Suivi rénal des MICI

Pierre Delanaye, MD, PhD

Service de Néphrologie, Dialyse et Transplantation

Université de Liège

CHU Sart Tilman

Liège

BELGIUM

- Pas de conflit d'intérêt pour cette présentation

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- MICI: **Maladies inflammatoires chroniques de l'intestin** regroupant la maladie de Crohn et la rectocolite ulcéro-hémorragique (RCUH)

Digestive and Liver Disease 54 (2022) 309–315

Contents lists available at ScienceDirect

Digestive and Liver Disease

journal homepage: www.elsevier.com/locate/dld

Guidelines

Kidney function monitoring in inflammatory bowel disease: The MONITORED consensus

Lucas Guillo[a,*], Pierre Delanaye[b,c], Martin Flamant[d], Lucile Figueres[e], Sabine Karam[f], Sandrine Lemoine[g], Alban Benezech[h], Anne-Laure Pelletier[i], Aurélien Amiot[j], Bénédicte Caron[k], Carmen Stefanescu[l], Gilles Boschetti[m], Guillaume Bouguen[n], Jean-François Rahier[o], Jean-Marc Gornet[p], Jean-Pierre Hugot[q], Joëlle Bonnet[p], Lucine Vuitton[r], Maria Nachury[s], Mathias Vidon[t], Mathieu Uzzan[l], Mélanie Serrero[a], Nina Dib[u,v], Philippe Seksik[w], Xavier Hebuterne[x], Jean-Philippe Bertocchio[y], Christophe Mariat[z], Laurent Peyrin-Biroulet[k]

Pourquoi ces recommandations?

- Néphrotoxicité de la Mésalamine (ou 5-aminosalicylic acid, 5-ASA) et des thérapies anti-TNFα
- Atteintes rénales des MICI (lithiases, néphrite interstitielle, amyloïdose, GN)
- Risque de développer une MRC: 5 à 15%
- Pas de recommandation pour les gastros pour le suivi de la fonction rénale

Complications rénales des MICIs
Un peu de gastro-entérologie…

J Gastroenterol (2022) 57:619–629
https://doi.org/10.1007/s00535-022-01903-6

The Japanese Society of Gastroenterology

REVIEW

Renal manifestations in inflammatory bowel disease: a systematic review

Karen van Hoeve[1] · Ilse Hoffman[1]

Manifestations extra-intestinales (MEI) des MICIs

- 6 à 47%, parfois avant les atteintes intestinales (25%)
- Plus en pédiatrie
- La présence d'une MEI prédispose à en avoir une deuxième
- Plus fréquent chez les femmes, chez Crohn (vs RCUH), si histoire familiale, si colite extensive, si tabagisme
- Physiopathologie reste peu claire
- 4 principaux types de MEI: cutanées
  ophtalmologiques
  articulaires
  hépato-biliaires
- Plus rares, les atteintes pulmonaires, cardiaques, pancréatiques, neurologiques, vasculaires et rénales (4 à 23%)
- Pour les atteintes rénales, nous considérerons aussi les complications des différents traitements

Complications rénales: toxicité des traitements

Medication	Nephrotoxic effect	Incidence
Calcineurin inhibitors: cyclosporine and tacrolimus	Renal vasoconstriction with AKI interstitial fibrosis	Depending on duration of therapy and dosage (up to 20%)
5-aminosalicylic acid	Tubulointerstitial nephritis	0.2–2%
	Glomerulonephritis and minimal change nephropathy less frequent	
Azathioprine	Tubulointerstitial nephritis in non-IBD patients	Case reports in non-IBD patients
Anti-TNF therapy	Glomerulonephritis	Case reports
	Tubulointerstitial nephritis	
Vedolizumab	Tubulointerstitial nephritis	Case report
Ustekinumab	Granulomatous interstitial nephritis and focal segmental glomerulosclerosis	Case reports
Janus kinase (JAK) inhibitors	Unknown	No reports

AKI acute kidney injury, *IBD* Inflammatory bowel disease, *TNF* tumour necrosis factor alpha

Complications rénales: lithiases

- Lithiases rénales: surtout oxalate calcique et acide urique (parfois phosphate)
- « Lifetime risk » : 9 à 18%
- Oxalate calcique: surtout les Crohn avec atteinte iléo-colique avec malabsorptions d'acide biliaire, si AP
- Acide urique: acidose métabolique et hypovolémie sur diarrhées.
- Cas de fibrose rétropéritonéale chez les Crohn de longue date

Complications rénales: GN, Néphrites TI et amyloïdose

- Souvent concomitant à une poussée inflammatoire au niveau intestinal
- Rare (<1%) mais protéinurie isolée chez 6% des patients
- Diagnostic différentiel avec néphrite médicamenteuse pas aisé
- Néphrites TI avec granulome non-nécrosant à la biopsie
- GN: la plus fréquentes est la GN à IgA
- Amyloïdose rénale (<1% mais la maladie de Crohn est la 4éme cause d'amyloïdose): dépôt d'amyloïde A (sur tout hommes avec Crohn), colchicine? (Ac humanisé contre amyloïde A?), pronostic rénale pas très bon

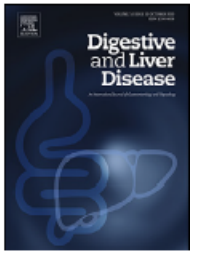
- Le symptôme principal des MICIs est la diarrhée…

Digestive and Liver Disease 54 (2022) 309–315

Contents lists available at ScienceDirect

Digestive and Liver Disease

journal homepage: www.elsevier.com/locate/dld



Guidelines

Kidney function monitoring in inflammatory bowel disease: The MONITORED consensus

Lucas Guillo[a,*], Pierre Delanaye[b,c], Martin Flamant[d], Lucile Figueres[e], Sabine Karam[f], Sandrine Lemoine[g], Alban Benezech[h], Anne-Laure Pelletier[i], Aurélien Amiot[j], Bénédicte Caron[k], Carmen Stefanescu[l], Gilles Boschetti[m], Guillaume Bouguen[n], Jean-François Rahier[o], Jean-Marc Gornet[p], Jean-Pierre Hugot[q], Joëlle Bonnet[p], Lucine Vuitton[r], Maria Nachury[s], Mathias Vidon[t], Mathieu Uzzan[l], Mélanie Serrero[a], Nina Dib[u,v], Philippe Seksik[w], Xavier Hebuterne[x], Jean-Philippe Bertocchio[y], Christophe Mariat[z], Laurent Peyrin-Biroulet[k]

Insuffisance rénale aigue

Table 2 | Staging of AKI

Stage	Serum creatinine	Urine output
1	1.5–1.9 times baseline OR ⩾0.3 mg/dl (⩾26.5 µmol/l) increase	<0.5 ml/kg/h for 6–12 hours
2	2.0–2.9 times baseline	<0.5 ml/kg/h for ⩾12 hours
3	3.0 times baseline OR Increase in serum creatinine to ⩾4.0 mg/dl (⩾353.6 µmol/l) OR Initiation of renal replacement therapy OR, In patients <18 years, decrease in eGFR to <35 ml/min per 1.73 m^2	<0.3 ml/kg/h for ⩾24 hours OR Anuria for ⩾12 hours

- Critères surtout pout les IRA intra-hospitalière
- Critères justifiés par des études épidémiologiques
- Plutôt baser le diagnostic sur les changements de créatinine

Significant change in kidney function Serum creatinine concentration at baseline	90% (19/21)
30% increase in serum creatinine concentration from baseline	90% (19/21)

Maladie rénale chronique

Prognosis of CKD by GFR and Albuminuria Categories: KDIGO 2012

GFR categories (ml/min/ 1.73 m²) Description and range				Persistent albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30-300 mg/g 3-30 mg/mmol	>300 mg/g >30 mg/mmol
	G1	Normal or high	≥90			
	G2	Mildly decreased	60-89			
	G3a	Mildly to moderately decreased	45-59			
	G3b	Moderately to severely decreased	30-44			
	G4	Severely decreased	15-29			
	G5	Kidney failure	<15			

KIDNEY DISEASE · IMPROVING GLOBAL OUTCOMES ®

KDIGO

Sauf que...

- MICI: souvent atteinte interstitielle au sens large du terme

=> PCR au lieu d'ACR (ou les deux)

Protein-to-creatinine ratio (PCR)	81% (17/21)

Sauf que...

REVIEW www.jasn.org

CKD: A Call for an Age-Adapted Definition

Pierre Delanaye,[1] Kitty J. Jager,[2] Arend Bökenkamp,[3] Anders Christensson,[4] Laurence Dubourg,[5] Bjørn Odvar Eriksen,[6,7] François Gaillard,[8] Giovanni Gambaro,[9] Markus van der Giet,[10] Richard J. Glassock,[11] Olafur S. Indridason,[12] Marco van Londen,[13] Christophe Mariat,[14] Toralf Melsom,[6,7] Olivier Moranne,[15] Gunnar Nordin,[16] Runolfur Palsson,[12,17] Hans Pottel,[18] Andrew D. Rule,[19] Elke Schaeffner,[20] Maarten W. Taal,[21] Christine White,[22] Anders Grubb,[23] and Jan A. J. G. van den Brand[24]

J Am Soc Nephrol. 2019 Oct;30(10):1785-1805.

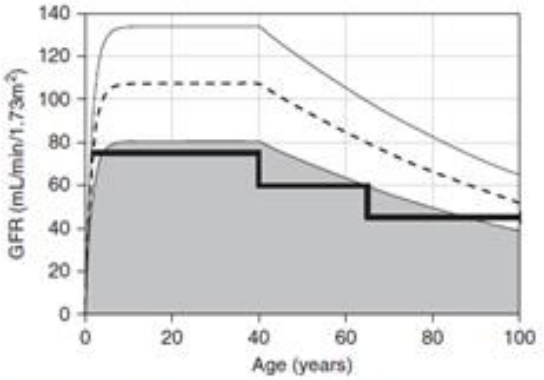


Figure 3. Age-specific thresholds in relation to age-specific GFR percentiles. GFR cut-off values and percentiles according to age (here percentiles of eGFR are calculated using the FAS equation). The bold line represents an age-adapted threshold for CKD: 75 ml/min per 1.73 m^2 for age below 40 years, 60 ml/min per 1.73 m^2 for age between 40 and 65 years, and 45 ml/min per 1.73 m^2 for age above 65 years. The dashed line represents the median (50th percentile) and the thin solid lines represent the 97.5th and 2.5th percentiles. The shaded zone is considered as below the normal reference intervals for GFR (<2.5th percentile).

clinical investigation www.kidney-international.org

The age-calibrated measured glomerular filtration rate improves living kidney donation selection process

François Gaillard[1,2], Marie Courbebaisse[2,3], Nassim Kamar[4,5], Lionel Rostaing[6], Arnaud Del Bello[4], Sophie Girerd[7], Michèle Kessler[7], Martin Flamant[8,9], Emmanuelle Vidal-Petiot[8,9], Marie-Noelle Peraldi[9,10], Lionel Couzi[11,12], Pierre Merville[11,12], Paolo Malvezzi[6], Benedicte Janbon[6], Bruno Moulin[13], Sophie Caillard[13], Philippe Gatault[14], Matthias Büchler[14], Nicolas Maillard[15], Laurence Dubourg[16,17], Olga Roquet[16], Cyril Garrouste[18], Christophe Legendre[1,2], Pierre Delanaye[19,20] and Christophe Mariat[15,20]

Kidney International (2018) **94,** 616–624; https://doi.org/10.1016/j.kint.2018.05.016

Donneurs potentiels en France 2004-2017
N=2007
59,4% de femmes

	Whole cohort
Number (%) of donors	2007
Female, n (%)	1197 (59.6)
Age (yr)	49.7 (11.7)
Weight (kg)	71.6 (14.0)
Height (cm)	167.6 (8.9)
BMI (kg/m^2)	25.4 (4.2)
mGFR (ml/min per 1.73 m^2)	98.7 (17.7)
Creatinine (µmol/l)	69.9 (13.4)
eGFR (ml/min per 1.73 m^2)	95.7 (14.4)

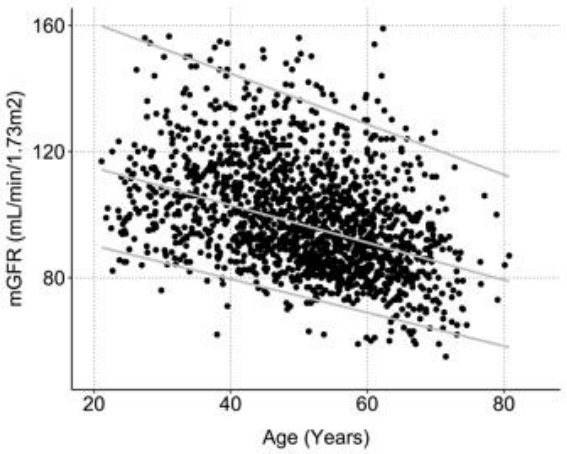


Figure S5

Table 4. Meta-analysis results for mean GFR, CKD-EPI and FAS estimation in ml/min/1.73 m^2

Age group, years	#Studies	CKD-EPI	FAS	Mean mGFR	95% CI
20–30	22/24	114–125	107.3	106.7	104.6–108.9
30–40	22/24	107–117	107.3	104.9	102.8–107.0
40–50	20/24	99–109	95–107	99.0	96.5–101.6
50–60	18/24	93–101	84–95	90.7	88.1–93.3
[illegible]	[illegible]	86–95	75–84	84.0	79.5–88.5
>70	6/24	70–88	52–75	69.4	66.1–72.7

I^2 >75% in all age-groups, indicating that high heterogeneity among studies was observed. #Studies = The number of studies involved in the meta-analysis for the corresponding age-group (out of 12 × 2 = 24 male/female datasets). CKD-EPI and FAS = eGFR-prediction range for the corresponding age-group. 95% CI for the mean mGFR.

Table 3 | Measured GFR in age decade subgroups

	mGFR (ml/min per 1.73 m^2)		
Age decade (*n*)	Mean (SD)	95% CI	2.5th–97.5th percentile
18–29 yr (117)	106.3 (15.5)	103.5–109.1	84.9–146.8
30–39 yr (303)	107.6 (18.1)	105.5–109.6	78.5–150.0
40–49 yr (553)	103.4 (16.7)	102.0–104.8	79.0–140.0
50–59 yr (626)	95.4 (15.4)	94.2–96.7	72.0–130.0
[illegible]	89.7 (16.4)	88.0–91.4	63.0–125.1
70–90 yr (49)	81.7 (13.9)	77.7–85.7	59.6–110.8

CI, confidence interval; mGFR, measured glomerular filtration rate.
mGFR between age decades differs significantly when 95% CIs do not overlap.

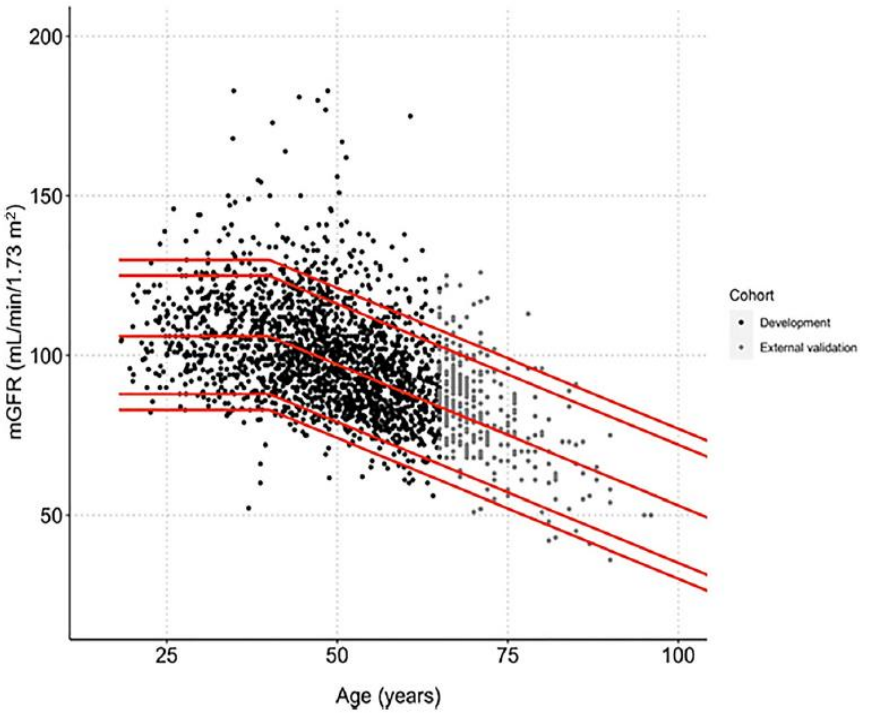
DE GRUYTER Clin Chem Lab Med 2022; 60(3): 401–407

Pierre Delanaye*, François Gaillard, Jessica van der Weijden, Geir Mjøen, Ingela Ferhman-Ekholm, Laurence Dubourg, Natalie Ebert, Elke Schaeffner, Torbjörn Åkerfeldt, Karolien Goffin, Lionel Couzi, Cyril Garrouste, Lionel Rostaing, Marie Courbebaisse, Christophe Legendre, Maryvonne Hourmant, Nassim Kamar, Etienne Cavalier, Laurent Weekers, Antoine Bouquegneau, Martin H. de Borst, Christophe Mariat, Hans Pottel and Marco van Londen

Age-adapted percentiles of measured glomerular filtration in healthy individuals: extrapolation to living kidney donors over 65 years

Age, years	P5	P10	P50	P90	P95
18	82	88	106	125	130
20	82	88	106	125	130
25	82	88	106	125	130
30	82	88	106	125	130
35	82	88	106	125	130
40	82	88	106	125	130
40	82	88	106	125	130
42	81	86	104	123	128
45	78	83	102	120	126
50	74	79	97	116	121
55	69	74	93	112	117
60	65	70	89	107	112
65	60	66	84	103	108
70	**56**	**61**	**80**	**98**	**104**
75	**52**	**57**	**75**	**94**	**99**
80	**47**	**52**	**71**	**90**	**95**
85	**43**	**48**	**67**	**85**	**90**
90	**38**	**44**	**62**	**81**	**86**
95	**34**	**39**	**58**	**76**	**82**

All values in mL/min/1.73 m^2. P, percentile; mGFR, measured GFR.



Performance of creatinine- or cystatin C–based equations to estimate glomerular filtration rate in sub-Saharan African populations

see commentary on page 1017

Justine B. Bukabau[1,7], Eric Yayo[2,7], Appolinaire Gnionsahé[3], Dagui Monnet[2], Hans Pottel[4], Etienne Cavalier[5], Aliocha Nkodila[1], Jean Robert R. Makulo[1], Vieux M. Mokoli[1], François B. Lepira[1], Nazaire M. Nseka[1], Jean-Marie Krzesinski[6], Ernest K. Sumaili[1,7] and Pierre Delanaye[6,7]

[1]Renal Unit, Department of Internal Medicine, Kinshasa University Hospital, University of Kinshasa, Kinshasa, Democratic Republic of Congo; [2]Département de Biochimie, UFR Sciences Pharmaceutiques et Biologiques, Université Felix Houphouet Boigny, Abidjan, Ivory Coast; [3]Département de Néphrologie, UFR Sciences Médicales, Université Felix Houphouet Boigny, Abidjan, Ivory Coast; [4]Department of Public Health and Primary Care, KU Leuven Campus Kulak Kortrijk, Kortrijk, Belgium; [5]Division of Clinical Chemistry, CHU Sart Tilman (ULg CHU), University of Liège, Liège, Belgium; and [6]Division of Nephrology-Dialysis-Transplantation, CHU Sart Tilman (ULg CHU), University of Liège, Liège, Belgium

Kidney International (2019) **95,** 1181–1189; https://doi.org/10.1016/j.kint.2018.11.045

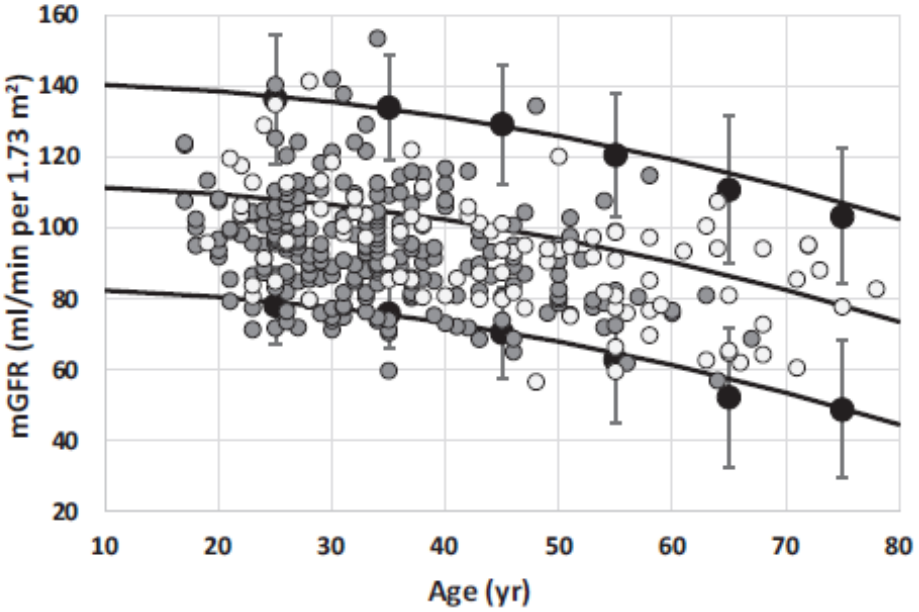


Figure 2 | Comparison of measured glomerular filtration rate (mGFR) values in healthy Whites, Congolese, and Ivorian subjects. Solid gray circles represent mGFR results and solid black lines represent 2.5th percentile (Pct), 50th Pct, and 97.5th Pct for mGFR in the Ivorian population (n = 237).[18] Solid black circles with error bars represent upper and lower reference limits obtained from the meta-analysis including 633 White potential living kidney donors.[26] Added white circles represent Congolese healthy subjects (n = 95).

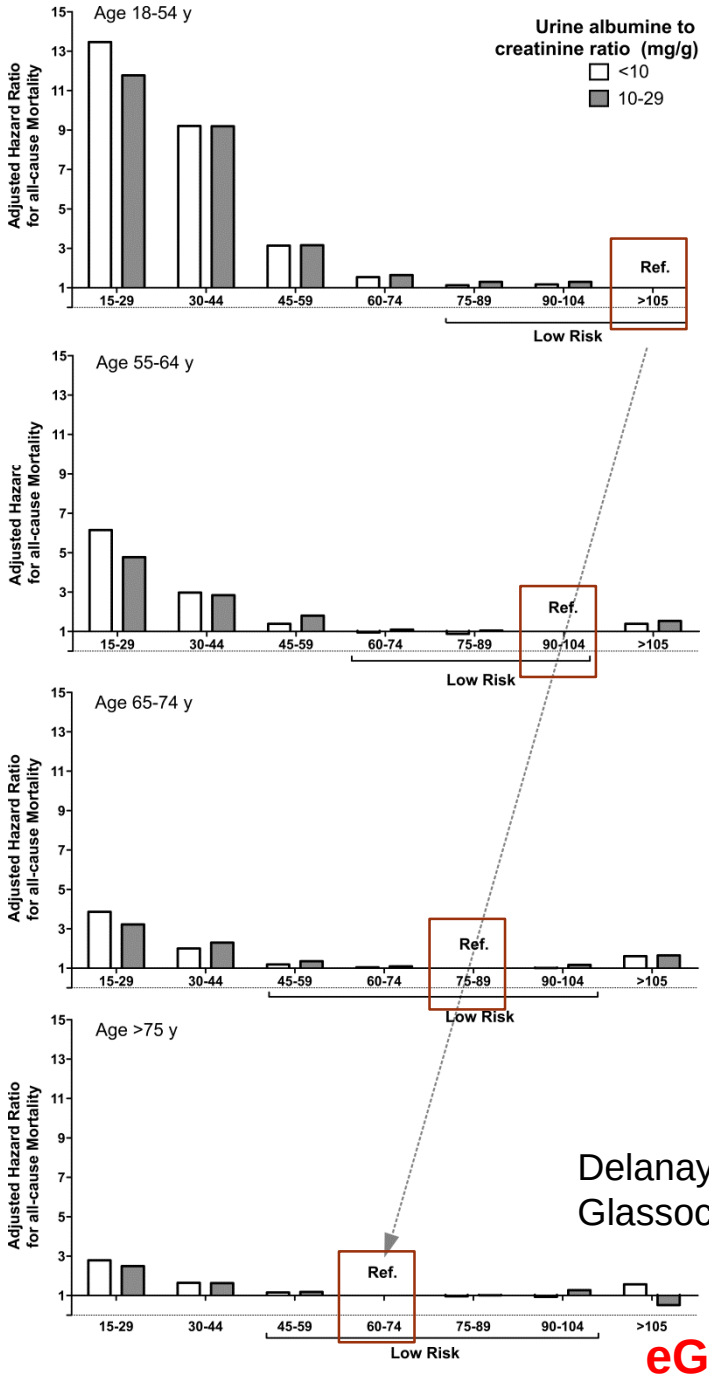
RDC n=95
Côte d'Ivoire n=237
Iohexol

Age 18-54 ans =>

Age 55-64 ans =>

Age 65-74 ans =>

Age >75 ans =>



Data from:

JAMA. 2012;308(22):2349-2360

Delanaye P, Clin Biochem Rev, 2016, p17
Glassock RJ, J Bras Nefrol, 2017, p59

eGFR

Quand référer au néphrologue?

- Pas (si) évident…
- Nombreuses recommandations différentes

Journal of Nephrology (2022) 35:1375–1385
https://doi.org/10.1007/s40620-021-01204-w

ORIGINAL ARTICLE

Characteristics of outpatients referred for a first consultation with a nephrologist: impact of different guidelines

Céline Schulz[1] · Ziyad Messikh[1] · Pascal Reboul[1] · Sylvain Carlou[1] · Pedram Ahmadpoor[1] · Emilie Pambrun[1] · Camelia Prelipcean[1] · Florian Garo[1] · Julien Prouvot[1,2] · Pierre Delanaye[1,3] · Olivier Moranne[1,2]

Received: 20 May 2021 / Accepted: 8 November 2021 / Published online: 14 January 2022

- 1547 patients vu en consultation en Néphrologie à Nîmes
- 71 ans, 56% hommes et 36% diabète
- Recommandation pour référer au néphrologue selon KDGO, HAS et KFRE

	KDIGO		HAS		Canadian-KFRE	
Nephrologist	No	Yes	No	Yes	No	Yes
Referral ?	X	√	X	√	X	√
Criteria	GFR ≥ 30	GFR < 30	GFR ≥ 45	GFR < 45	GFR > 30	GFR < 30
GFR: mL/min/1.73m²	and	or	and	or	or	or
PCR: g/g	PCR	PCR	PCR	PCR	KFRE at	KFRE at
KFRE	< 0.5	≥ 0.5	< 1	≥ 1	5 yrs < 3%	5 yrs > 3%

Classification of patients according to the different recommendations

	No referral to nephrologist recommended X	Referral to nephrologist recommended √	P value
KDIGO	890 (58%)	657 (42%)	<.0001
HAS	662 (43%)	885 (57%)	<.0001
KFRE	316 (20%)	1230 (80%)	<.0001

Ici population spécifique, à risque (et risques connus)

When to refer to the nephrologist	
In case of significant change (30%) in serum creatinine	89% (16/18)
eGFR < 75ml/min/1.73m^2 in patients < 45 years	94% (17/18)
eGFR < 60ml/min/1.73m^2 in patients 45 to 65 years	100% (18/18)
eGFR < 45ml/min/1.73m^2 in patients > 65 years	100% (18/18)
Presence or onset of albuminuria (> 30mg/g)	78% (14/18)
Presence or onset of proteinuria (> 150mg/g)	83% (15/18)
Suspected drug nephrotoxicity	100% (19/19)
Suspected kidney EIM	84% (16/19)
Persistent hypo- or hyperkalemia	89% (17/19)
First episode of nephrolithiasis	84% (16/19)
Onset of microscopic hematuria	84% (16/19)

Tools for monitoring kidney function.

Proposed statements	
Blood tools	
Serum creatinine concentration	100% (19/19)
Ionogram (sodium and potassium concentrations)	84% (16/19)
Estimation of GFR via an equation from serum creatinine concentration: MDRD or CKD-EPI	89% (17/19)
Urinary tools	
On urine sample (to be checked within 3 months if positive)	95% (20/21)
Protein-to-creatinine ratio (PCR)	81% (17/21)

Idéalement, une créatinine standardisée (ou à défaut le même labo) et la même formule

Ann Intern Med. 2021;174:183-191.

Annals of Internal Medicine ORIGINAL RESEARCH

Development and Validation of a Modified Full Age Spectrum Creatinine-Based Equation to Estimate Glomerular Filtration Rate

A Cross-sectional Analysis of Pooled Data

Hans Pottel, PhD*; Jonas Björk, PhD*; Marie Courbebaisse, MD, PhD; Lionel Couzi, MD, PhD; Natalie Ebert, MD, MPH; Björn O. Eriksen, MD, PhD; R. Neil Dalton, PhD; Laurence Dubourg, MD, PhD; François Gaillard, MD, PhD; Cyril Garrouste, MD; Anders Grubb, MD, PhD; Lola Jacquemont, MD, PhD; Magnus Hansson, MD, PhD; Nassim Kamar, MD, PhD; Edmund J. Lamb, PhD; Christophe Legendre, MD; Karin Littmann, MD; Christophe Mariat, MD, PhD; Toralf Melsom, MD, PhD; Lionel Rostaing, MD, PhD; Andrew D. Rule, MD; Elke Schaeffner, MD, PhD, MSc; Per-Ola Sundin, MD, PhD; Stephen Turner, MD, PhD; Arend Bökenkamp, MD; Ulla Berg, MD, PhD; Kajsa Åsling-Monemi, MD, PhD; Luciano Selistre, MD, PhD; Anna Åkesson, BSc; Anders Larsson, MD, PhD; Ulf Nyman, MD, PhD†; and Pierre Delanaye, MD, PhD†

- Sujets avec DFG mesuré et creatinine standardisée
- 11,251 development and internal validation
- 8,378 external validation
- 1,254 aged between 2 to 18 years
- 7 + 6 cohorts
- Only White people

Figure 1. The new EKFC equation.

Age	SCr/Q	Equation
2–40 y	<1	$107.3 \times (SCr/Q)^{-0.322}$
	≥1	$107.3 \times (SCr/Q)^{-1.132}$
>40 y	<1	$107.3 \times (SCr/Q)^{-0.322} \times 0.990^{(Age - 40)}$
	≥1	$107.3 \times (SCr/Q)^{-1.132} \times 0.990^{(Age - 40)}$

Q Values

For ages 2–25 y:

Males:

$$\ln(Q) = 3.200 + 0.259 \times Age - 0.543 \times \ln(Age) - 0.00763 \times Age^2 + 0.0000790 \times Age^3$$

Females:

$$\ln(Q) = 3.080 + 0.177 \times Age - 0.223 \times \ln(Age) - 0.00596 \times Age^2 + 0.0000686 \times Age^3$$

For ages >25 y:

Males:

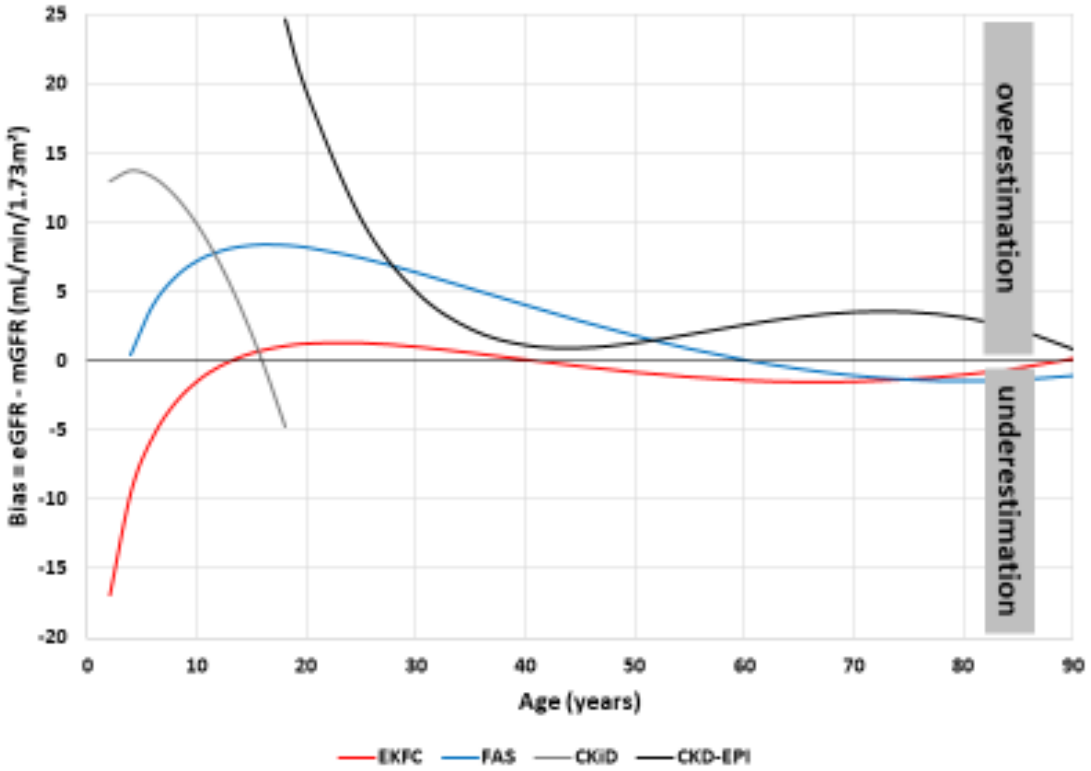
Q = 80 µmol/L (0.90 mg/dL)

Females:

Q = 62 µmol/L (0.70 mg/dL)

SCr and Q in µmol/L (to convert to mg/dL, divide by 88.4)

Q values (in µmol/L or mg/dL) correspond to the median SCr values for the age- and sex-specific populations. EKFC = European Kidney Function Consortium; SCr = serum creatinine.

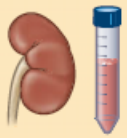

Bias = eGFR - mGFR (mL/min/1.73m²)
25
20
15
10
5
0
-5
-10
-15
-20
0
10
20
30
40
50
60
70
80
90
Age (years)
overestimation
underestimation
EKFC
FAS
CKiD
CKD-EPI

Performance of creatinine-based equations to estimate glomerular filtration rate in White and Black populations in Europe, Brazil, and Africa

Background

A new creatinine-based equation (CKD-EPI$_{AS}$) has been suggested to estimate glomerular filtration rate in the USA. This new equation omits the race variable. The accuracy of this equation in Europe and Africa is unknown.

Methods



GFR measurements:

- Black/White Europeans
- Black Africans
- Brazilians

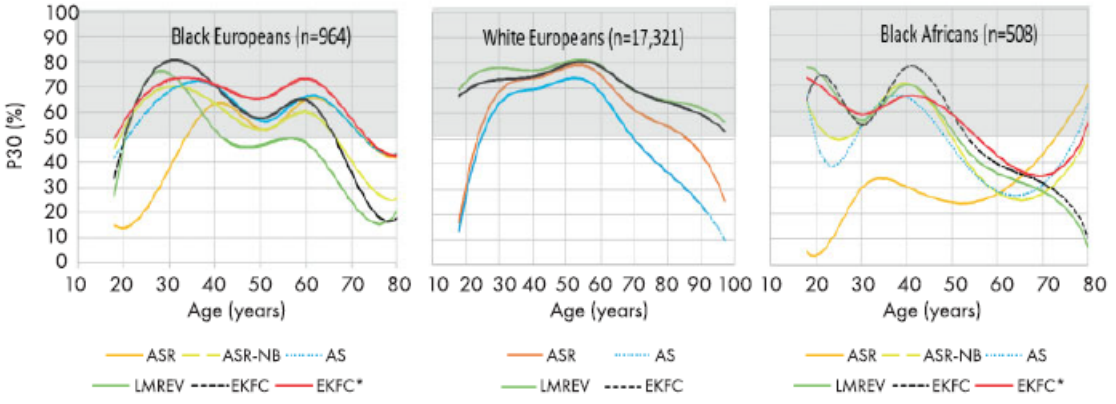
Various GFR equations:

- ✓ CKD-EPI (2009): with race CKD-EPI$_{ASR}$ and without race coefficient, CKD-EPI$_{ASR-NB}$
- ✓ ASR = ASR-NB in White Europeans
- ✓ CKD-EPI (2021): CKD-EPI$_{AS}$
- ✓ Revised Lund-Malmö: LMREV
- ✓ European Kidney Function Consortium: EKFC

EKFC* = equation with population-specific Q values
Q = median normal creatinine concentration

Results

P30 is the percentage of estimated GFR within ± 30% of measured GFR



Conclusion

In Europe and Africa, the performance of CKD-EPI$_{AS}$ is suboptimal. The EKFC equation presents the best performance in the whole age range for the European and African populations included in this study.

NEPHROLOGY DIALYSIS TRANSPLANTATION

Delanaye, P., et al. NDT (2022)
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When to assess the kidney function monitoring

All IBD patients:
- At the IBD diagnosis
- Annually: EIMs screening and treatment tolerance evaluation
- Prior introducing a new treatment

With 5-ASA:
- 3 months after initiating the treatment, then every 6 months

With biologics:
- Annually

Timing for monitoring kidney function.

Proposed statements	Voting results	
	Number of ballots	Votes at last ballot (n/N)
For all IBD patients		
At the IBD diagnosis	1	95% (19/20)
Annually, for EIMs screening and evaluation of treatment tolerance	1	100% (20/20)
Prior introducing a new IBD treatment	1	75% (15/20)
For patients treated with 5-ASA		
3 months after initiating the treatment, then every 6 months	1	84% (16/19)
For patients treated with biologics		
Annually	1	94% (16/17)

Merci de votre attention

Questions?