DES de Néphrologie : Enseignement l'Option SOINS INTENSIFS en NÉPHROLOGIE

Le transplanté rénal aux soins intensifs
Complications précoces : gestion des hématomes, de l'anémie et des besoins transfusionnels

Pr Dany Anglicheau

Service des maladies du rein et du métabolisme, transplantation et immunologie clinique
Hôpital Necker, Paris

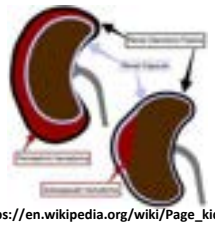
dany.anglicheau@aphp.fr

Février 2023

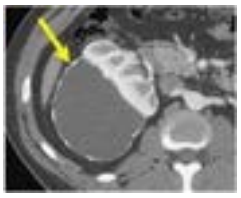
Les hématomes

- L'hématome de la loge de transplantation est une complication très fréquente dans les jours suivant la transplantation
  - Le plus souvent, il s'agit d'un hématome péri-greffon
  - Plus rarement, il s'agit d'un hématome sous-capsulaire
  - Exceptionnellement compliqué de rein de Page (Page Kidney)

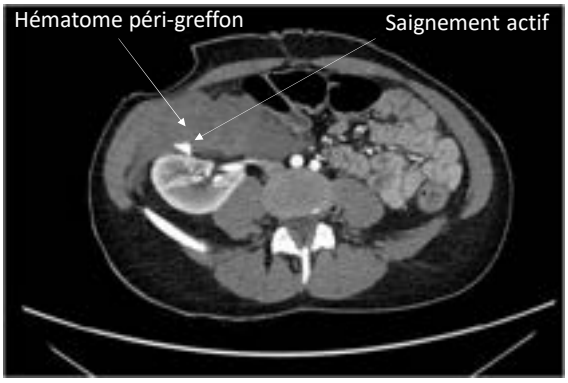
'Page kidney'



https://en.wikipedia.org/wiki/Page_kidney



Abdominal Radiology 42, 2387–2388 (2017)



Lee et al. BMC Nephrology (2022) 23:239

Les hématomes

- La reprise chirurgicale n'est pas la règle !
- Indications de reprise chirurgicale :
  - Hémorragie précoce et abondante (typiquement gros volumes de sang dans les redons en SSPI)
  - Saignement actif visualisé au scanner
  - Mauvaise tolérance clinique et hémodynamique
  - Compression du pédicule vasculaire
- Mais 20 à 40% de l'ensemble des patients transplantés rénaux vont nécessiter des transfusions précoces.

Besoins transfusionnels

Effects of Blood Transfusions Given After Renal Transplantation

Juan C. Sorroik,[1,3] Jesse D. Schold,[1,2] Michael Bucci,[2] and Herwig-Ulf Meier-Kriesche[2]

- Etude observationnelle des besoins transfusionnels chez 746 patients transplantés (89% rein ; 11% rein+pancréas)

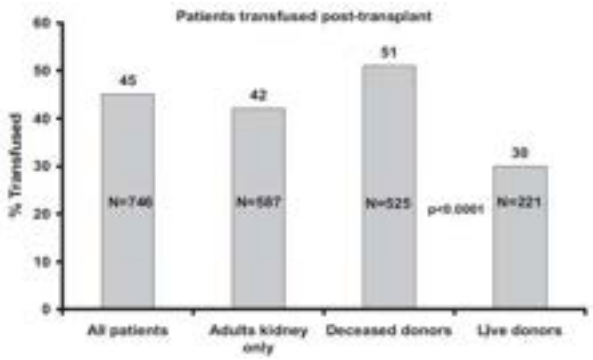


TABLE 2. Frequency of transfusions according to patient characteristics

Transplant characteristic	Transfusions Yes[a]	Transfusions No[a]	P[a]
Living transplant (%)	24	38	0.003
Retransplant (%)	9	10	0.63
African American donor (%)	18	16	0.36
African American recipient (%)	41	36	0.39
Donor male (%)	56	52	0.37
Recipient male (%)	53	60	0.17
Pre-emptive transplant (%)	88	84	0.24
Recipient age (mean ± SD)	49 ± 13	46 ± 15	0.03
Donor age (mean ± SD)	40 ± 15	36 ± 14	0.01

[a] Proportion of patients or mean age of all transfused or nontransfused patients who had the characteristics evaluated.
[b] P value based on χ^2 test for categorical variables and t test for continuous variables.

→ 45% de tous les patients ont été transfusés
→ Plus fréquent en cas de rein de donneur décédé, de donneur ou de receveur plus âgés
→ 78% des transfusions ont lieu au cours du 1er mois

Transplantation 2009;87: 1381–1386

Besoins transfusionnels : situations particulières

Cohort study: "Outcomes of kidney transplantation in patients with prosthetic heart valves"

Iñigo Ouaknine[1,2], Pamela Moser[1,2], Kevin Zorzi[1,2], Laetitia Albano[1], Matthieu Durand[1], Fatimazzahra Karimi[1], Emmanuel Morelon[1], Fanny Buron[1], Magda Le Quintrec[1], Vincent Perrot[1], Marc Ladriere[1], Sophie Girerd[1], Jacques Dantal[1,3], Alexandre Loupy[1,4], Lionel Couat[1,2], Emile Ferrari[1], Vincent Benault[1,2], Pierre Merville[1,2,5], Christophe Legendre[1,6], Magali Giral[1,3], Antoine Sicard[1,2,5] & DIVAT Consortium*

- Etude de cohorte observationnelle
- Population contrôle matchée sur l'âge, le temps de dialyse, la néphropathie intiale, les DSA préformés, le diabète, les évènements cardiovasculaires.
- N=92 patients greffés avec une valve aortique (78%) ou mitrale (14%) ou les deux (8%), mécanique (64%) ou bioprothèse (36%)

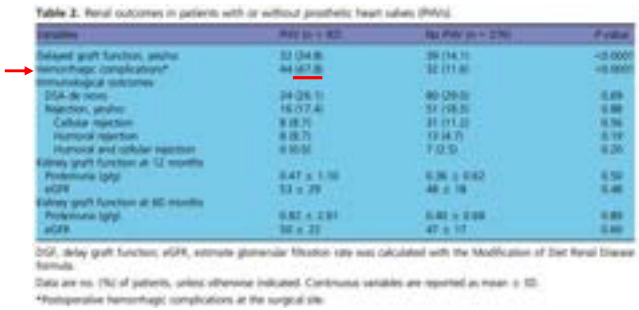


Table 3. Causes of death in patients with or without prosthetic heart valves (PHVs).

Causes of death	PHV (n = 92)	No PHV (n = 276)	*P* value
Infection	13 (14.1)	13 (4.7)	0.004*
Endocarditis	3 (3.2)	1 (0.4)	0.049*
Hemorrhage	3 (3.3)	0 (0.0)	0.02*
Cardiovascular	4 (4.3)	5 (1.8)	0.24
Cancer	4 (4.3)	9 (3.3)	0.74
Other/unknown	6 (6.5)	9 (3.3)	0.22

*P-value<0.05 is significant.

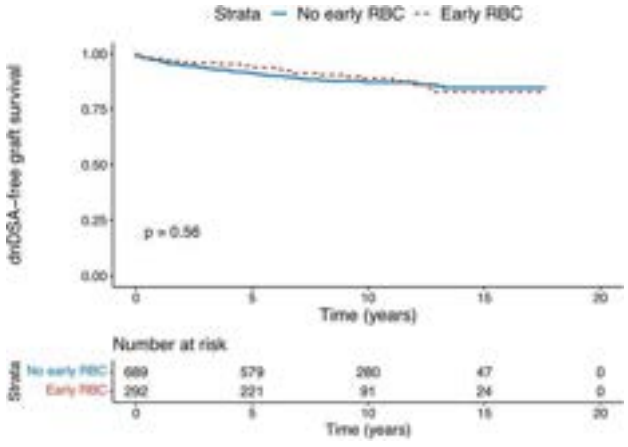
Transplant International 2021; 34: 2297–2304

Transfusions post-greffe et dnDSA ?

Early Blood Transfusion After Kidney Transplantation Does Not Lead to dnDSA Development: The BloodIm Study

Thomas Jouve[1,2*], Johan Noble[1,2], Hamza Naciri-Bennani[1], Céline Daré[1], Dominique Masson[3], Gaëlle Fiard[1,4], Paolo Malvezzi[1] and Lionel Rostaing[1,2]

- Estimation du lien entre transfusion précoce (<3 mois) et dnDSA dans une cohorte monocentrique de greffés rénaux essentiellement induits par l'ATG
- N=1088 patients
- **29.7% de patients nécessitant une transfusion précoce**



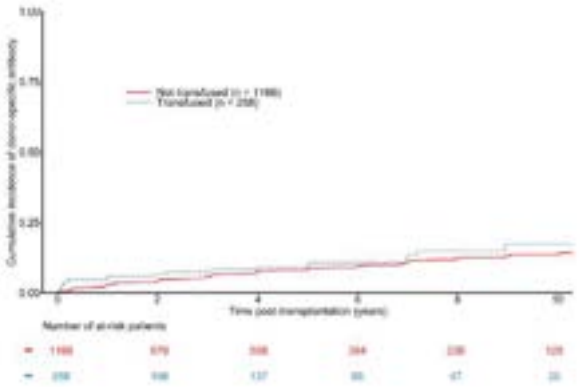
Front Immunol. 2022 Mar 31;13:852079

Transfusions post-greffe et dnDSA ?

- Estimation du lien entre transfusion précoce (<1 mois) et dnDSA dans une cohorte monocentrique de greffés rénaux
- N=1422 patients
- **18.1% de patients nécessitant une transfusion précoce**

Post-Transplantation Early Blood Transfusion and Kidney Allograft Outcomes: A Single-Center Observational Study

Kahina Khodja[1], Rémi Lenain[1,2], Aghiles Hamroun[1,3], Dulciane Baez[1], Isabelle Top[1], Myriam Labalette[1,4], Benjamin Lopez[1], Marine Van Steenkiste[1], François Provôt[1], Marie Frimat[1], Jean-Baptiste Gibier[1], Marc Hazzan[1,3] and Mehdi Maanaoui[1,3,4]



Cumulative incidence of de novo donor specific antibodies according to the transfusion status of kidney transplant recipients. Gray test: $p = 0.02$.

Transpl Int . 2022 Mar 18;35:10279

Intérêt de l'EPO en post-greffe précoce ?

Recombinant human erythropoietin corrects anaemia during the first weeks after renal transplantation: a randomized prospective study

- Etude randomisée Epo (n=14) vs no-Epo (n=15)
- Néorecormon® débuté à 150 UI/kg/semaine si Ht <30%

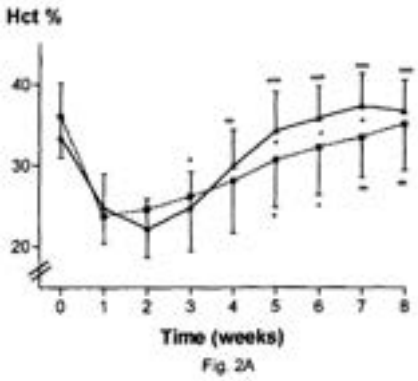


Fig. 2A

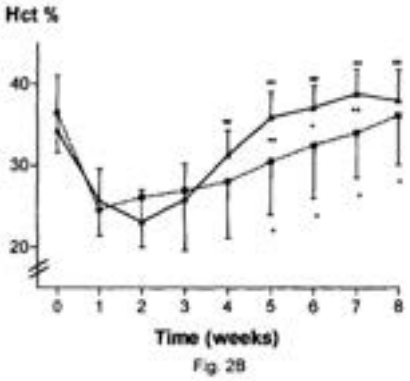


Fig. 2B

Fig. 2. Evolution of haematocrit during the study period of Epo treatment (A) in the overall groups and (B) in patients without major complications. Epo-treated patients (continuous lines), compared to non-Epo-treated patients (dashed lines). $^{*}P<0.05$, $^{**}P<0.01$, Epo vs non-Epo treatment; $^{\circ}P<0.05$, $^{\circ\circ}P<0.01$, $^{\circ\circ\circ}P<0.001$, $^{\circ\circ\circ\circ}P<0.0001$ vs week 2.

Nephrol Dial Transplant (1996) 11 : 1815-1821

Intérêt de l'EPO en post-greffe précoce ?

- Etude randomisée Epo (n=22) vs no-Epo (n=18)
- Néorecormon® débuté à 300 UI/kg/semaine si Hb<12.5 g/dL

Efficacy of Erythropoietin Administration in the Treatment of Anemia Immediately After Renal Transplantation

Efficacy of Erythropoietin Administration in the Treatment of Anemia Immediately After Renal Transplantation

Wim Van Biesen,[1,2] Raymond Vanholder,[1] Nic Veys,[1] Francis Verbeke,[1] and Norbert Lameire[1]

Anemia negatively impacts cardiovascular comorbidity and hospitalization. In animals, recombinant erythropoietin (RhuEPO) leads to faster recovery after acute tubular necrosis. This study evaluates the effect of RhuEPO (Recormon, Hoffman-La Roche, Basel, Switzerland) on the correction of anemia and kidney function after renal transplantation. Patients receiving a renal transplant were randomized to receive or not receive RhuEPO 100 U/kg three times per week if the hemoglobin (Hb) level was less than 12.5 g/dL. The time to reach an Hb level greater than 12.5 g/dL was 66.5±14.5 days versus 52.6±23.7 days in the non-EPO and EPO groups, respectively ($P=0.03$). After 3 months, Hb levels were not different between the non-EPO and EPO groups (12.6±1.5 g/dL vs. 12.0±1.5 g/dL, respectively), although there was a higher increase in the EPO group (4.1±1.1 g/dL vs. 3.2±1.1 g/dL, $P=0.02$). In a Cox regression analysis, EPO use (relative risk 7.2, $P=0.004$) and dose (relative risk=0.63, $P=0.04$) were retained as independent variables predicting the time to reach an Hb level greater than 12.5 g/dL. In the EPO group, 14 of 22 patients reached the target Hb level of more than 12.5 g/dL versus 12 of 18 patients in the non-EPO group (P=not significant). Serum creatinine levels were not different between groups. RhuEPO in the immediate posttransplantation period seems to have no relevant clinical impact on the correction of anemia. There was no difference in the evolution of serum creatinine levels. In view of the cost, the use of RhuEpo in the posttransplantation period should be limited to high-risk patients.

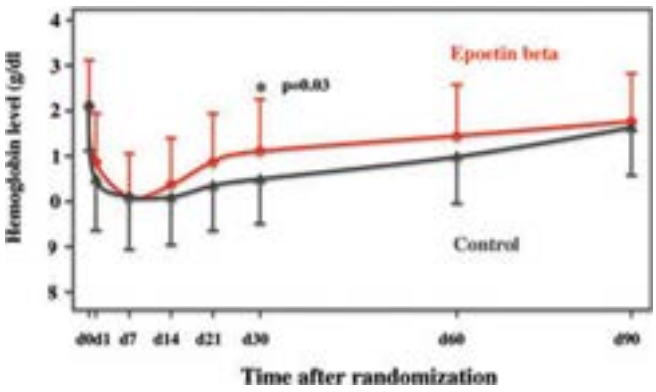
Keywords: Transplantation, anemia, erythropoietin, renal function.

(*Transplantation* 2005;79: 367–368)

Intérêt de l'EPO en post-greffe précoce ?

- Etude prospective mulcentrique française évaluant l'intérêt de fortes doses d'EPO dans la prévention du RRF
- 4 injection de 30 000 U d'EPO β (J0, H12, J7, J14) vs pas d'EPO

High Dose Epoetin Beta in the First Weeks Following Renal Transplantation and Delayed Graft Function: Results of the Neo-PDGF Study

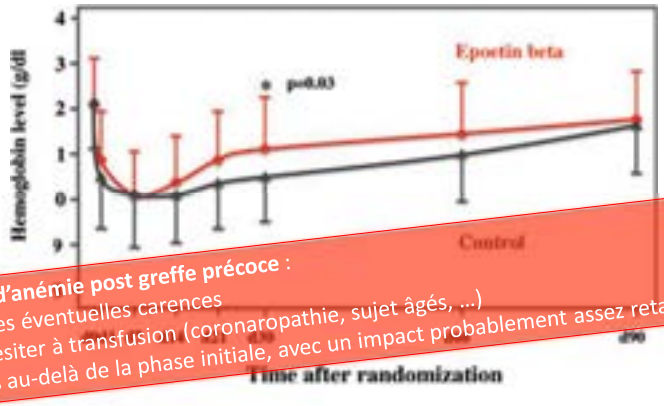


American Journal of Transplantation 2010; 10: 1704–1709

Intérêt de l'EPO en post-greffe précoce ?

- Etude prospective mulcentrique française évaluant l'intérêt de fortes doses d'EPO dans la prévention du RRF
- 4 injection de 30 000 U d'EPO β (J0, H12, J7, J14) vs pas d'EPO

High Dose Epoetin Beta in the First Weeks Following Renal Transplantation and Delayed Graft Function: Results of the Neo-PDGF Study



Donc, **en cas d'anémie post greffe précoce** :

1. Corriger les éventuelles carences
2. Ne pas hésiter à transfusion (coronaropathie, sujet âgés, …)
3. EPO mais au-delà de la phase initiale, avec un impact probablement assez retardé

American Journal of Transplantation 2010; 10: 1704–1709

Intérêt de l'EPO en post-greffe précoce ?

There are two small RCTs using ESAs in the early post-transplant period, but the overall effects on anemia were small (711,736). Another small trial showed that patients receiving ESAs before transplant, who attained normal hemoglobin levels, had outcomes that were no different than those with low hemoglobin levels (737). There is no evidence to support routine ESA administration in anticipation of anemia (see Supporting Tables 54–55 at http://www3.interscience.wiley.com/journal/118499698/toc).