The following is a sample of a
UNIT ANEMIA MANAGEMENT PROTOCOL
PURPOSE

- TO OUTLINE AND SUPPORT THE MANAGEMENT OF ERYTHROPOETIN THERAPY IN THE CHRONIC ESRD PATIENT POPULATION
ASSESSMENT TECHNIQUES

• OBTAIN BASELINE LABS ON ALL CHRONIC RENAL PATIENTS
  • Baseline Labs Include:
    • {Hgb, Hct, Fe Profile & Ferritin levels.}
  • Bi-weekly re-assessment of H&H levels.
  • Draw Fe Profile & ferritin levels quarterly or as needed post IV Iron therapy.
    • (See IV Iron Therapy Algorithm)
Medical Management

- Initiate Epogen® therapy at 80-120 units / kg / week via subcutaneous injection (preferably once per week).

- If Hgb < 11 gm/dL or if value decreases 1 gm over two consecutive checks:
  A.) order stool for occult blood & monitor results
  B.) Review latest iron profile and ferritin levels

- Increase Epogen® 10-25% every 2 weeks if iron stores are adequate.

- Continue to increase Epogen dose by 10-25% q 2 weeks until target value is achieved (11-12 gm/dL).

- Allow minimum time of 2 weeks between dose changes.

- See IV iron therapy protocol for inadequate iron stores.

- When target range is achieved (11-12 gm/dL), maintain current dose and continue to monitor bi-weekly H&H levels.

- Also remember to review latest iron profile & ferritin levels.
Nursing Management

Hgb level >= 12 gm/dl but <= 13.5 gm/dl requires decrease in dose.

- If current dose = 1000 units, do not change dose, Notify MD.
- If current dose is not 1000u, decrease dose by at least 25% (rounding off as per dose adjustment tool to nearest 1,000u).
- Note change on Kardex. Notify MD 1x SQ weekly if possible.

If Hgb >= 13.5 gm/dl

- Notify MD
- Obtain an order to discontinue Epogen®.
- Draw Hgb weekly and monitor results.
- Notify MD when Hgb is ≤12.0 gm/dl.
- Restart Epogen® at prescribed dose.

Maximum EPO dose not to exceed 30,000u 3 x week or 400,000 units per month!
Safety Issues

- Avoid withholding dose, which affects stability of hemoglobin.
- MD assessment and monitoring of blood pressure.
- MD assessment for history of seizure disorder.
- MD assessment for sensitivity to albumin or mammalian cell-derived products.
Prioritization of Results

Results are considered a priority for action when there is:

- Decrease in Hgb of 2 gm within one week
- Hgb ≥ 13.5 gm/dl
- Hgb ≤ 11 gm/dl
- Increase of 4 gm/dl in a 2 week period
Documentation

- Chronic Hemodialysis Treatment Flow Sheet

- Individual Patient Anemia Profile and quarterly review maintained by Anemia manager

- Document Epogen® dose on Kardex

- MD notification of labs, dose changes, and individualized plan of care to reflect patient’s response to therapy
### Anemia Management Patient Profile Form

#### Patient Label

<table>
<thead>
<tr>
<th>Hemoglobin</th>
<th>Bi-Weekly</th>
<th>MRW</th>
<th>Result</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Studies</td>
<td>Drawn:</td>
<td>Fe</td>
<td>Sat</td>
<td>Ferr</td>
</tr>
<tr>
<td>Iron Therapy (Ferrlicit)</td>
<td>Date Ordered:</td>
<td>Dose</td>
<td>mg</td>
<td>s</td>
</tr>
<tr>
<td>EpoGen</td>
<td>Date Ordered:</td>
<td>Units</td>
<td>s</td>
<td>wkly</td>
</tr>
<tr>
<td>EpoGen</td>
<td>Date:</td>
<td>Units</td>
<td>s</td>
<td>wkly</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hemoglobin</th>
<th>Bi-Weekly</th>
<th>MRW</th>
<th>Result</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Studies</td>
<td>Drawn:</td>
<td>Fe</td>
<td>Sat</td>
<td>Ferr</td>
</tr>
<tr>
<td>Iron Therapy (Ferrlicit)</td>
<td>Date Ordered:</td>
<td>Dose</td>
<td>mg</td>
<td>s</td>
</tr>
<tr>
<td>EpoGen</td>
<td>Date Ordered:</td>
<td>Units</td>
<td>s</td>
<td>wkly</td>
</tr>
<tr>
<td>EpoGen</td>
<td>Date:</td>
<td>Units</td>
<td>s</td>
<td>wkly</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Protocol for Epogen Therapy

Initial Epogen Therapy
80 - 120 units / Kg / Week SQ Injection
(Preferably Once Per Week)

TARGET HGB: 11 - 12.5 gm/dl
Max. EPO Dose not to exceed 30,000 units 3x/week OR 400,000 units per month

Baseline Labs:
Hgb & Hct, Ferritin, TSAT

Protocol for Epogen Therapy for Prevalent Patients (3 Months After Initiation)

- Hgb < 11 gm/dl OR 1 gm/dl decrease over two consecutive checks
  - Yes
  - Inadequate Iron Stores: Ferritin <100 AND TSAT <20%
    - Yes
    - Initiate Intravenous Iron Therapy per Protocol (see Algorithm for IV Iron Therapy)
  - No
  - Has Hgb Level Increased by 0.3 to 0.5 gm/dl per week after 4 weeks of EPO therapy?
    - Yes
    - Increase EpoGen Dose by 25% every 2 weeks
    - Repeat Hgb: weekly until Target Value Achieved
    - Maintain Current Dose of EpoGen
    - MD Signature:
  - No
    - Maintain Current Dose of EpoGen
    - RN Signature:

- Hgb >= 11.0 and < 12.4 gm/dl
  - No
  - Inadequate Iron Stores: Ferritin <100 AND TSAT <20%
    - Yes
    - Initiate Intravenous Iron Therapy per Protocol (see Algorithm for IV Iron Therapy)
  - No
  - Has Hgb Level Increased by 0.3 to 0.5 gm/dl per week after 4 weeks of EPO therapy?
    - Yes
    - Increase EpoGen Dose by 25% every 2 weeks
    - Repeat Hgb: weekly until Target Value Achieved
    - Maintain Current Dose of EpoGen
    - MD Signature:
  - No
    - Maintain Current Dose of EpoGen
    - RN Signature:

- Hgb >= 12.5 and < 13.5 gm/dl
  - No
  - Current Dose 1000u Weekly?
    - Yes
    - Do Not Change Dose
      - Notify MD
      - Monitor Hgb Weekly
    - D/C Epogen Order
    - RN Signature:
  - No
    - Do Not Change Dose
      - Notify MD
      - Monitor Hgb Weekly
    - Notify MD, restart EpoGen when Hgb reaches 12.0 gm/dl

- Hgb >= 13.5 gm/dl
  - No
  - Notify MD
  - RN Signature:

Revision Date: 3/04/2008
Epogen® Treatment Tracking Graph

Graph showing HGB and HCT levels from 1 Dec 07 to 30 Mar 08.