La dialisi : quando? quale?

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Dialisi: definizione

In medicina dialisi dal greco,"διάλυσις", che significa dissoluzione, dia, attraverso, and lysis, scissione è il processo attraverso cui vengono rimosse le sostanze tossiche o l'eccesso di acqua dal sangue e viene utilizzata principalmente come sostituzione artificiale della funzione renale nei pazienti affetti da insufficienza renale cronica terminale.

Pendse, S, Singh, A, Zawada, E. Initiation of dialysis in Handbook of Dialysis, 4th ed, Daugirdas, JT, Blake, PG, Ing, TS (Eds). Lippincott Williams & Wilkins, Philadelphia 2007

Indicazioni cliniche

Pericarditi o pleuriti (indicazione urgente)

neuropatia o encefalopatia uremica, assocata a segni quali confusione, mioclono (indicazione urgente)

diatesi emorragica attribuita all'uremia (indicazione urgente)

Alterazioni metaboliche persistenti che sono refrattarie alla terapia medica; iperkaliemia, acidosi metabolica ipercalcemia ipocalcemia ed iperfosfatemia (indicazione urgente)

eccesso di liquidi con mancata risposta alla terapia diuretica (indicazione urgente)

ipertensiona non controlata dalla terapia medica

nausea e vomito persistenti

segni di malnutrizione

Pendse, S, Singh, A, Zawada, E. Initiation of dialysis in Handbook of Dialysis, 4th ed, Daugirdas, JT, Blake, PG, Ing, TS (Eds). Lippincott Wi

Wilkins, Philadelphia 2007. K/DOQI Clinical Practice Guidelines for Peritoneal Dialysis Adequacy. Am J Kidney Dis 2006; 47(Suppl 4):S1.

Misurazioni quantitative della malattia renale cronica terminale

- GFR
- STATO NUTRIZIONALE (albuminemia,creatinina,transferrina, sometomedina C, prealbumina, colesterolo...)
- Incremento degli indici nutrizionali dopo l'inizio del trattamento emodialitico
- Prevenire la malnutrizione prima dell'inizio della dialisi potrebbe essere un fattore chiave per migliorare gli outcame

Balogun SA, Balogun RA, Evans J. Age-related differences in renal function at onset of renal replacement therapy in chronic kidney disease stage 5 patients. QJM 2006; 99:595.

Balogun SA, Balogun RA, Evans J. Age-related differences in renal function at onset of renal replacement therapy in chronic kidney disease stage 5 patients. QJM 2006; 99:595.

GFR:

IDEAL STUDY: **828PZ, 10-15ML/MIN, 5-7ML/MIN**
NON VI ERANO DIFFERENZE PER EVENTI CARDIOVASCOLARI, INFEZIONI O COMPLICANZE DIALITICHE

KDIGO2012: **LA DIALISI DOVREBBE ESSERE INIZIATA QUANDO CI SONO SEGNI O SINTOMI DI DANNO RENALE (COME SIEROSITI, ALTERAZIONE DEGLI ELTTROLTI O DELL'EQUILIBRIO ACIDO-BASE, PRURITO), L'IMPOSSIBILITA A CONTROLLARE I VOLUMI E LA PRESSIONE ARTERIOSA, UN PROGRESSIVO DETERIORAMENTO DELLO STATO NUTRIZIONALE REFRATTARIO. I SEGNI E SINTOMI DELL'UREMIA SPESSO MA NON SEMPE COMPAIONO QUANDO IL FILTRATO GLOMERULARE è STIMATO IN 5/10ML/MIN.**

Susantitaphong P, Altamimi S, Ashkar M, et al. GFR at initiation of dialysis and mortality in CKD: a meta-analysis. Am J Kidney Dis 2012; 59:829

KDIGO 2012 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. Kidney Int Suppl 2013; 3:5

TAKE HOME MESSAGES

- L'INIZIO DELLA DIALISI NON DOVREBBE FONDARSI SOLO SULLA STIMA DEL FILTRATO GLOMERULARE
- LA DIALISI DOVREBBE ESSERE INIZIATA IN PAZIENTI CON SEGNI E SINTOMI DI UREMIA (PERICARDITI E PLEURITI, ENCEFALOPATIA O NEUROPATIA, DIATESI EMORRAGICA, SCARSO CONTROLLO DEI VOLUMI CON LA TERAPIA DIURETICA, PERSISTENTI ALTERAZIONI METABOLICHE, NAUSEA VOMITO MALNUTRIZIONE)
- IL MEDICO DOVREBBE VIGILARE SULLA PRESENZA DI SEGNI O SINTOMI DI UREMIA
- IL PAZIENTE DOVREBBE ESSERE INFORMATO DEI SEGNI E SINTOMI DELL'UREMIA IN MODO DA RIVOLGERSI AL MEDICO TEMPESTIVAMENTE
- NEI PAZIENTI ASINTOMATICI LA DIALISI DOVREBBE ESSERE INIZIATA QUANDO IL FILTRATO GLOMERULARE è STIMATO TRA 8/10ML/MIN
- FONDAMENTALE ALLESTIRE UN ACCESSO DIALITICO PER TEMPO

Modalità dialitiche

- **EMODIALISI è una terapia fisica sostitutiva della funzionalità renale in cui il processo di depurazione del sangue avviene attraverso un membrana semipermeabile (filtro),somministrata a soggetti nei quali essa è criticamente ridotta (uremia), condizione che rappresenta lo stadio più grave dell' insufficienza renale**

- **rimozione delle sostanze tossiche**
- **riequilibrio elettrolitico**
- **riequilibrio acido-base**
- **rimozione dei liquidi in eccesso**

TRAPIANTO (2.5%)

- **DIALISI PERITONEALE (11%) è una terapia fisica adottata per il trattamento dell'insufficienza renale in cui il processo di depurazione del sangue avviene all'interno dell'organismo sfruttando come membrana dializzante il peritoneo ,somministrata a soggetti nei quali essa è criticamente ridotta (uremia), condizione che rappresenta lo stadio più grave dell'insufficienza renale**

- Excerpts from the USRDS 2005 annual data report: Atlas of end-stage renal disease in the United States. Am J Kidney Dis 2006; 47 (Suppl 1):S1

La terapia sostitutiva

Scopo della terapia sostitutiva è restituire al paziente con insufficienza renale un'aspettativa e una qualità di vita sovrapponibili a quelle della popolazione non malata nei limiti imposti dalle conoscenze scientifiche e dalle possibilità tecniche, dai costi e dalle condizioni sociali del paziente.

Burkart JM, Perit Dial Int 1996

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Indicazioni alla dialisi peritoneale

- Volontà del paziente in assenza di controindicazioni cliniche
- Instabilità emodinamica
- Mancanza di accessi vascolari per emodialisi
- Abitazione lontana dal Centro Dialisi
- Impegno lavorativo e/o scolastico durante il giorno

US Renal Data System, USRDS 2009 Annual Data Report, The National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Disease. Am J Kidney Dis 2010; 55(Suppl 1):

Controindicazioni fisiche

- Gravi malattie infiammatorie intestinali
- Recente intervento di protesi vascolare
- Grossi reni policistici
- Aderenze da pregressi interventi
- Stomie
- Grave malnutrizione o obesità
- Gastroparesi diabetica
- Severa insufficienza respiratoria
- Grave handicap che pregiudica la fase di addestramento

Dumler F. Hypoalbuminemia is a marker of overhydration in chronic maintenance patients on dialysis. ASAIO J 2003; 49:282

Controindicazioni psicosociali

- Mancanza di autonomia in assenza di partner e/o assistenza qualificata
- Inadeguatezza ambientale
- Scarsa compliance

Dumler F. Hypoalbuminemia is a marker of overhydration in chronic maintenance patients on dialysis. ASAIO J 2003; 49:282

TAKE HOME MESSAGES

- **Non esistono differenze, benefici relativi o effetti avversi relativi riguardo la mortalità**
- **Non esistono differenze, benefici relativi o effetti avversi relativi riguardo la sopravvivenza**
- **I benefici della dialisi peritoneale sulla sopravvivenza sono a breve termine, ma la sopravvivenza è comparabile o si riduce dopo uno o due anni dall'inizio del trattamento (causa dell'insufficienza renale, sesso,età, presenza o assenza di comorbidità) in pazienti giovani senza comorbidità.**
- **L'emodialisi aumenta la sopravvivenza nei pazienti con malattia cardiovascolare e diabete**

La scelta della terapia dialitica risulta dalla interazione fra la valutazione del medico e le preferenze del paziente, tenendo conto di indicazioni, controindicazioni, vantaggi e svantaggi di ogni opzione

Grazie per l'attenzione

Mister G

- 65 anni
- Perso corporeo 82 kg
- Altezza 172 cm
- Ipertensione arteriosa
- Dislipidemia
- Intolleranza glucidica
- Insufficienza renale cronica stadio III sec. NKF

Mister G

Terapia

dieta iposodica,ipoglucidica

- ramipril 5mg
- Atorvastatina 40mg
- Calcio carbonato 1gr ai pasti principali
- Calcitriolo 0,25mcg/ gg alterni

Mister G

- Hb 10,8gr/dl
- Azotemia 75mg/dl
- Creatinina 1,8mg/dl
- Sodio 134mEq/l
- Potassio 4,2mEq/
- Colesterolo tot 225mg/dl
- Lieve proteinuria all'esame urine

ANEMIA

La diagnosi

Anemia (Hb 10,8gr/dl)

normocromica(MCH28pg)

normocitica (MCV90fl)

in malattia renale cronica

Diagnosi

Sideremia (50ng/ml)

Transferrina (200mg/dl)

Ferritina (10ng/ml)

B12 (500pg/ml)

folati (10mcg/l)

reticolociti(0,4%)

Terapia

Terapia

Terapia

Terapia

Epoetina beta
4000U/sett

Ferro gluconato
1cp/die

Terapia (dopo 3 mesi)

Terapia-risultati

- Hb 13 gr/dl
- Sideremia (90ng/ml)
- Transferrina (300 mg/dl)
- Ferritina (500ng/ml)
- Reticolociti (12%)

Terapia risultati

- Hb 13 gr/dl
- Sideremia (90ng/ml)
- Transferrina (300 mg/dl)
- Ferritina (500ng/ml)
- Reticolociti (12%)

Effetti collaterali

Pressione arteriosa elevata

• KEYPOINTS

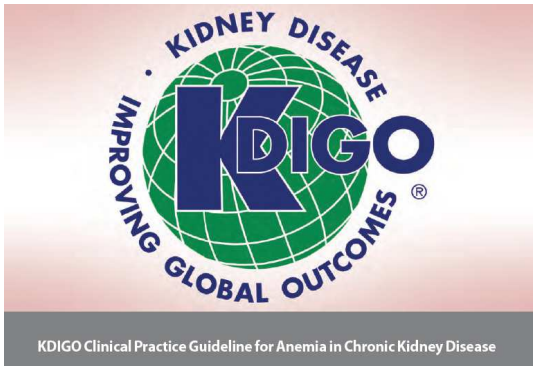
→ Diagnosis and evaluation of anemia in CKD

→ Use of iron to treat anemia in CKD

→

→

Grazie per l'attenzione

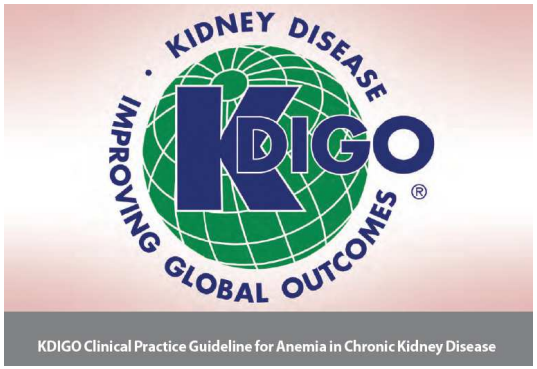


ANEMIA IN CKD: ?

Diagnose anemia in adults and children >15 years with CKD when the Hb concentration is <13.0 g/dl (<130 g/l) in males and <12.0 g/dl (<120 g/l) in females. (*Not Graded*)

Diagnose anemia in children with CKD if Hb concentration is <11.0 g/dl (<110 g/l) in children 0.5–5 years, <11.5 g/dl (115 g/l) in children 5–12 years, and <12.0 g/dl (120 g/l) in children 12–15 years. (*Not Graded*)

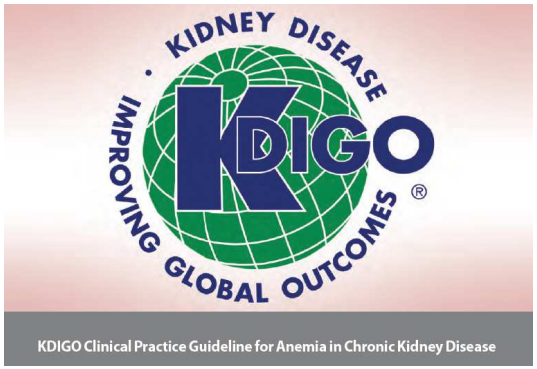
KDIGO Guidelines, Kidney Int 2012



ANEMIA IN CKD: DIAGNOSIS

- Complete blood count (CBC), which should include Hb concentration, red cell indices, white blood cell count and differential, and platelet count
- Absolute reticulocyte count
- Serum ferritin level
- Serum transferrin saturation (TSAT)
- Serum vitamin B_{12} and folate levels

KDIGO Guidelines, Kidney Int 2012



DIAGNOSIS: WHEN?

For CKD patients without anemia measure Hb concentration when clinically indicated and

- at least annually in patients with CKD 3
- at least twice per year in patients with CKD 4–5ND
- at least every 3 months in patients with CKD 5HD and CKD 5PD

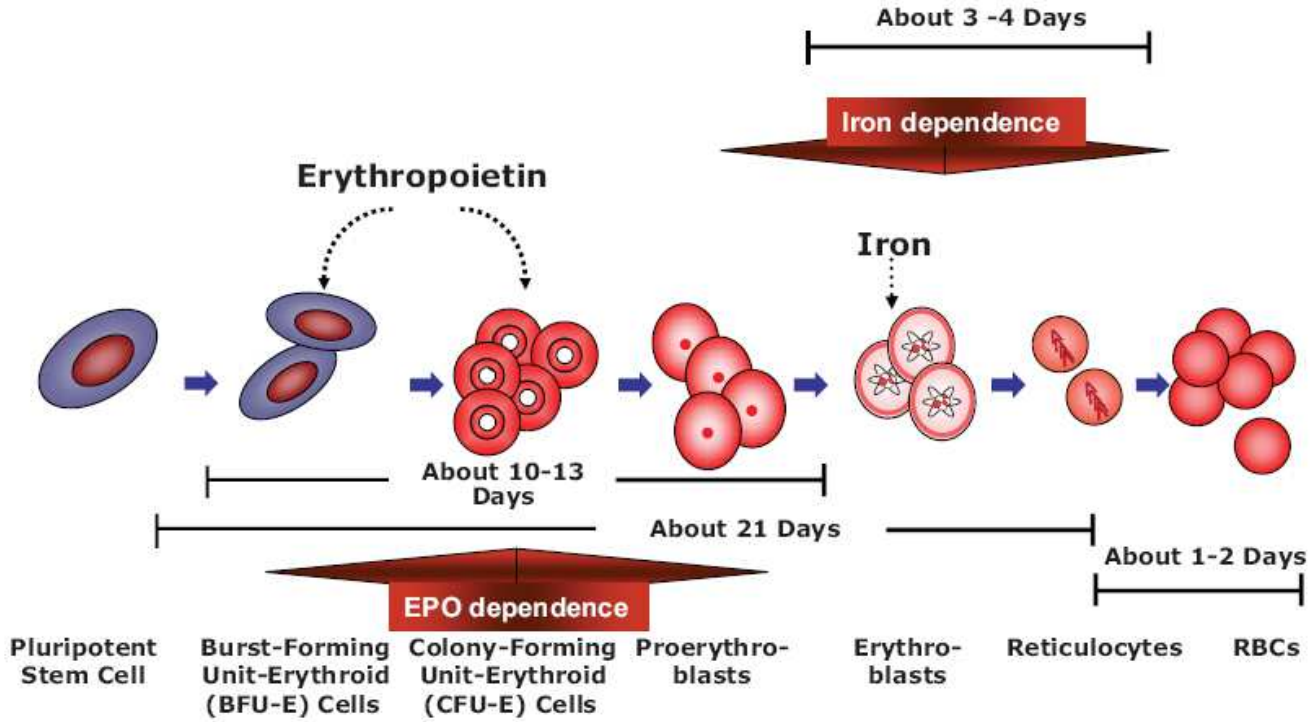
For CKD patients with anemia not being treated with an ES.

measure Hb concentration when clinically indicated and

- at least every 3 months in patients with CKD 3–5ND and CKD 5PD
- at least monthly in patients with CKD 5HD

KDIGO Guidelines, Kidney Int 2012

IRON AND ERITHROPOIESIS



Besarab, Oncologist 2009

IRON DIAGNOSTIC TESTS

TSAT – TRANSFERRIN SATURATION (%)
(serum iron x 100) / total iron binding capacity)

FERRITIN (ng/mL or µg/L)

- **Evaluate iron status at least every 3 months during ESA therapy, including the decision to start or continue iron therapy**

- **Test iron status more frequently when initiating or increasing ESA dose, when there is blood loss, when monitoring response after a course of IV iron, and in other circumstances where iron stores may become depleted**

why?

When prescribing iron therapy, balance the potential benefits of avoiding or minimizing blood transfusions, ESA therapy, and anemia-related symptoms against the risks of harm in individual patients (e.g., anaphylactoid and other acute reactions, unknown long-term risks). *(Not Graded)*

KDIGO Guidelines, Kidney Int 2012

NOMENCLATURE AND DESCRIPTION FOR RATING GUIDELINE RECOMMENDATIONS

strength of recommendation

	Implications		
Grade*	Patients	Clinicians	Policy
Level 1 'We recommend'	Most people in your situation would want the recommended course of action and only a small proportion would not.	Most patients should receive the recommended course of action.	The recommendation can be evaluated as a candidate for developing a policy or a performance measure.
Level 2 'We suggest'	The majority of people in your situation would want the recommended course of action, but many would not.	Different choices will be appropriate for different patients. Each patient needs help to arrive at a management decision consistent with her or his values and preferences.	The recommendation is likely to require substantial debate and involvement of stakeholders before policy can be determined.

Quality of evidence

Grade	Quality of evidence	Meaning
A	High	We are confident that the true effect lies close to that of the estimate of the effect.
B	Moderate	The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
C	Low	The true effect may be substantially different from the estimate of the effect.
D	Very Low	The estimate of effect is very uncertain, and often will be far from the truth.

Adult CKD patients with anemia not on iron or ESA therapy

Trial of IV iron (or in CKD-ND patients, alternatively, a 1–3 month trial of oral iron therapy), if:

- **an increase in Hb concentration without starting ESA treatment is desired (symptoms, avoidance of transfusion)**

and

- ***TSAT is ≤ 30% and ferritin is ≤ 500 ng/ml***

2C

KDIGO Guidelines, Kidney Int 2012

Adult CKD patients on ESA therapy who are not receiving iron supplementation

Trial of IV iron (or in CKD-ND patients, alternatively, a 1–3 month trial of oral iron therapy), if:

- **an increase in Hb concentration or a decrease in ESA dose is desired [according ESA recommendations]**

and

- ***TSAT is ≤ 30% and ferritin is ≤ 500 ng/ml***

2C

KDIGO Guidelines, Kidney Int 2012

Subsequent iron supplementation

Guide subsequent iron administration in CKD patients based on Hb responses to recent iron therapy, as well as ongoing blood losses, iron status tests (TSAT and ferritin), Hb concentration, ESA responsiveness and ESA dose in ESA treated patients, trends in each parameter, and the patient's clinical status.

Avoid administering IV iron to patients with active systemic infections.

KDIGO Guidelines, Kidney Int 2012

"Blocked" iron

Iron depletion → *iron supplementation* → Before considering ESA
Before increasing ESA doses

Normal iron → *iron supplementation* → During ESA treatment

"Blocked" iron:

- **Anemia** *(Hb<11 g/dL)*
- **High Ferritin** *(>500 ng/mL)*
- **Low TSAT** *(<20-25%)*

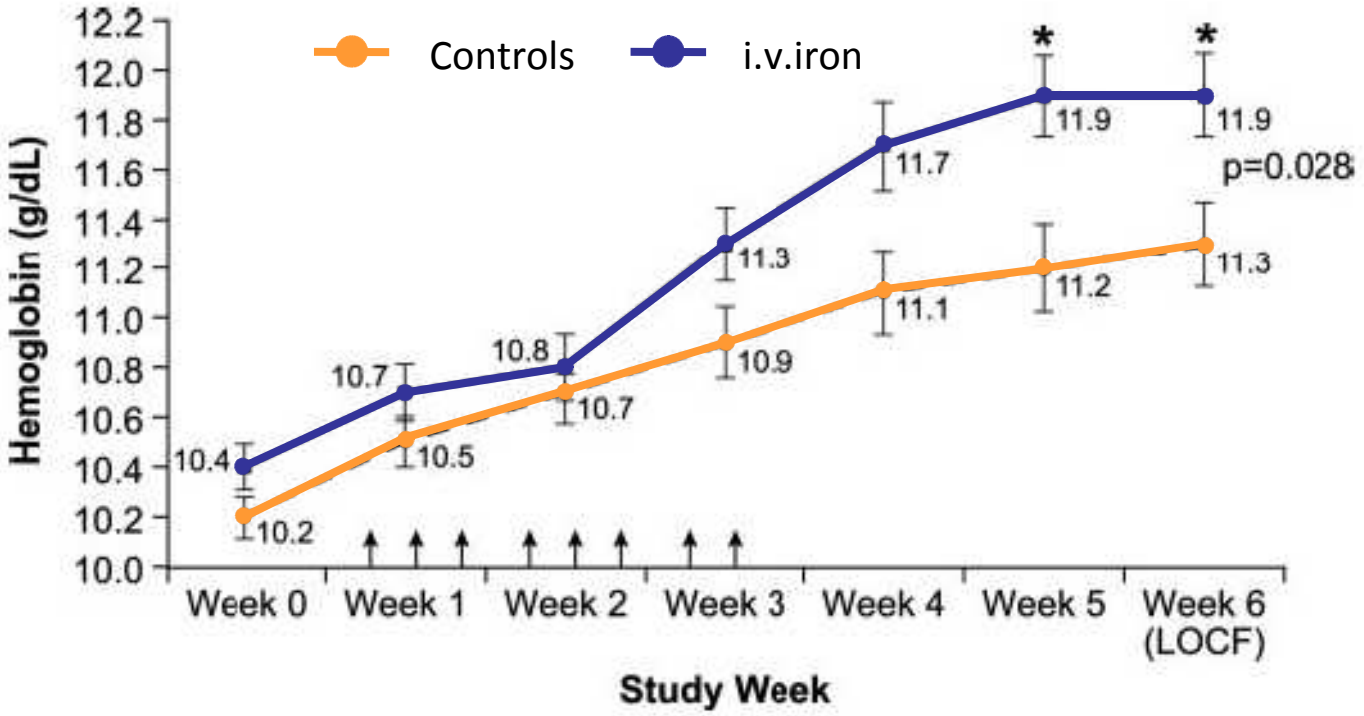
Prevalence: 26.6% → ***iron supplementation?***

Coyne, J Am Soc Nephrol 2007

Ferric Gluconate Is Highly Efficacious in Anemic Hemodialysis Patients with High Serum Ferritin and Low Transferrin Saturation: Results of the Dialysis Patients' Response to IV Iron with Elevated Ferritin (DRIVE) Study

Daniel W. Coyne,* Toros Kapoian,† Wadi Suki,‡ Ajay K. Singh,§ John E. Moran,‖ Naomi V. Dahl,¶ and Adel R. Rizkala;¶ the DRIVE Study Group

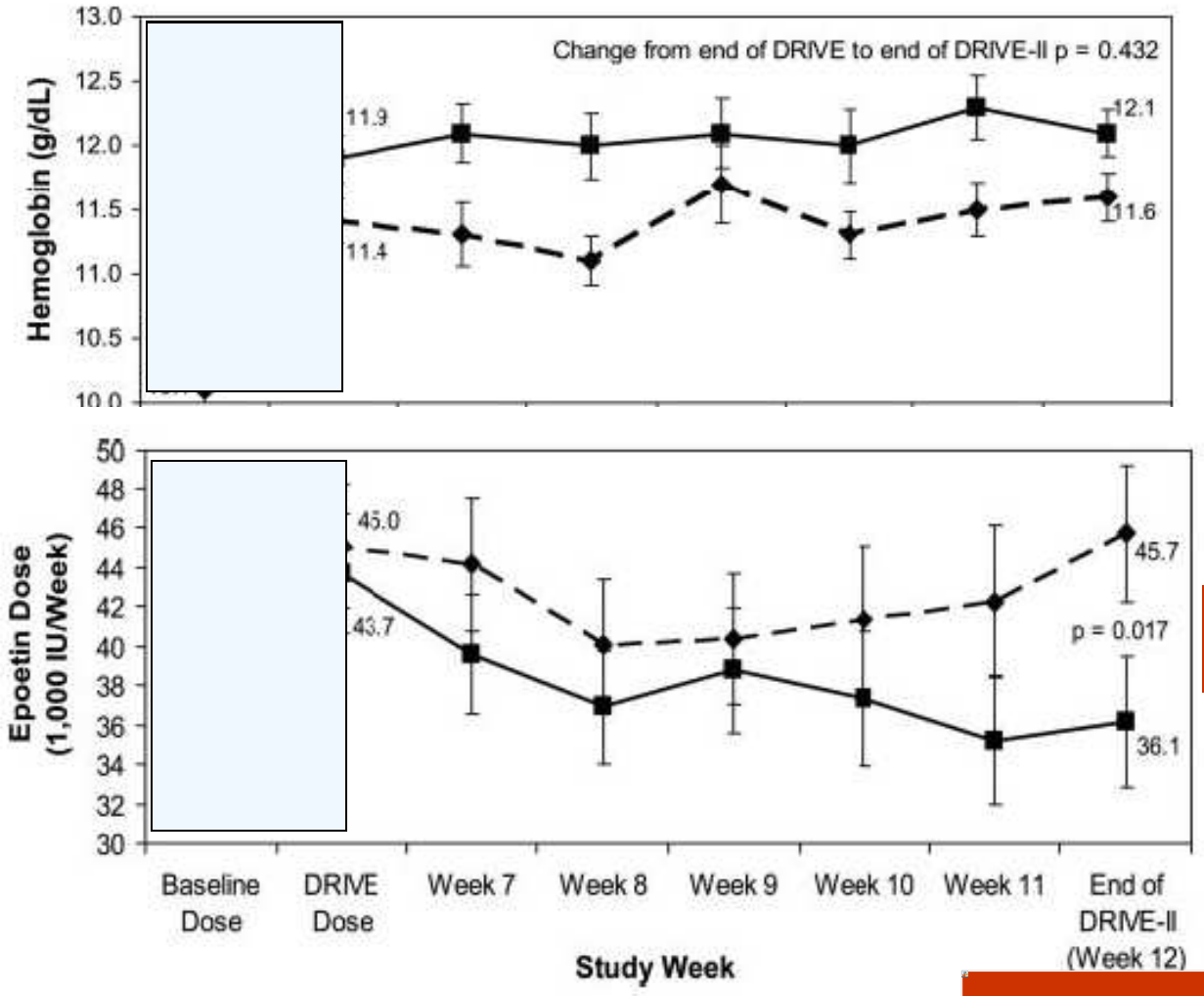
Effective iron supplementation in pts with ferritin ≤ 1200 ng/mL (Hb target, ESA dosing reduction, correction of ineffective erythropoiesis in micro-inflammation);
limit: small observation in time



Coyne, J Am Soc Nephrol 2007

Ferric Gluconate Reduces Epoetin Requirements in Hemodialysis Patients with Elevated Ferritin

Toros Kapoian,* Neeta B. O'Mara,† Ajay K. Singh,‡ John Moran,§ Adel R. Rizkala,‖ Robert Geronemus,¶ Robert C. Kopelman,** Naomi V. Dahl,‖ and Daniel W. Coyne††



Controlli

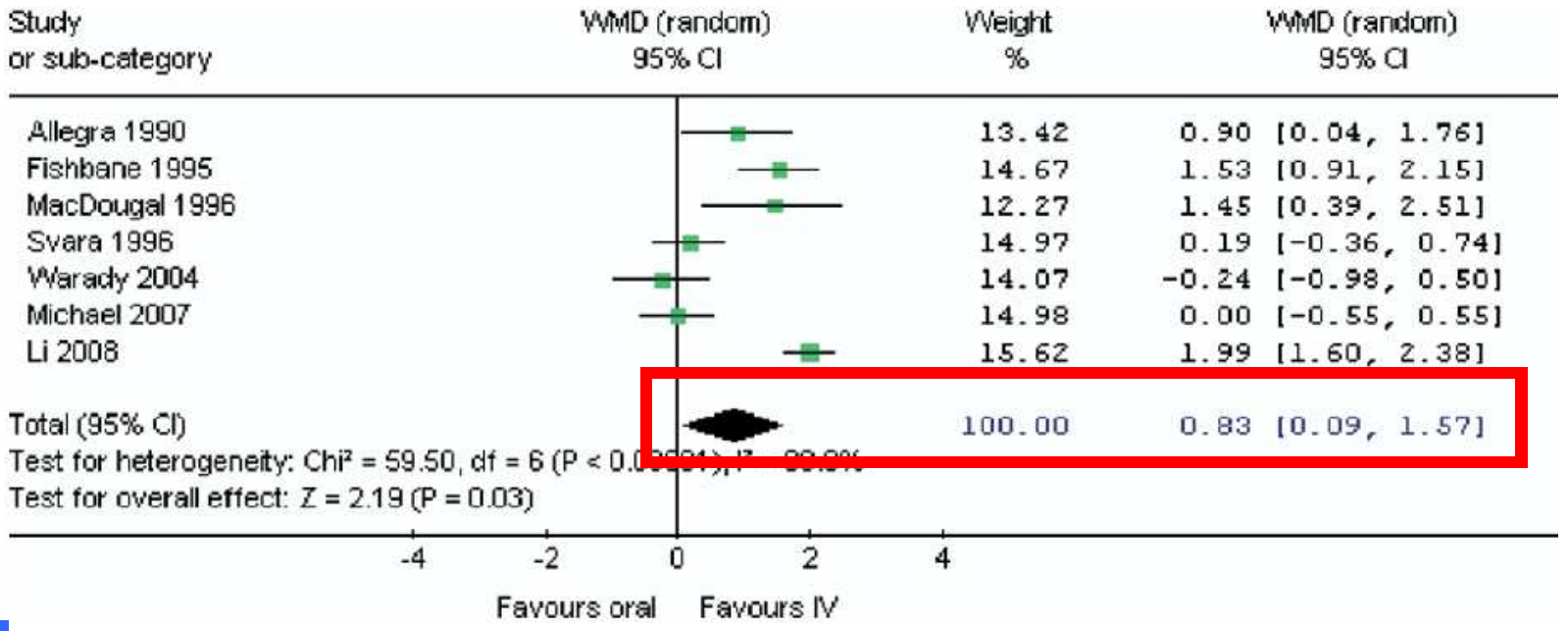
Δ 7527±18,021 IU/wk
***P* 0.003**

Ferro

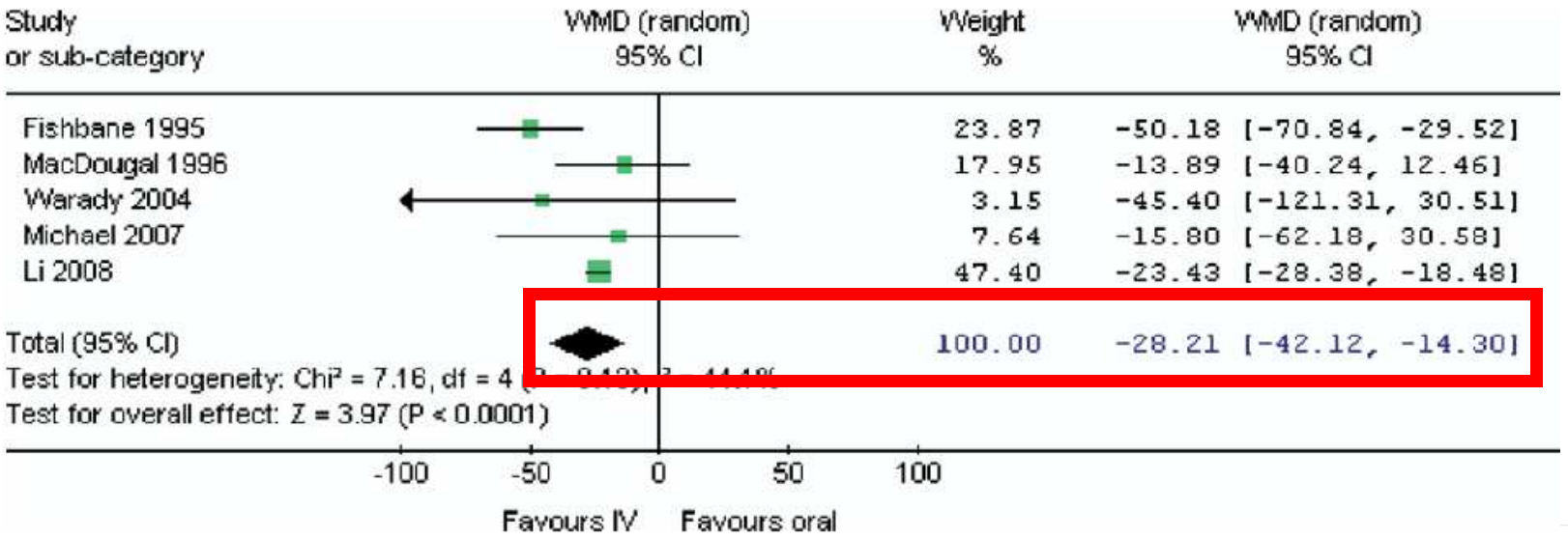
Kapoian, J Am Soc Nephrol 2008

Intravenous *vs* oral iron supplementation

Δ Hb



Δ ESA

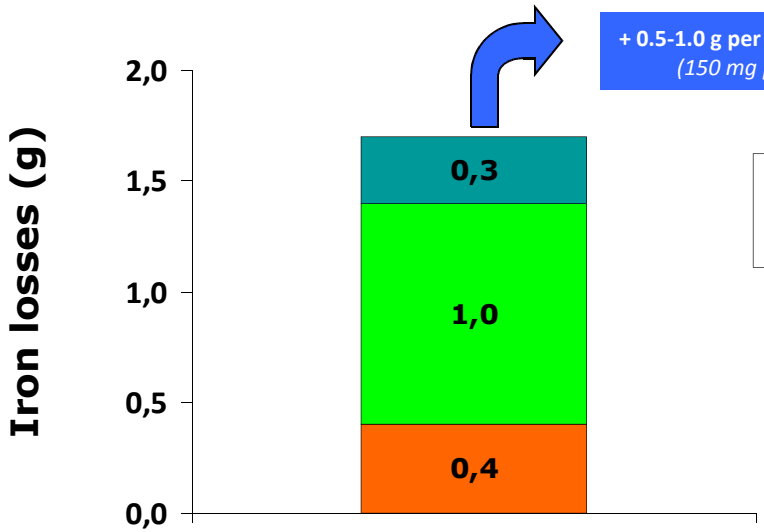


Rozen-Zvi, Am J Kidney Dis 2008

Managing iron supplementation

- **Intermittent approach** — **Consecutive administration in iron depletion** ***(i.e., 1 f / HD for 16 HD)***
- **Maintaining approach** — **Continuous, low-dose administration [regular intervals]** ***(i.e., 1 f / week)***

MAINTAINING PHASE:



1.5-2 g/year

Na ferrigluconato (Ferlixit)
62.5 mg

(Hb norm. g 16 - g... Hb paz) x 225 / mg Fe pro fiala = n. fiale

KDOQI Guidelines, Am J Kidney Dis 2006
Eshbach Ann Int Med 1977

• KEYPOINTS

→ Diagnosis and evaluation of anemia in CKD

→ Use of iron to treat anemia in CKD

→

Step 1

Address (including iron deficiency and inflammatory states) prior to initiation of ESA therapy. (*Not Graded*)

In initiating and maintaining ESA therapy, we recommend balancing the against the e.g., stroke, vascular access loss, hypertension). (*1B*)

We recommend using ESA therapy with if at all, in CKD patients with active malignancy—in particular when cure is the anticipated outcome—(*1B*), a history of stroke (*1B*), or a history of malignancy (*2C*).

KDIGO Guidelines, Kidney Int 2012

Step 2

More is Better !

DOQI
11-12 g/dL

EBPG
>11 g/dL
(limite superiore
non definito)

KDOQI
11-12 g/dL

EBPG
>11 g/dL
(limite superiore
personalizzato)

1997 1999 2000 2001 2002 2003 2004 2005

CSN
11-12 g/dL

CARI
11-12 g/dL CVD
12-14 g/dL no CVD

UK RA
>10 g/dL

CARI
>11 g/dL CVD
12-14 g/dL no CVD

CARI
11-12 g/dL CVD
12-14 g/dL no CVD

Step 2 (continue)

Adult CKD, ND patients
Hb ≥ 10.0 g/dL → *ESA therapy not be initiated (2D)*

Adult CKD, ND patients
Hb < 10.0 g/dL → *Individualized ESA therapy (rate of fall of Hb, prior response to iron, risk of needing a transfusion, risk ESA related, symptoms) (2C)*

Adult CKD, 5D patients →
- *ESA therapy to avoid having Hb fall < 9.0 g/dL*
- *Starting ESA when Hb 9.0 – 10.0 g/dL (2B)*
- *Individualized therapy*

KDIGO Guidelines, Kidney Int 2012

Step 2 (continue)

Anemia trials: lessons for clinicians, politicians, and third-party payers

Kidney International (2010) **77,** 479–480. doi:10.1038/ki.2009.496

Anemia management is getting complex. The evidence that we use to guide anemia therapy is based on observational studies as well as clinical trials. The observational studies have uniformly demonstrated that persons with higher hemoglobin levels enjoy better outcomes, including fewer hospitalizations and longer survival.[1] Randomized controlled trials, on the other hand, paint a different and far more complex picture.

Szczech, Kidney Int 2010

Step 3

In general, we suggest that ESAs not be used to maintain Hb concentration above 11.5 g/dl (115 g/l) in adult patients with CKD. (*2C*)

Individualization of therapy will be necessary as some patients may have improvements in quality of life at Hb concentration above 11.5 g/dl (115 g/l) and will be prepared to accept the risks. (*Not Graded*)

In all adult patients, we recommend that ESAs not be used to intentionally increase the Hb concentration above 13 g/dl (130 g/l). (*1A*)

KDIGO Guidelines, Kidney Int 2012

Step 4

Low Half-Life ESA **(iv 10 h, sc 20 h)**	**Epoetin β** **(NeoRecormon ®)** **Epoetin α** **(Eprex ®)**	**3 adm / week** **1 adm / week (off label)**
Long Half-Life ESA **(iv 20 h, sc 70 h)** **CERA** **(continuous erythropoetin receptor activator)** **(iv 130 h, sc 140 h)**	**Darbepoetin α** **(Aranesp ®)** **Metossi-Polietilenglicole-Epoetin β** **(Mircera ®)**	**1 adm / 2 weeks** **1 ADM / 4 weeks**

Locatelli, J Nephrol 2008
Mann, Clin Nephrol 2007

Step 4 (continue)

We recommend determining the initial ESA dose using the patient's Hb concentration, body weight, and clinical circumstances. (*1D*)

We recommend that ESA dose adjustments be made based on the patient's Hb concentration, rate of change in Hb concentration, current ESA dose and clinical circumstances. (*1B*)

We suggest decreasing ESA dose in preference to withholding ESA when a downward adjustment of Hb concentration is needed. (*2C*)

Re-evaluate ESA dose if (*Not Graded*):

- The patient suffers an ESA-related adverse event
- The patient has an acute or progressive illness that may cause ESA hyporesponsiveness

For CKD 5HD patients and those on hemofiltration or hemodiafiltration therapy, we suggest either intravenous or subcutaneous administration of ESA. (*2C*)

For CKD ND and CKD 5PD patients, we suggest subcutaneous administration of ESA. (*2C*)

We suggest determining the frequency of ESA administration based on CKD stage, treatment setting, efficacy considerations, patient tolerance and preference, and type of ESA. (*2C*)

We recommend choosing an ESA based on the balance of pharmacodynamics, safety information, clinical outcome data, costs, and availability. (*1D*)

We suggest using only ESAs that have been approved by an independent regulatory agency. Specifically for 'copy' versions of ESAs, true biosimilar products should be used. (*2D*)

KDIGO Guidelines, Kidney Int 2012

Step 5

EVALUATING AND CORRECTING PERSISTENT FAILURE TO REACH OR MAINTAIN INTENDED HEMOGLOBIN CONCENTRATION

During the initiation phase of ESA therapy, measure Hb concentration at least monthly. (*Not Graded*)
For CKD ND patients, during the maintenance phase of ESA therapy measure Hb concentration at least every 3 months. (*Not Graded*)
For CKD 5D patients, during the maintenance phase of ESA therapy measure Hb concentration at least monthly. (*Not Graded*)

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Erythropoietic Response and Outcomes in Kidney Disease and Type 2 Diabetes

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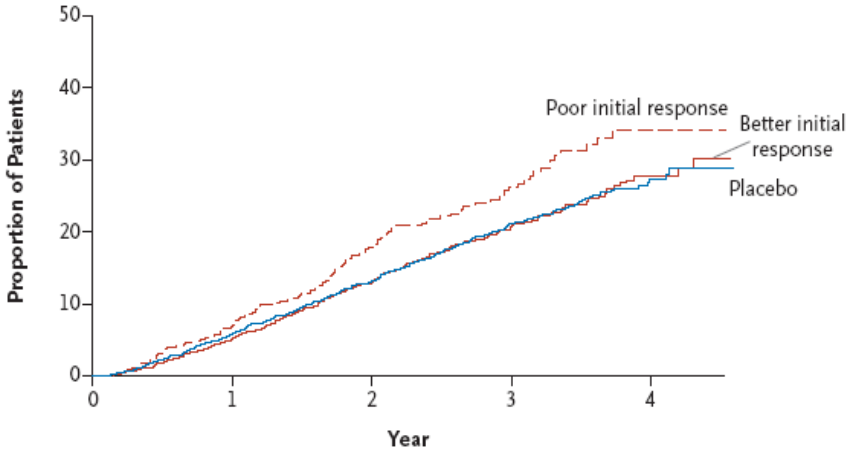
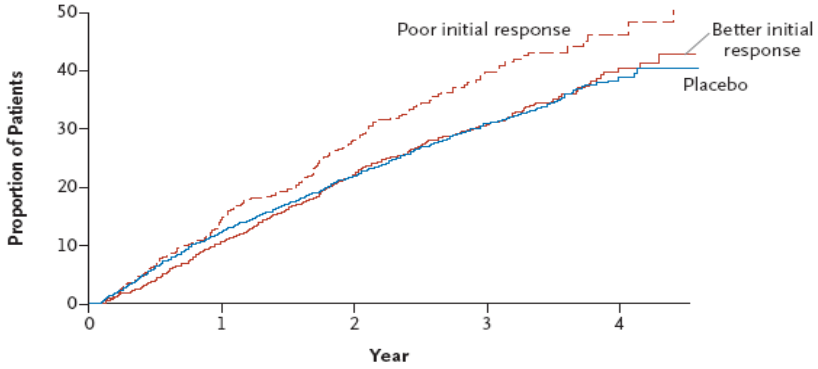
HR: 1.31 (1.09-1.59)

Death, Myocardial Infarction, Stroke, Heart Failure, or Hospitalization for Myocardial Ischemia



Death from Any Cause

HR: 1.41 (1.12-1.78)



Solomon, New Engl J Med 2010

Step 5 (continue)

Low Response
High doses

Hypertensive
Pro-trombotic
Neo-angiogenic
effects

Increased CV risk

Initial ESA hyporesponsiveness

Classify patients as having ESA hyporesponsiveness if they have no increase in Hb concentration from baseline after the first month of ESA treatment on appropriate weight-based dosing. (*Not Graded*)
In patients with ESA hyporesponsiveness, we suggest avoiding repeated escalations in ESA dose beyond double the initial weight-based dose. (*2D*)

Subsequent ESA hyporesponsiveness

Classify patients as having acquired ESA hyporesponsiveness if after treatment with stable doses of ESA, they require 2 increases in ESA doses up to 50% beyond the dose at which they had been stable in an effort to maintain a stable Hb concentration. (*Not Graded*)
In patients with acquired ESA hyporesponsiveness, we suggest avoiding repeated escalations in ESA dose beyond double the dose at which they had been stable. (*2D*)

Management of poor ESA responsiveness

Evaluate patients with either initial or acquired ESA hyporesponsiveness and treat for specific causes of poor ESA response. (*Not Graded*)
For patients who remain hyporesponsive despite correcting treatable causes, we suggest individualization of therapy, accounting for relative risks and benefits of (*2D*):

- decline in Hb concentration
- continuing ESA, if needed to maintain Hb concentration, with due consideration of the doses required, and
- blood transfusions

KDIGO Guidelines, Kidney Int 2012

Step 5 (continue)

EVALUATION FOR PURE RED CELL APLASIA (PRCA)

Investigate for possible antibody-mediated PRCA when a patient receiving ESA therapy for more than 8 weeks develops the following (*Not Graded*):

- **Sudden rapid decrease in Hb concentration at the rate of 0.5 to 1.0 g/dl (5 to 10 g/l) per week *OR* requirement of transfusions at the rate of approximately 1 to 2 per week, *AND***
- **Normal platelet and white cell counts, *AND***
- **Absolute reticulocyte count less than 10,000/μl**

We recommend that ESA therapy be stopped in patients who develop antibody-mediated PRCA. (*1A*)

We recommend peginesatide be used to treat patients with antibody-mediated PRCA. (*1B*)

KDIGO Guidelines, Kidney Int 2012

• KEYPOINTS

→ Diagnosis and evaluation of anemia in CKD

→ Use of iron to treat anemia in CKD

→

USE OF RED CELL TRANSFUSION IN CHRONIC ANEMIA

When managing chronic anemia, we recommend avoiding, when possible, red cell transfusions to minimize the general risks related to their use. (*1B*)
In patients eligible for organ transplantation, we specifically recommend avoiding, when possible, red cell transfusions to minimize the risk of allosensitization. (*1C*)

When managing chronic anemia, we suggest that the benefits of red cell transfusions may outweigh the risks in patients in whom (*2C*):

- **ESA therapy is ineffective (e.g., hemoglobinopathies, bone marrow failure, ESA resistance)**
- **The risks of ESA therapy may outweigh its benefits (e.g., previous or current malignancy, previous stroke)**

We suggest that the decision to transfuse a CKD patient with non-acute anemia should not be based on any arbitrary Hb threshold, but should be determined by the occurrence of symptoms caused by anemia. (*2C*)

Grazie dell'attenzione

Controindicazioni psicosociali

- Mancanza di autonomia in assenza di partner e/o assistenza qualificata
- Inadeguatezza ambientale
- Scarsa compliance