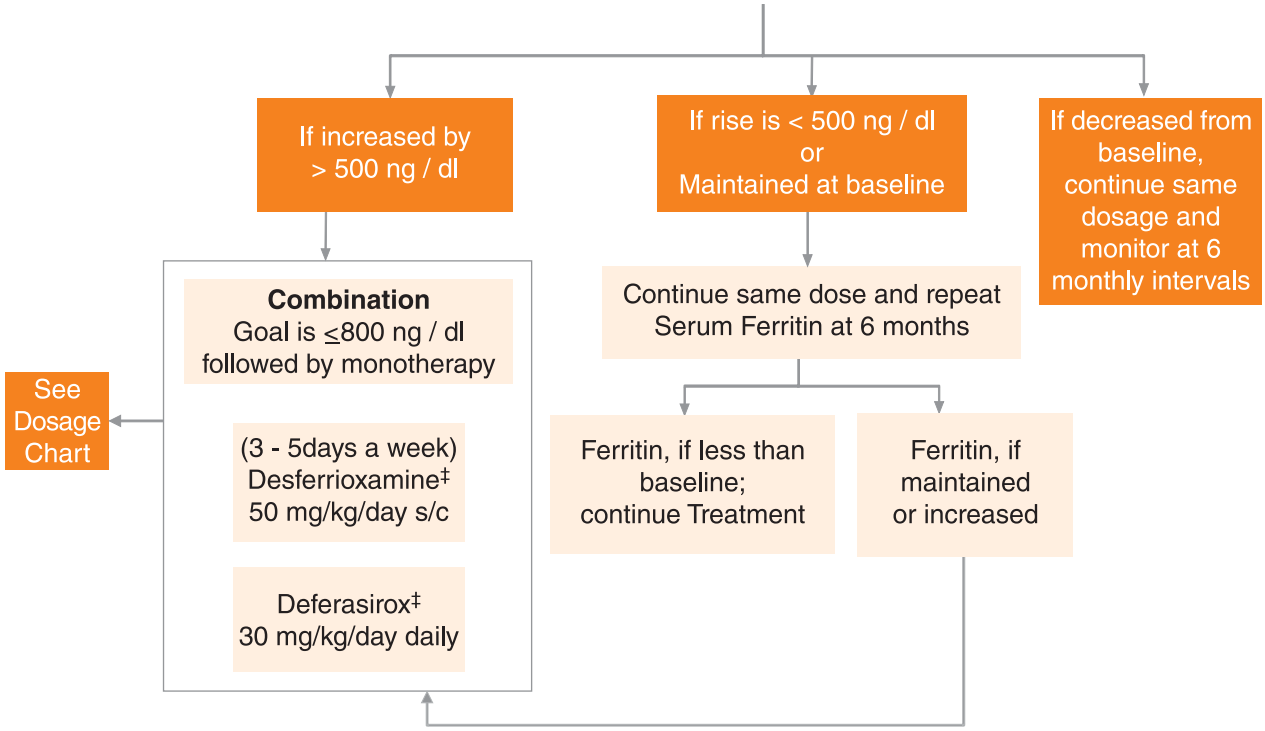
- *Do not test if there is any fever, acute infection of respiratory or GI tract, hepatitis or any other infections*
- *Follow – up ferritin levels should not be done earlier than 6 months*

GUIDELINES FOR CHELATION THERAPY

Non Transfusion Dependent Thalassemia (NTDT)

Goal of Chelation → Serum ferritin level ≤ 300 ng / dl

At 6 Months follow-up
For patients presenting with >1000 & < 2500 ng / dl at baseline or after any followup & at maximum dosage of any chelator as monotherapy
Serum Ferritin*



‡ *This is the maximum recommended dose for the given scenario, to achieve this dosage please refer to dosage chart*

**Serum Ferritin:*

- *Do not test if there is any fever, acute infection of respiratory or GI tract, hepatitis or any other infections*
- *Follow – up ferritin levels should not be done earlier than 6 months*

DOSAGE CHART

Key points to be considered while starting any of the following Iron Chelators

- Deferasirox
  - Always Start at 20 mg / kg / day and escalate according to dosage chart
- Desferrioxamine
  - Always Start at 30 mg / kg / day and escalate according to dosage chart
- Deferiprone
  - May start at 50 mg / kg / day and escalate according to dosage chart

Escalation Chart		
Deferasirox (in mg /kg /day)		
20 (start)	30	40 (maximum recommended dose)
For 2 weeks	For 2 weeks	Continue
Desferrioxamine (in mg / kg / day s/c)		
30 (start)	40	50 (maximum recommended dose)
For 2 weeks	For 2 weeks	Continue
Deferiprone (in mg / kg / day)		
50 (start)		75 (maximum recommended dose)
For 2 weeks		Continue

100 B, Iqbal Avenue Housing Society
(opp. Shaukat Khanum Hospital)
Johar Town Lahore

Phone: 042-35181549, 35181749
Email: info@tfp.org.pk federation@thalassaemia.org.pk
Website: www.tfp.org.pk