

# Jusqu'à quand RETARDER l'Epuration Extra-Rénale ?



Pr Jean-Pierre Quenot

Service de Médecine Intensive-Réanimation  
CHU Dijon

**Aucun lien ni conflit  
d'intérêt à déclarer**

Table 2. Summary of studies evaluating the timing of initiation of renal replacement therapy (RRT)

Study	Yr	Mode of RRT	Study Design	No.	Criteria for Initiation of RRT		Survival (%)	
					Early	Late	Early	Late
Parsons et al (20)	1961	IHD	Retrospective	33	BUN 120–150 mg/dL	BUN >200 mg/dL	75	12
Fischer et al (21)	1966	IHD	Retrospective	162	BUN ~150 mg/dL	BUN >200 mg/dL	43	26
Kleinknecht et al (22)	1972	IHD	Retrospective	500	BUN <93 mg/dL	BUN >163 mg/dL	73	58
Conger (23)	1975	IHD	RCT	18	BUN <70 mg/dL or $S_{Cr} <5 \text{ mg/dL}$	BUN ~150 mg/dL, $S_{Cr} \sim 10 \text{ mg/dL}$ , or clinical indications	64	20
Gillum et al (24)	1986	IHD	RCT	34	$S_{Cr} 8 \text{ mg/dL}$ Treatment goal: BUN <60 mg/dL, $S_{Cr} <5 \text{ mg/dL}$	BUN ~100 mg/dL or $S_{Cr} \sim 9 \text{ mg/dL}$	41	53
Gettings et al (25)	1999	CRRT	Retrospective	100	BUN <60 mg/dL <12 hrs after meeting AKI definition	BUN >60 mg/dL	39	20
Bouman et al (12)	2002	CRRT	RCT	106		BUN >112 mg/dL, $S_K >6.5 \text{ mmol/L}$ , or pulmonary edema	LV: 69	LV: 75
Demirkiliç et al (26)	2004	CRRT	Retrospective	61	UOP <100 mL/8 hr	$S_{Cr} >5.0 \text{ mg/dL}$ or $S_K >5.5 \text{ mmol/L}$	77	45
Elahi et al (27)	2004	CRRT	Retrospective	64	UOP <100 mL/8 hr	BUN $\geq 4 \text{ mg/dL}$ , $S_{Cr} >2.8 \text{ mg/dL}$ , or $S_K >6 \text{ mmol/L}$	78	57
Piccinni et al (28)	2006	CRRT	Retrospective	80	<12 hrs after ICU admission	“Conventional” indications	55	28
Liu et al (29)	2006	IHD & CRRT	Observational	243	BUN $\leq 76 \text{ mg/dL}$	BUN $>76 \text{ mg/dL}$	65	59

Author:	Year	Study design	Population	Modality	Early (n)	Late (n)	Early criteria	Late criteria	Cumulative odd ratio (95% CI)
Bouman [10]	2002	Randomised	Cardiac surgery/ medical	CWH	35	36	RRT within 12 hours if Urine Output <30 ml/hr	Urea >40 mmol/l or K >6.5 mmol/L	
Sugahara [32]	2004	Randomised	Cardiac Surgery	CWH	14	14	Urine Output <20 ml/hr	Urine Output <30 cc/hr	
Liu [21]	2006	Prospective Cohort	Medical,Surgery	CRRT/IHD	122	121	Urea <27.1 mmol/L	Urea >27.1 mmol/L	
Sabater [33]	2008	Prospective Cohort	Medical (Septic Shock)	CVVHF	9	23	Rifle Criteria (Risk, Injury)*	Rifle Criteria (Failure)**	
Bagshaw [34]	2009	Prospective Cohort	Medical, Surgical	CRRT/IHD	618	619	Urea <24.2 mmol/L	Urea >24.2 mmol/L	
Bagshaw [35]	2010	Prospective Cohort	Medical, Surgical	CRRT/IHD	117	117	Urea <23 mmol/L	Urea >23 mmol/L	
Gettings [15]	1999	Retrospective Cohort	Trauma	CAVHD and CWHD	41	59	Urea <21.4 mmol/L	Urea >21.4 mmol/L	
Elahi [38]	2004	Retrospective Cohort	Cardiac surgery	CWH	28	36	Urine Output <100 cc in 8 hrs	K >6 mmol/L, Cr >250 mmol/L	
Dermirkilic [13]	2004	Retrospective Cohort	Cardiac Surgery	CWHD	27	34	Cr >400 µmol/L, Potassium >5.5 mmol/L	Oliguria	
Andrade [36]	2007	Retrospective Cohort	Medical (ARDS/ Sepsis)	IHD/SLED	18	15	On admission	At 24 hours	
Wu [42]	2007	Retrospective Cohort	Surgical ALF	IHD/CWH	54	26	Urea < 28.6 mmol/L	Urea >28.6 mmol/L	
Manche [40]	2008	Retrospective Cohort	Cardiac Surgery	IHD	56	15	Hyperkalemia	U/O <0.5 ml/kg/hour	
Iyem [39]	2009	Retrospective Cohort	Cardia Surgery	CWH	95	90	RRT on admission	After 48 hours when anuric	Favour Early
Shiao [41]	2009	Retrospective Cohort	Surgery/Trauma	CWH	51	47	Rifle Criteria (Risk)*	Rifle Injury, Failure**	
Carl [37]	2010	Retrospective Cohort	Medical (sepsis)	CRRT/IHD	85	62	Urea <35.7 mmol/l	Urea >35.7 mmol/L	Favour Late



Box 1 | 'Early' renal replacement therapy in critically ill patients with acute kidney injury

**Advantages**

- Control of electrolyte abnormalities
- Control of acid-base derangement
- Control of uraemia
- Control of volume overload
- Avoidance of excessive diuretic usage
- Potential clearance of inflammatory mediators

**Disadvantages**

- Risks associated with dialysis catheter insertion
- Adverse effects of anticoagulation
- Potential pro-inflammatory effects owing to blood-membrane interactions
- Enhanced or unknown effects on the clearance of drugs, including antibiotics
- Loss of micronutrients
- Exposure to the extracorporeal circuit in patients who may not need therapy
- Increased resource utilization
- Increased costs

Fixed value of urea/creatinine -

(74)

Metabolic acidosis -

(74)

Volume overload -

(78)

Hyperkalaemia -

(80)

Urine output < 0.3ml/kg/h x 24hr -

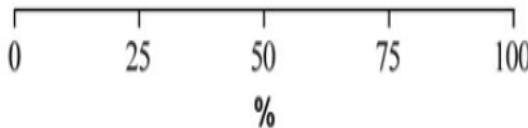
(26)

Urine output < 0.5ml/kg/h x 12hr -

(53)

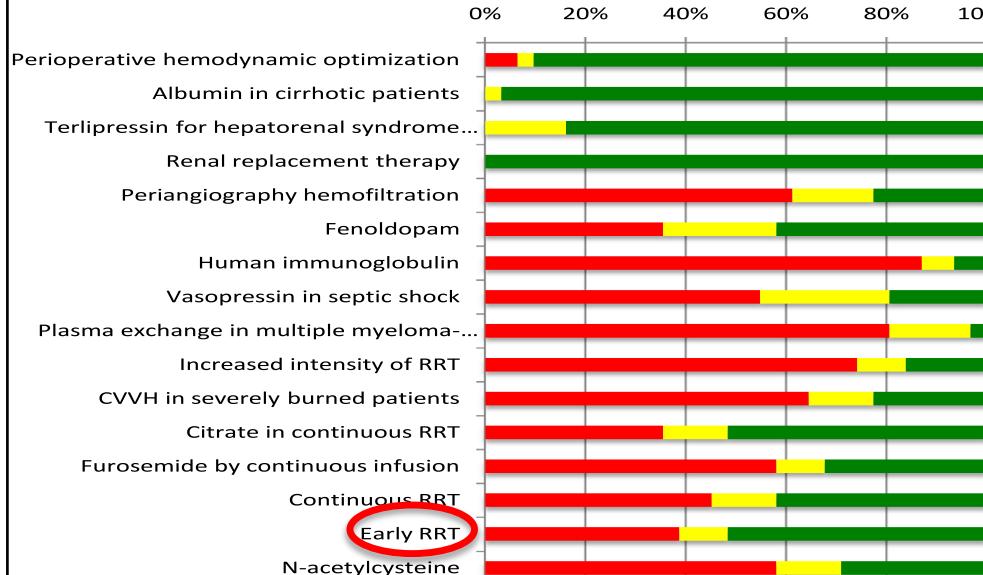
Urine output < 0.5ml/kg/h x 6hr -

(75)

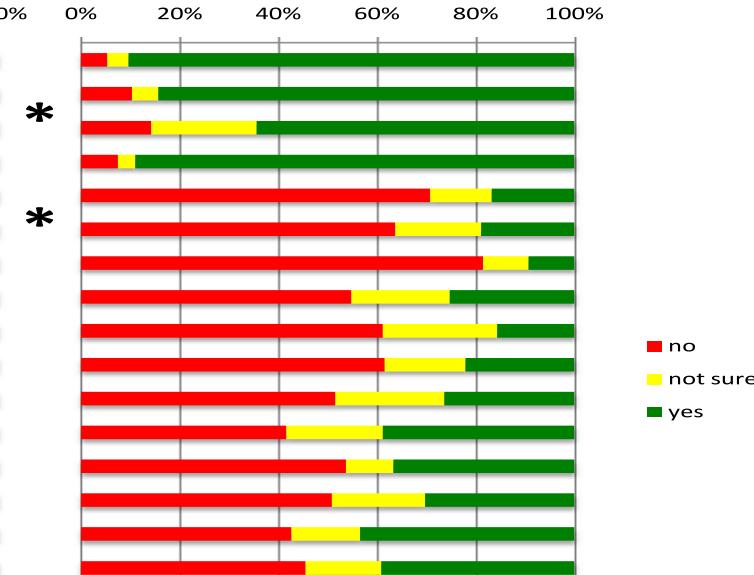


## Would you use/avoid these therapies to increase survival in these patients?

**Consensus meeting participants**



**Web voters**



# Chapter 5.1: Timing of renal replacement therapy in AKI



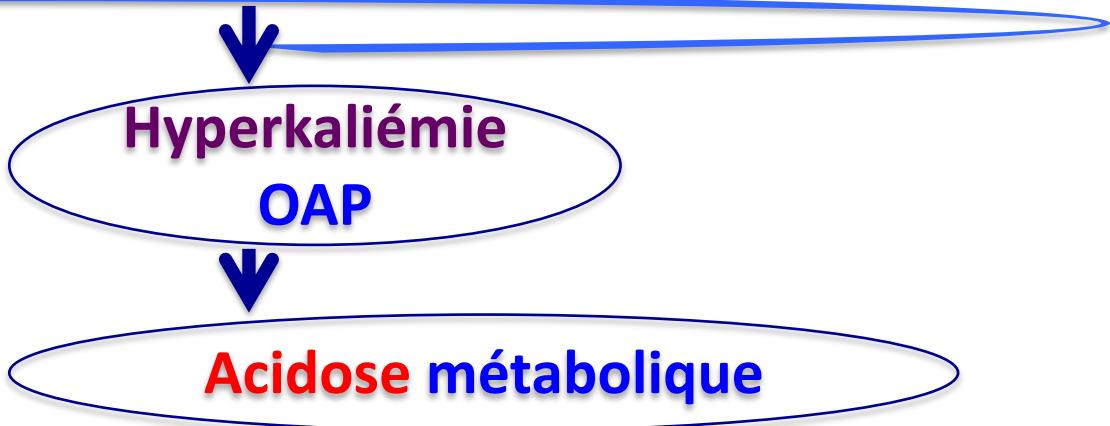
- 5.1.1: **Initiate RRT emergently** when life-threatening changes in fluid, electrolyte, and acid-base balance exist. (*Not Graded*)
- 5.1.2: **Consider the broader clinical context**, the presence of conditions that can be modified with RRT, and trends of laboratory tests—rather than single BUN and creatinine thresholds alone—when making the decision to start RRT. (*Not Graded*)

KDIGO AKI Work Group Kidney Int 2012;2:1-138

- « **PRECOCE** » initiation de l'EER au stade **KDIGO 2** ou dans les 24 heures suivant l'apparition d'une IRA dont la réversibilité semble peu probable (*Avis d'expert*)  
**Accord faible**
- « **TARDIVE** » initiation de l'EER à plus de 48 heures de la survenue d'une IRA au stade **KDIGO 3** (*Avis d'expert*) **Accord faible**

# Stratégie PRECOCE voir URGENTE

Intoxication médicamenteuse  
Ethylène glycol, Méthanol,  
Lithium, Metformine, Aspirine  
Hypercalcémie  
Syndrome de lyse tumorale



N Patient	Inclusion	Outcome (%)
<b>BICAR-ICU</b> (S. Jaber Lancet 2018)	389  pH≤7.20 et PaCO <sub>2</sub> ≤45 et RA ≤20 mmol/l  SOFA ≥4 et lactate ≥2 mmol/l	<b>Mortalité J28</b> 54 (contrôle) vs 45 (Bicar.)  <b>Mortalité J28 (KDIGO 2-3)</b> 63 (contrôle) vs 46 (Bicar.)  <b>EER (contrôle vs Bicar.)</b> 52 vs 35 (p=0.0009)

Number of patients needed to be treated to save

**ONE life**

(according to the absolute reduction in mortality)

**6**



95% CI (3 to 50)

p=0.02

# Stratégie PRECOCE : CHOC sans IRA

Payen D. et al

CCM 2009

Combes A. et al

AJRCCM 2015

Quenot JP et al

ICM 2015

80 patients

HF 25 ml/Kg/h 96 h versus traitement conventionnel

Intervention

Résultat

SOFA ↑ HF  
Cytokines ≈

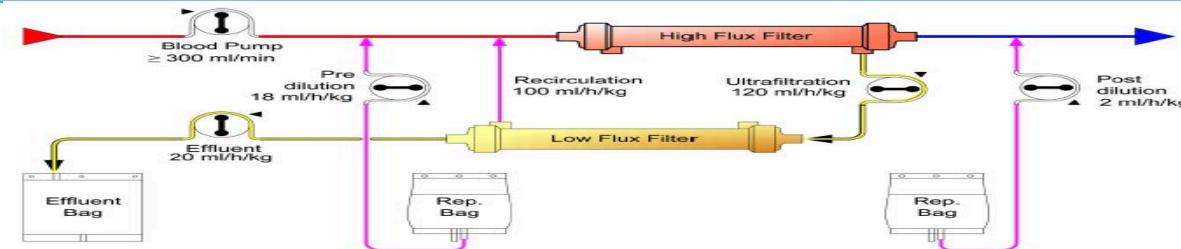
224 patients

HF 80 ml/Kg/h 48 h versus traitement conventionnel

Intervention

Résultat

Décès à J30  
NS



60 patients

HF 120 ml/Kg/h 72 h versus traitement conventionnel

Intervention

Résultat

Sévrage cathéco. NS  
Cytokines ≈

# Stratégie PRECOCE : CHOC avec IRA



## EER Haut Volume

	N patients	Stade IRA	Intervention	Mortalité J28 (%)	P
Zhang P NDT 2012	280	?	CVVH 85 vs 50 ml/kg/h	57.4 vs 58.3	NS
IVOIRE ICM 2013	140	≥I RIFLE	CVVH 70 vs 35 ml/kg/h	37.9 vs 40.8	NS
HICORES AJK 2016	212	>I RIFLE	CVVH 80 vs 40 ml/kg/h	65.7 vs 64.5	NS

# Stratégie PRECOCE vs HABITUELLE : Sans CHOC avec IRA



EER Volume « normal »

AJKD

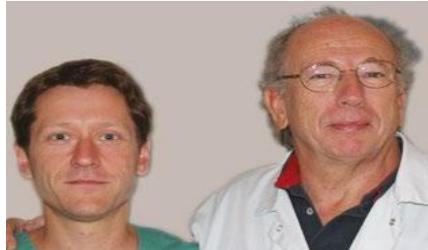
Original Investigation

## Earlier-Start Versus Usual-Start Dialysis in Patients With Community-Acquired Acute Kidney Injury: A Randomized Controlled Trial

Tukaram E. Jamale, MD, DM, Niwrutti K. Hase, MD, DNB, Manjunath Kulkarni, MD, K.J. Pradeep, MD, Vaibhav Keskar, MD, Sunil Jawale, MD, and Dinesh Mahajan, MD

N patients	Précoce	Patients non épurés	Mortalité (%) P vs différé
JAMALE AJKD 2013	208  Urée >25 mmol/l Ou Crét. > 619 umol/l	17%	20.5 vs 12.2 J90 (NS)

# Plusieurs Stratégies : « CHOC » avec IRA



AKIKI  
AKIKI 2  
France  
**NEJM 2016**  
**Lancet 2021**



IDEAL-ICU  
France  
**NEJM 2018**

Early vs Delayed (AKIKI/ELAIN/IDEAL-ICU)-Delayed vs More Delayed (AKIKI2)-Accelerated vs Standard (STARRT-AKI)



ELAIN  
Allemagne  
**JAMA 2016**



STARRT-AKI  
Canada  
**NEJM 2020**

**A** VM et/ou catécholamines  
**KDIGO3**  
**EER précoce** < 6 h  
**EER différé** (oligurie ou anurie >72 h après rando, urée > 40mmol/l, K> 6 mmol/l, pH < 7.15, OAP)

**E** **L** **A** **I** **N** **KDIGO2+NGAL>150ng/ml + 1 critère (SS, catécho, OAP, SOFA ≥2)**  
**EER précoce** <8 h KDIGO 2  
**EER différé** < 12 h KDIGO 3 ou si indication absolue

**I** **D** **E** **A** **L** C. Septique < 48 h  
**F de RIFLE** <12 h  
**EER précoce** < 12h  
**EER différé** 48-60 h (si indication d'EER)

**A** **K** **I** **K** **I** **2** **S** **T** **A** **R** **R** **T** **Noradrenaline et/ou VM**  
**KDIGO 3 + urée** >40 mmol/l ou oligo-anurie > 72 h  
**Précoce** < 6 h  
**Différé** si urée > 50 mmol/l + critère d'urgence

**KDIGO ≥2**  
**Accéléré** <12 h  
**Standard** (K≥6 mmol/l, pH <7.20, OAP, AKI > 50% base /> 3jrs)

	<b>N patients</b>	<b>Délai mise en route EER (h)</b>	<b>Mortalité (%) P vs différé</b>	<b>Patients non épurés (%)</b>	<b>Dépendance EER (%)</b>	<b>EI</b>
<b>AKIKI NEJM 2016</b>	<b>619</b> (311 vs 308)	4.3 vs 57	48.5 vs 49.7 J60-NS	151 (49)	2 vs 5 (J60)	K (%) 17 AM (%) 21
<b>ELAIN JAMA 2016</b>	<b>231</b> (112 vs 119)	6.0 vs 25.5	39.3 vs 54.7 J90-S	11 (10)	16 vs 24 (J60)	OAP(%) 73 vs 78
<b>IDEAL-ICU NEJM 2018</b>	<b>488</b> (246 vs 242)	7.6 vs 51.5	58 vs 54 J90-NS	93 (38)	2 vs 3 (H)	K (%) 4 AM (%) 8
<b>AKIKI 2 Lancet 2021</b>	<b>277</b> (137 vs 141)	44 vs 96	44 vs 55 J90-NS	23 (19) RRT Free-2	4 vs 2 (J60)	K(%) 9 vs 6
<b>STARRT-AKI NEJM 2020</b>	<b>2927</b> (1465 vs 1462)	6.1 vs 31	43.9 vs 43.7 J90-NS	RRT free -0.48	10 vs 6 (J90)	PA (%) 8.7 vs 5.6 Ph (%) 7.5 vs 4.2

**A** VM et/ou catécholamines  
**KDIGO3**  
**EER précoce** < 6 h  
**EER différé** (oligurie ou anurie >72 h après rando, urée > 40mmol/l, K> 6 mmol/l, pH < 7.15, OAP)

**E** **L** **A** **I** **N** **KDIGO2+NGAL>150ng/ml + 1 critère (SS, catécho, OAP, SOFA ≥2)**  
**EER précoce** <8 h KDIGO 2  
**EER différé** < 12 h KDIGO 3 ou si indication absolue

**I** **D** **E** **A** **L** C. Septique < 48 h  
**F de RIFLE** <12 h  
**EER précoce** < 12h  
**EER différé** 48-60 h (si indication d'EER)

**A** **K** **I** **K** **I** **2** **S** **T** **A** **R** **R** **T** **Noradrenaline et/ou VM**  
**KDIGO 3** + urée >40 mmol/l ou oligo-anurie > 72 h  
**Précoce** < 6 h  
**Différé** si urée > 50 mmol/l + critère d'urgence

**KDIGO ≥2**  
**Accéléré** <12 h  
**Standard** (K≥6 mmol/l, pH <7.20, OAP, AKI > 50% base /> 3jrs)

	<b>N patients</b>	<b>Délai mise en route EER (h)</b>	<b>Mortalité (%) P vs différé</b>	<b>Patients non épurés (%)</b>	<b>Dépendance EER (%)</b>	<b>EI</b>
<b>AKIKI NEJM 2016</b>	<b>619</b> (311 vs 308)	4.3 vs 57	48.5 vs 49.7 J60-NS	151 (49)	2 vs 5 (J60)	K (%) 17 AM (%) 21
<b>ELAIN JAMA 2016</b>	<b>231</b> (112 vs 119)	6.0 vs 25.5	39.3 vs 54.7 J90-S	11 (10)	16 vs 24 (J60)	OAP(%) 73 vs 78
<b>IDEAL-ICU NEJM 2018</b>	<b>488</b> (246 vs 242)	7.6 vs 51.5	58 vs 54 J90-NS	93 (38)	2 vs 3 (H)	K (%) 4 AM (%) 8
<b>AKIKI 2 Lancet 2021</b>	<b>277</b> (137 vs 141)	44 vs 96	44 vs 55 J90-NS	23 (19) RRT Free-2	4 vs 2 (J60)	K(%) 9 vs 6
<b>STARRT-AKI NEJM 2020</b>	<b>2927</b> (1465 vs 1462)	6.1 vs 31	43.9 vs 43.7 J90-NS	RRT free -0.48	10 vs 6 (J90)	PA (%) 8.7 vs 5.6 Ph (%) 7.5 vs 4.2

<b>A</b>	VM et/ou catécholamines <b>KDIGO3</b>	<b>E</b>	<b>KDIGO2+NGAL&gt;150ng/ml + 1 critère (SS, catécho, OAP, SOFA ≥2)</b>	<b>I</b>	C. Septique < 48 h	<b>A</b>	<b>Noradrenaline et/ou VM</b>	<b>S</b>
<b>K</b>	<b>EER précoce &lt; 6 h</b>	<b>L</b>	<b>EER différé (oligurie ou anurie &gt;72 h après rando, urée &gt; 40mmol/l, K&gt; 6 mmol/l, pH &lt; 7.15, OAP)</b>	<b>D</b>	<b>F de RIFLE &lt;12 h</b>	<b>K</b>	<b>KDIGO 3 + urée &gt;40 mmol/l ou oligo-anurie &gt; 72 h</b>	<b>T</b>
<b>I</b>	<b>EER précoce &lt;8 h KDIGO 2</b>	<b>A</b>	<b>EER différé &lt; 12 h KDIGO 3 ou si indication absolue</b>	<b>E</b>	<b>EER précoce &lt; 12h</b>	<b>I</b>	<b>Précoce &lt; 6 h</b>	<b>R</b>
<b>K</b>		<b>I</b>		<b>A</b>	<b>EER différé 48-60 h (si indication d'EER)</b>	<b>K</b>	<b>Différé si urée &gt; 50 mmol/l + critère d'urgence</b>	<b>R</b>
<b>I</b>		<b>N</b>		<b>L</b>		<b>I</b>		<b>T</b>

	<b>N patients</b>	<b>Délai mise en route EER (h)</b>	<b>Mortalité (%) P vs différé</b>	<b>Patients non épurés (%)</b>	<b>Dépendance EER (%)</b>	<b>EI</b>
<b>AKIKI NEJM 2016</b>	<b>619</b> (311 vs 308)	4.3 vs 57	48.5 vs 49.7 J60-NS	151 (49)	2 vs 5 (J60)	K (%) 17 AM (%) 21
<b>ELAIN JAMA 2016</b>	<b>231</b> (112 vs 119)	6.0 vs 25.5	39.3 vs 54.7 J90-S	11 (10)	16 vs 24 (J60)	OAP(%) 73 vs 78
<b>IDEAL-ICU NEJM 2018</b>	<b>488</b> (246 vs 242)	7.6 vs 51.5	58 vs 54 J90-NS	93 (38)	2 vs 3 (H)	K (%) 4 AM (%) 8
<b>AKIKI 2 Lancet 2021</b>	<b>277</b> (137 vs 141)	44 vs 96	44 vs 55 J90-NS	23 (19) RRT Free-2	4 vs 2 (J60)	K(%) 9 vs 6
<b>STARRT-AKI NEJM 2020</b>	<b>2927</b> (1465 vs 1462)	6.1 vs 31	43.9 vs 43.7 J90-NS	RRT free -0.48	10 vs 6 (J90)	PA (%) 8.7 vs 5.6 Ph (%) 7.5 vs 4.2

**A** VM et/ou catécholamines  
**KDIGO3**  
**EER précoce** < 6 h  
**EER différé** (oligurie ou anurie >72 h après rando, urée > 40mmol/l, K > 6 mmol/l, pH < 7.15, OAP)

**E** **L** **A** **I** **N** **D** **R** **I** **E** **A** **L**  
**KDIGO2+NGAL>150ng/ml + 1 critère (SS, catécho, OAP, SOFA ≥2)**  
**EER précoce** <8 h KDIGO 2  
**EER différé** < 12 h KDIGO 3 ou si indication absolue

**I** **D** **E** **A** **L**  
**C. Septique < 48 h**  
**F de RIFLE <12 h**  
**EER précoce** < 12 h  
**EER différé** 48-60 h (si indication d'EER)

**A** **K** **I** **K** **I** **2**  
**Noradrenaline et/ou VM**  
**KDIGO 3 + urée >40 mmol/l ou oligo-anurie > 72 h**  
**Précoce** < 6 h  
**Différé** si urée > 50 mmol/l + critère d'urgence

**S** **T** **A** **R** **R**  
**KDIGO ≥2**  
**Accéléré** <12 h  
**Standard** (K≥6 mmol/l, pH <7.20, OAP, AKI > 50% base /> 3jrs)

	<b>N patients</b>	<b>Délai mise en route EER (h)</b>	<b>Mortalité (%) P vs différé</b>	<b>Patients non épurés (%)</b>	<b>Dépendance EER (%)</b>	<b>EI</b>
<b>AKIKI NEJM 2016</b>	<b>619</b> (311 vs 308)	4.3 vs 57	48.5 vs 49.7 J60-NS	151 (49)	2 vs 5 (J60)	K (%) 17 AM (%) 21
<b>ELAIN JAMA 2016</b>	<b>231</b> (112 vs 119)	6.0 vs 25.5	39.3 vs 54.7 J90-S	11 (10)	16 vs 24 (J60)	OAP(%) 73 vs 78
<b>IDEAL-ICU NEJM 2018</b>	<b>488</b> (246 vs 242)	7.6 vs 51.5	58 vs 54 J90-NS	93 (38)	2 vs 3 (H)	K (%) 4 AM (%) 8
<b>AKIKI 2 Lancet 2021</b>	<b>277</b> (137 vs 141)	44 vs 96	44 vs 55 J90-NS	23 (19) RRT Free-2	4 vs 2 (J60)	K(%) 9 vs 6
<b>STARRT-AKI NEJM 2020</b>	<b>2927</b> (1465 vs 1462)	6.1 vs 31	43.9 vs 43.7 J90-NS	RRT free -0.48	10 vs 6 (J90)	PA (%) 8.7 vs 5.6 Ph (%) 7.5 vs 4.2

**A** VM et/ou catécholamines  
**KDIGO3**  
**EER précoce** < 6 h  
**EER différé** (oligurie ou anurie >72 h après rando, urée > 40mmol/l, K> 6 mmol/l, pH < 7.15, OAP)

**E** **L** **A** **I** **N** **D** **R** **I** **S**  
**KDIGO2+NGAL>150ng/ml + 1 critère (SS, catécho, OAP, SOFA ≥2)**  
**EER précoce** <8 h KDIGO 2  
**EER différé** < 12 h KDIGO 3 ou si indication absolue

**I** **D** **E** **A** **L**  
**C. Septique < 48 h**  
**F de RIFLE <12 h**  
**EER précoce < 12h**  
**EER différé 48-60 h (si indication d'EER)**

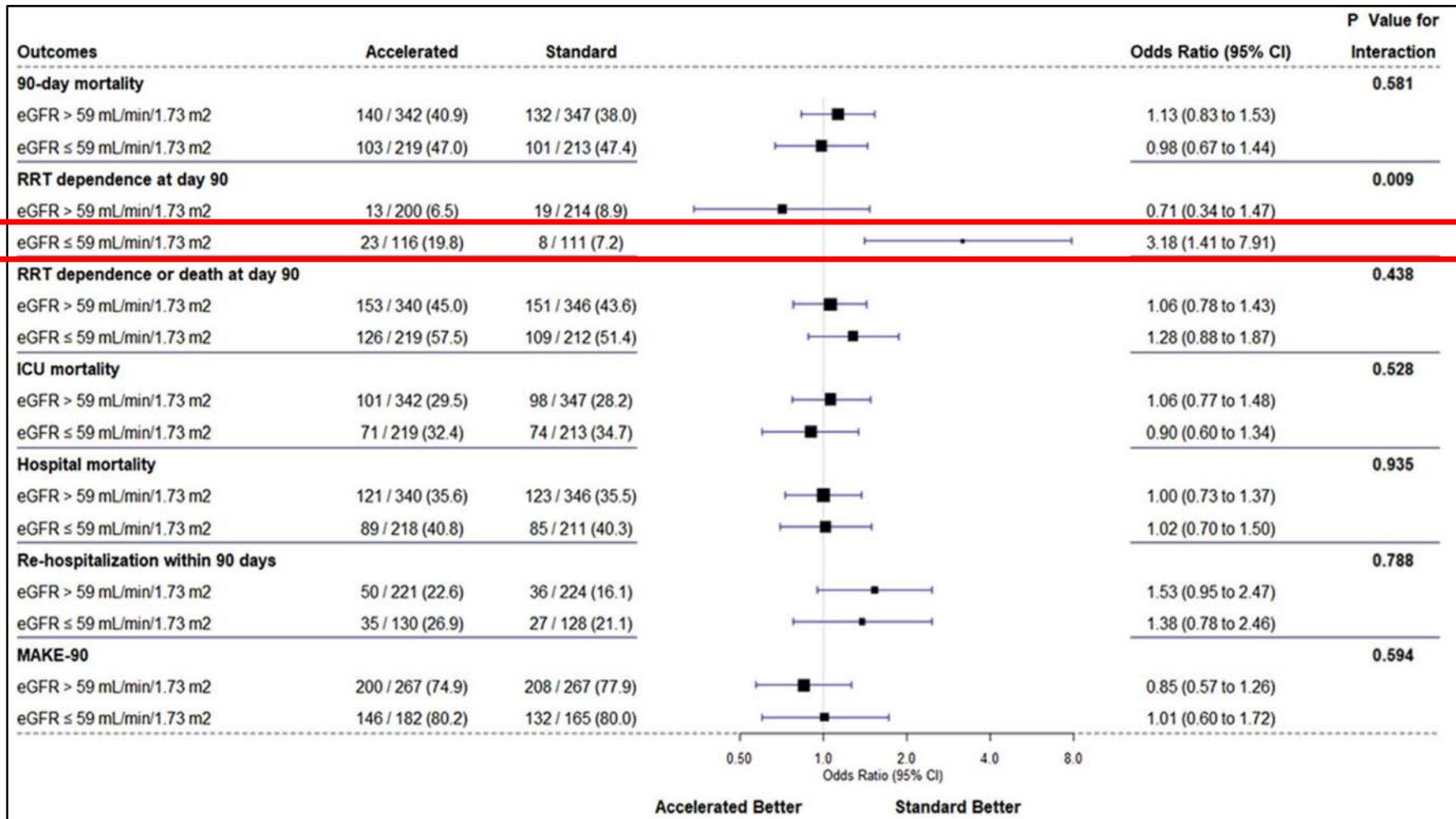
**A** **K** **I** **K** **I** **2**  
**Noradrenaline et/ou VM**  
**KDIGO 3 + urée >40 mmol/l ou oligo-anurie > 72 h**  
**Précoce** < 6 h  
**Différé** si urée > 50 mmol/l + critère d'urgence

**S** **T** **A** **R** **R**  
**KDIGO ≥2**  
**Accéléré** <12 h  
**Standard** (K≥6 mmol/l, pH <7.20, OAP, AKI > 50% base /> 3jrs)

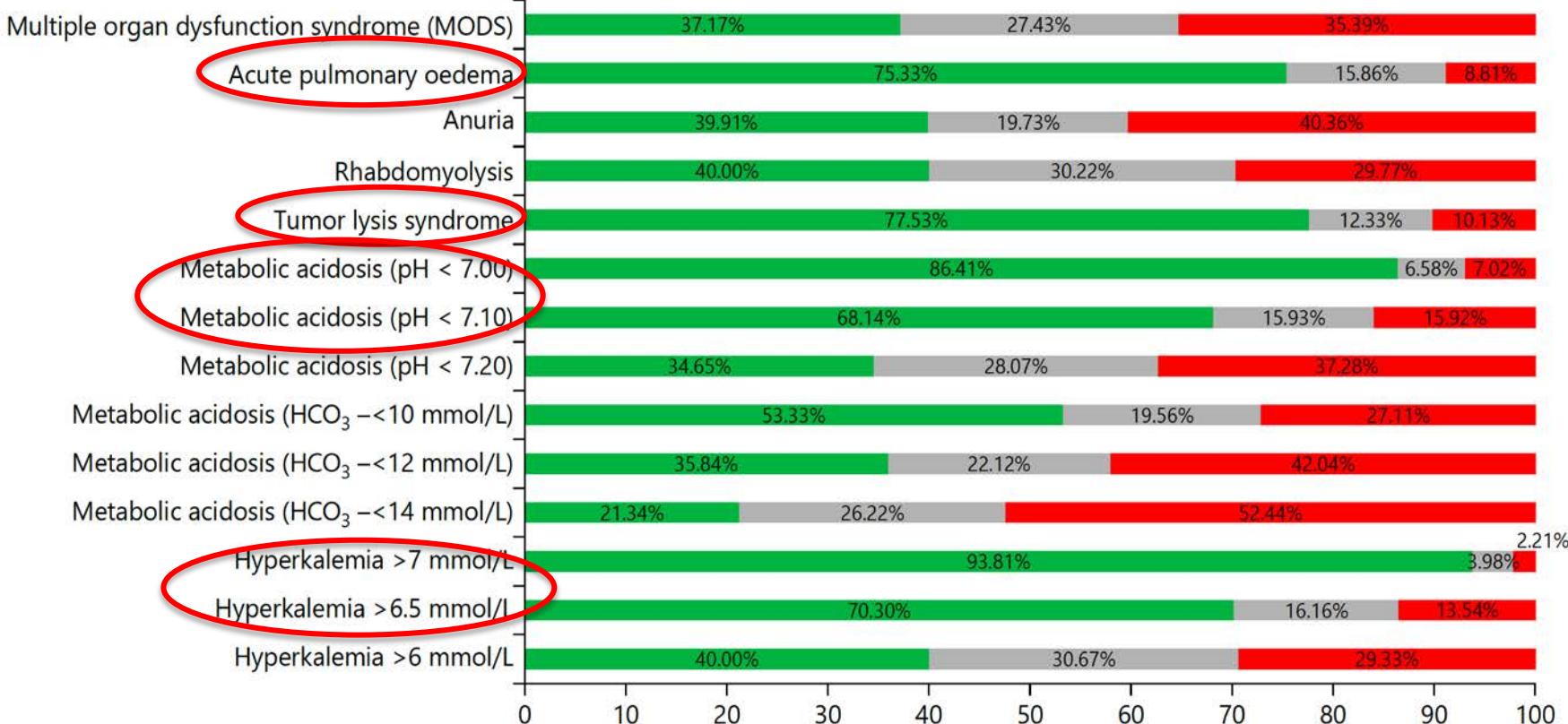
	<b>N patients</b>	<b>Délai mise en route EER (h)</b>	<b>Mortalité (%) P vs différé</b>	<b>Patients non épurés (%)</b>	<b>Dépendance EER (%)</b>	<b>EI</b>
<b>AKIKI NEJM 2016</b>	<b>619</b> (311 vs 308)	4.3 vs 57	48.5 vs 49.7 J60-NS	151 (49)	2 vs 5 (J60)	K (%) 17 AM (%) 21
<b>ELAIN JAMA 2016</b>	<b>231</b> (112 vs 119)	6.0 vs 25.5	39.3 vs 54.7 J90-S	11 (10)	16 vs 24 (J60)	OAP(%) 73 vs 78
<b>IDEAL-ICU NEJM 2018</b>	<b>488</b> (246 vs 242)	7.6 vs 51.5	58 vs 54 J90-NS	93 (38)	2 vs 3 (H)	K (%) 4 AM (%) 8
<b>AKIKI 2 Lancet 2021</b>	<b>277</b> (137 vs 141)	44 vs 96	44 vs 55 J90-NS	23 (19) RRT Free-2	4 vs 2 (J60)	K(%) 9 vs 6
<b>STARRT-AKI NEJM 2020</b>	<b>2927</b> (1465 vs 1462)	6.1 vs 31	43.9 vs 43.7 J90-NS	RRT free -0.48	10 vs 6 (J90)	PA (%) 8.7 vs 5.6 Ph (%) 7.5 vs 4.2

A K I K I	VM et/ou catécholamines <b>KDIGO3</b> EER précoce < 6 h EER différé (oligurie ou anurie >72 h après rando, urée > 40mmol/l, K> 6 mmol/l, pH < 7.15, OAP)	E L A I N	KDIGO2+NGAL>150ng/ml + 1 critère (SS, catécho, OAP, SOFA ≥2) EER précoce <8 h KDIGO 2 EER différé < 12 h KDIGO 3 ou si indication absolue	I D E A L	C. Septique < 48 h <b>F de RIFLE &lt;12 h</b> EER précoce < 12h EER différé 48-60 h (si indication d'EER)	A K I K I 2	Noradrenaline et/ou VM <b>KDIGO 3 + urée &gt;40 mmol/l ou oligo-anurie &gt; 72 h</b> Précoce < 6 h Différé si urée > 50 mmol/l + critère d'urgence	S T A R R T	KDIGO ≥2 Accéléré <12 h Standard (K≥6 mmol/l, pH <7.20, OAP, AKI > 50% base /> 3jrs)
-----------------------	---	-----------------------	---	-----------------------	--	----------------------------	---	----------------------------	--

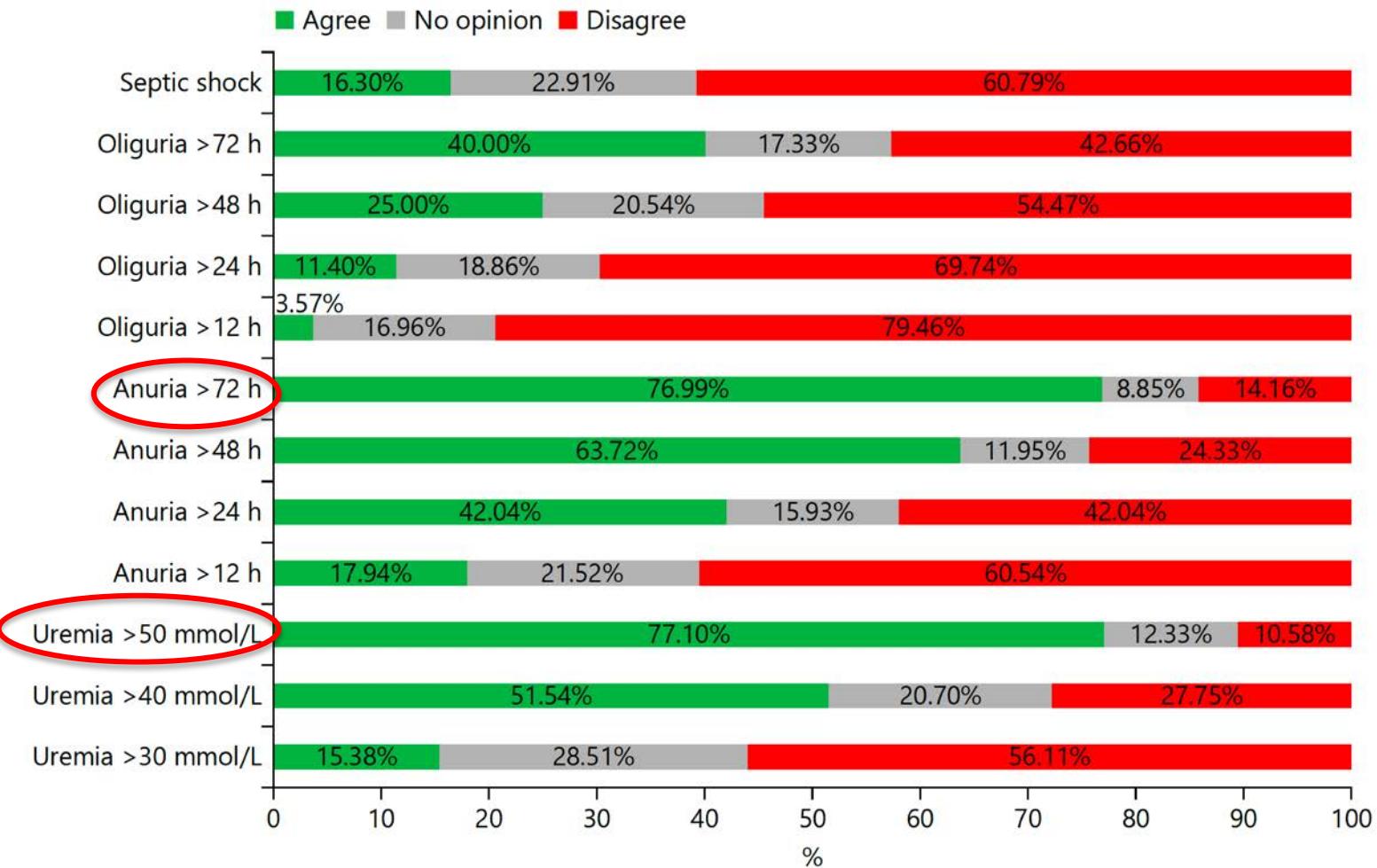
	N patients	Délai mise en route EER (h)	Mortalité (%) P vs différé	Patients non épurés (%)	Dépendance EER (%)	EI
<b>AKIKI NEJM 2016</b>	<b>619</b> (311 vs 308)	4.3 vs 57	48.5 vs 49.7 J60-NS	151 (49)	2 vs 5 (J60)	K (%) 17 AM (%) 21
<b>ELAIN JAMA 2016</b>	<b>231</b> (112 vs 119)	6.0 vs 25.5	39.3 vs 54.7 J90-S	11 (10)	16 vs 24 (J60)	OAP(%) 73 vs 78
<b>IDEAL-ICU NEJM 2018</b>	<b>488</b> (246 vs 242)	7.6 vs 51.5	58 vs 54 J90-NS	93 (38)	2 vs 3 (H)	K (%) 4 AM (%) 8
<b>AKIKI 2 Lancet 2021</b>	<b>277</b> (137 vs 141)	44 vs 96	44 vs 55 J90-NS	23 (19) RRT Free-2	4 vs 2 (J60)	K(%) 9 vs 6
<b>STARRT-AKI NEJM 2020</b>	<b>2927</b> (1465 vs 1462)	6.1 vs 31	43.9 vs 43.7 J90-NS	RRT free -0.48	10 vs 6 (J90)	PA (%) 8.7 vs 5.6 Ph (%) 7.5 vs 4.2



■ Agree ■ No opinion ■ Disagree



**Fig. 2.** The most frequently cited criteria for initiating emergency renal replacement therapy (after optimal medical therapy).

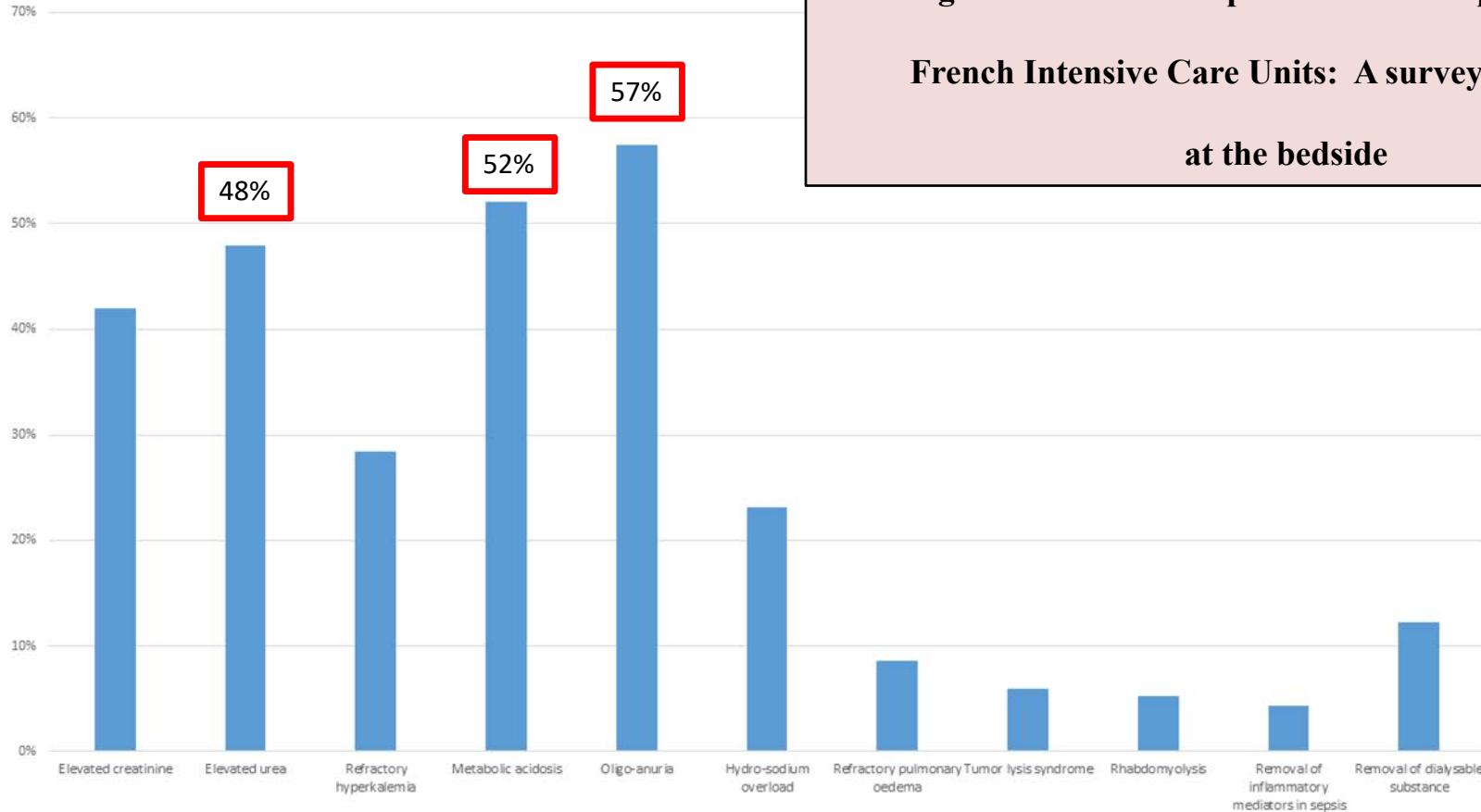


**Fig. 3.** The most frequently cited criteria for initiating nonemergency renal replacement therapy.

Figure 1

# Management of Renal Replacement Therapy in adults

## French Intensive Care Units: A survey of practices at the bedside



# Que retenir en 2022 sur le délai pour RETARDER l'EER

**Table 2. Indications for KRT in Critically Ill Patients.\***

**Urgent indications in patients with AKI**

Refractory, severe hyperkalemia†

Refractory, severe metabolic acidosis†

Refractory, severe pulmonary edema†

Uremic complications: pericarditis, bleeding, and encephalopathy‡

**Urgent indications in patients without AKI**

Severe intoxication due to lithium, toxic alcohol poisoning (especially from ethylene glycol or methanol), metformin, or salicylate

**Nonurgent indications**

Persistent, severe AKI with blood urea nitrogen level >112 mg/dl, oliguria or anuria for more than 72 hr, or both§

**No indications**

Severe AKI (KDIGO stage 3) in the absence of complications¶

Sepsis in the absence of complicated AKI

# CONCLUSION

- Similar to sepsis and ARDS, the time has come for AKI to go deeper into the fields of **personnalized medicine**. Uhel F ATM 2018
- The real « IDEAL » trial, of course, would be one identifying a drug or treatment that prevents clinicians from having to make the decision to dialyze in the first place by **preventing AKI**. Leaf DE ASN 2019
- Until then, decisions regarding when to initiate RRT must remain based on **individual patient characteristics and clinician judgment**. Palevsky PM. CJASN 2016
- Sometimes less (dialysis) is more. As the basic and primary directive of medicine guides us **PRIMUM NON NOCERE**. Bielopolski D. JTD 2016