

# 1<sup>e</sup> Vlaamse Nefrologiedag: kiezen of delen

*Dr. Patrick Peeters UZGent*

**IS COMORBIDITEIT IN RRT  
BEPALEND VOOR DE  
PROGNOSE?**

The Strange Case of  
**Dr Jekyll**  
*and* **Mr Hyde**





“ Il y a dans les hommes  
plus de choses à admirer que  
de choses à mépriser ”

- La Peste -

“ Je préfère être le meilleur  
dans le mal que le médiocre  
dans le bien ”

- Caligula -



algemene  
internist

- La Peste -

nefroloog

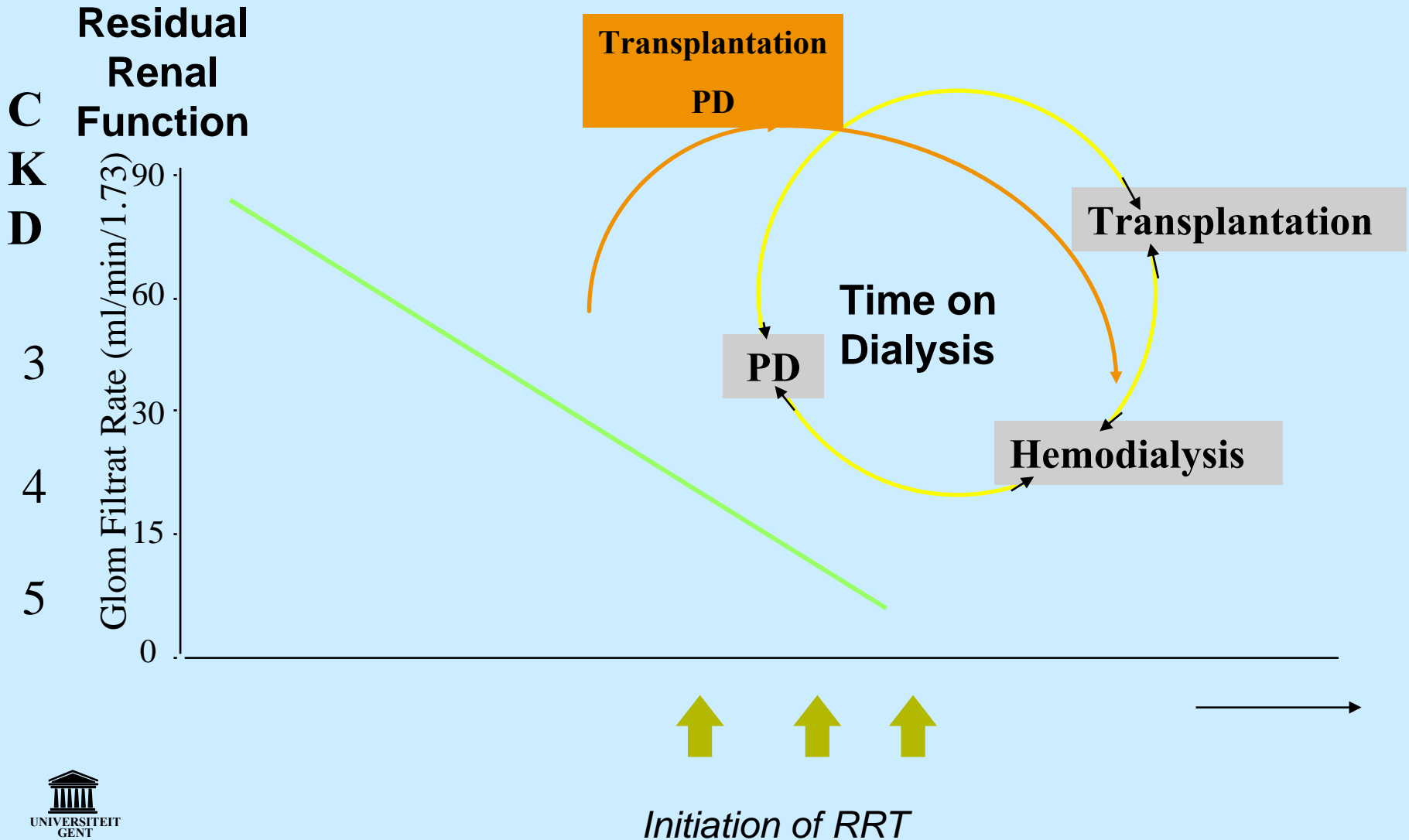
- Caligula -

algemene  
internist

nefroloog

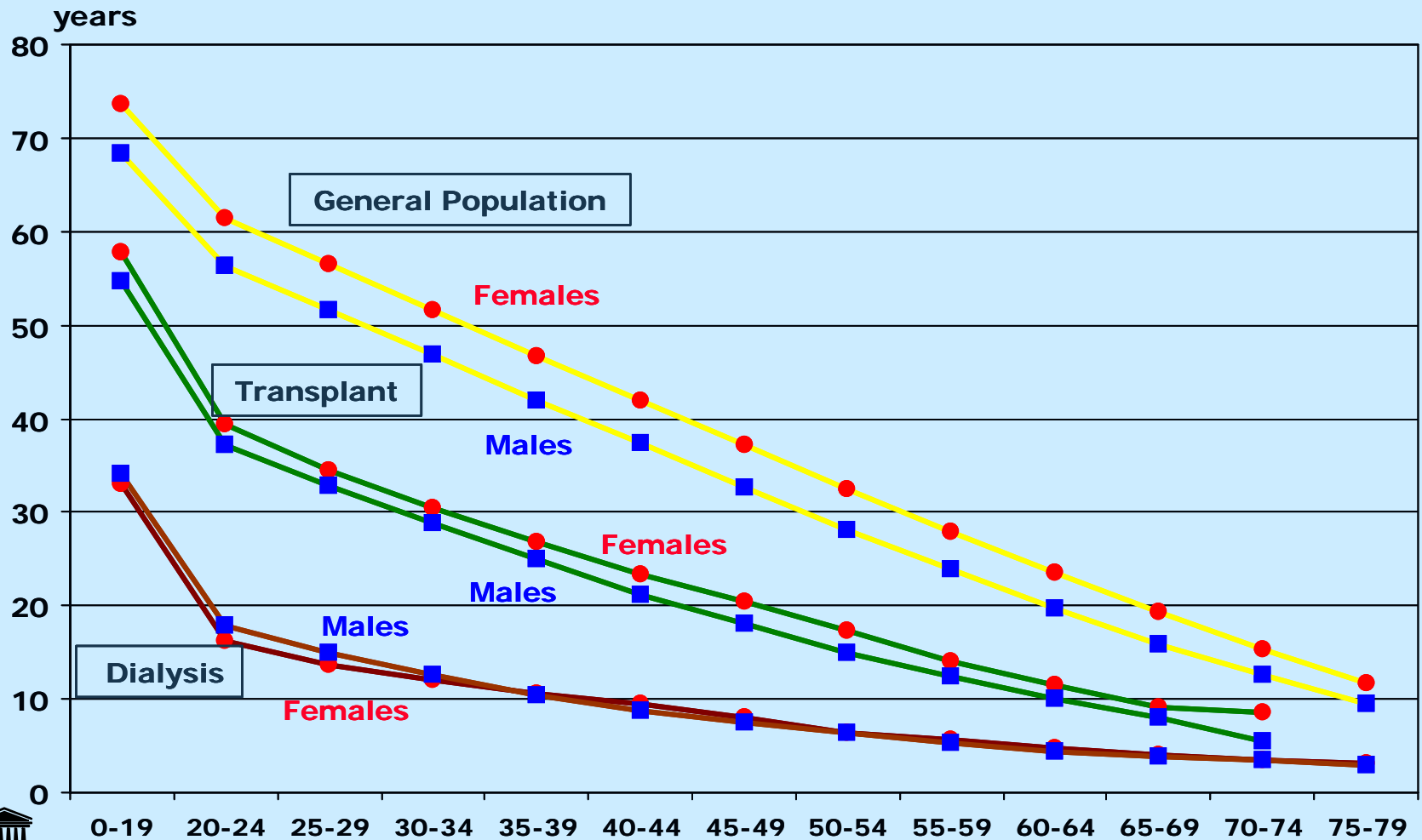
Kiezen of delen?

# Integrated CKD Care

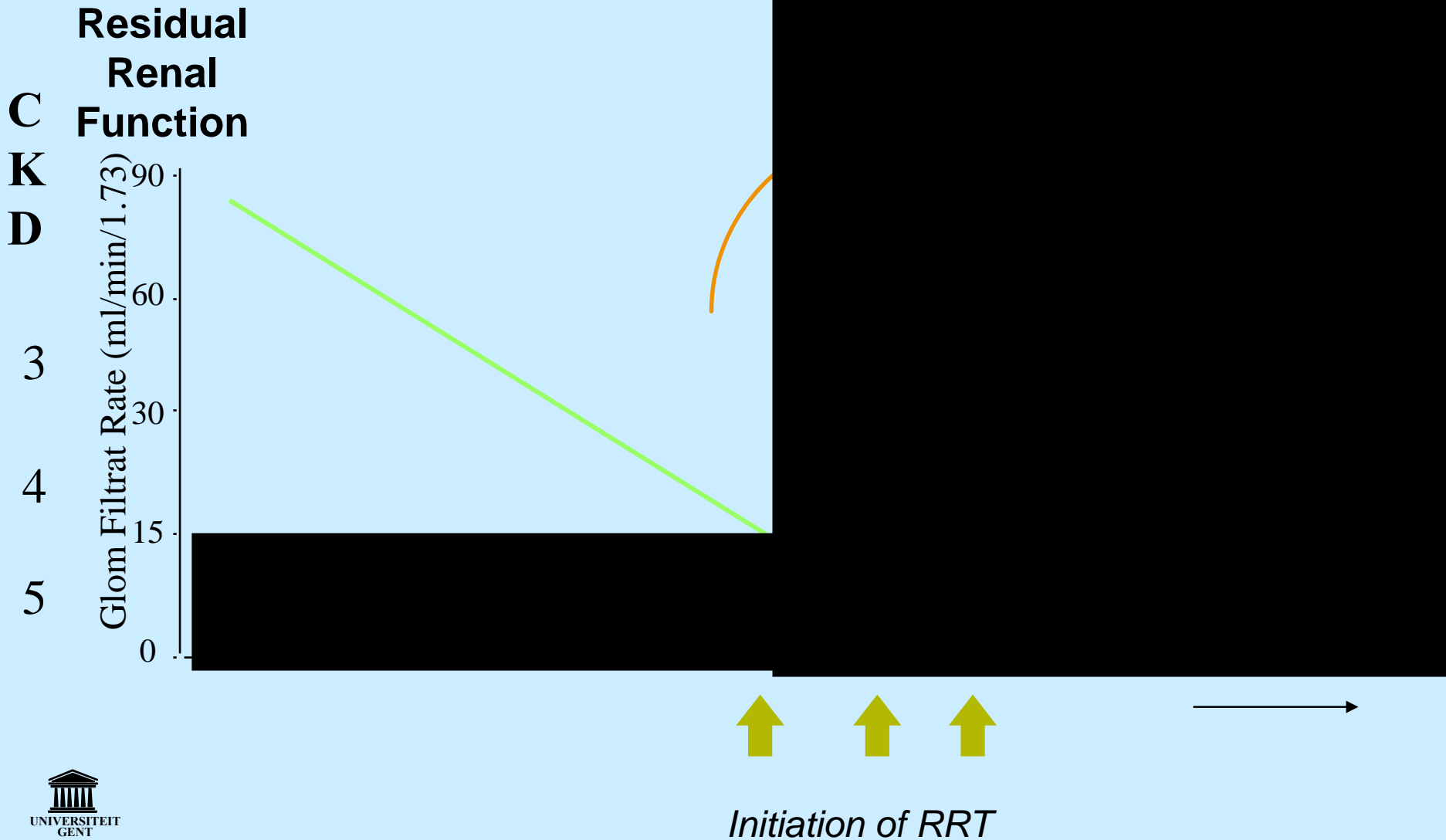


# Expected remaining lifetimes ERA-EDTA Registry

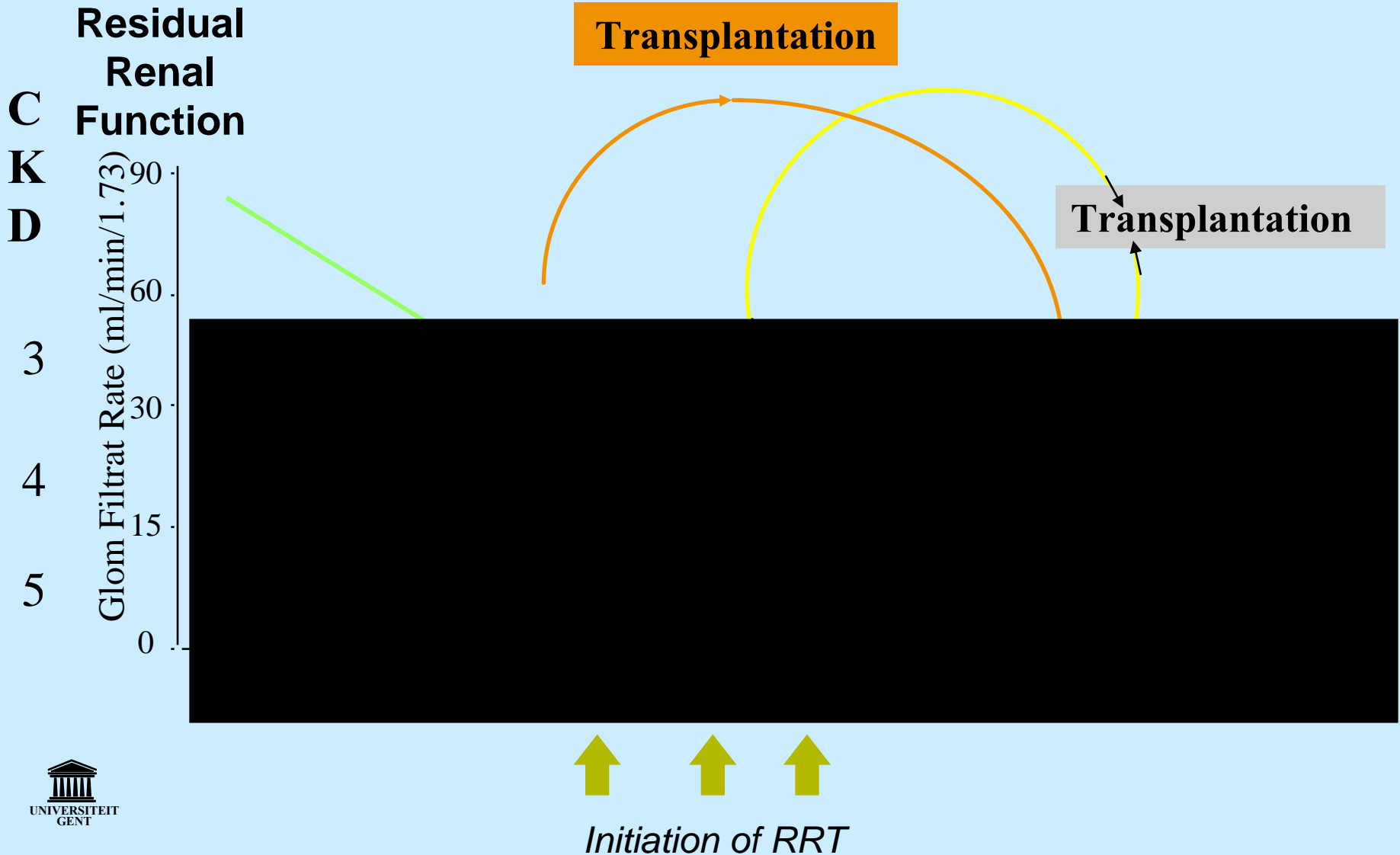
*in General Population, Tx and dialysis patients*



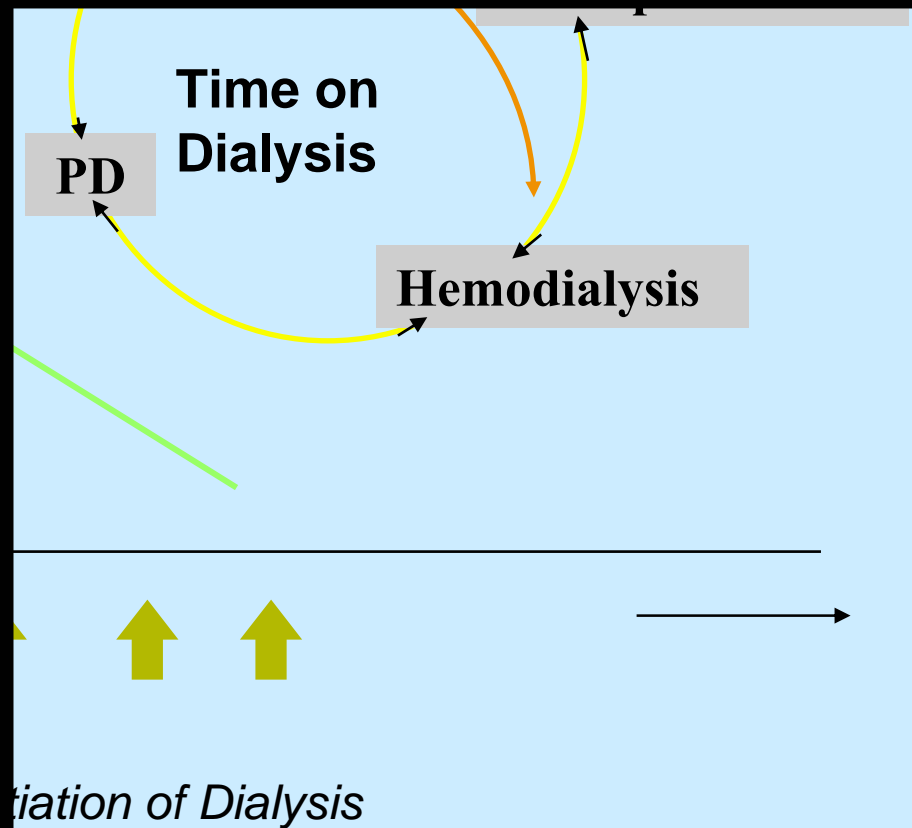
# Integrated CKD Care



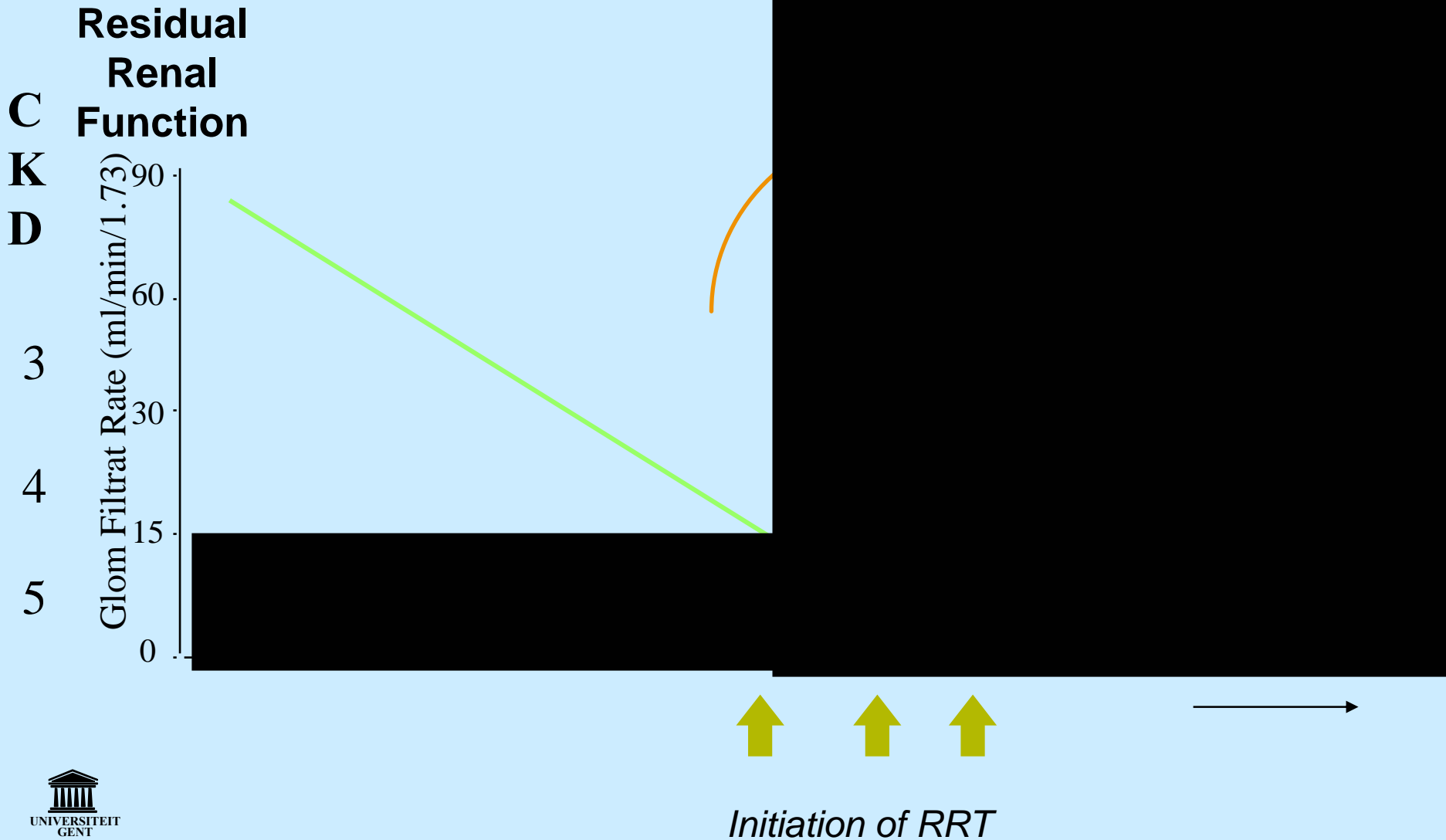
# Integrated CKD Care



# Integrated CKD Care



# Integrated CKD Care



# NIERFALEN

- **Vrijwel elk orgaansysteem aangetast**
- **Klachten ontstaan (te) laat tijdens de evolutie**
- **Hoofdprobleem = vaatlijden (// diabetes mellitus)**

# NIERFALEN

- Anemie
- Immuundysfunctie
- Osteodystrofie
- Hyperparathyreose
- Insuline resistentie
- Ondervoeding
- Inflammatie
- Stollingsstoornissen
- Huidatrofie
- Jeuk
- Polyneuritis
- Coordinatiestoornissen
- Tremor
- Hartfalen
- Krachtsverlies
- Anorexie
- Pericarditis
- Hypertensie
- Vochtoverbelasting
- Vasculair lijden



# HOPE STUDY: COMPARISON OF THE PREDICTIVE VALUE OF RISK FACTORS

- **Screa > 1.4 mg/dl: 1.40**
- **Diabetes: 1.42**
- **Male sex: 1.02**

# K/DOQI stadia van nierfalen (1)

<i>Stadium</i>	<i>Beschrijving</i>	<i>Creatinine Clearance (~GFR, ml/min/1,73m<sup>2</sup>)</i>	<i>Metabole consequenties</i>
1	Normaal of toegenomen GFR ± proteïnurie	> 90	
2	Vroegtijdig nierfalen	60 – 89*	Concentratie PTH neemt toe
3	Matig nierfalen	30 – 59	Afname Ca absorptie Lipoproteïne activiteit zakt Malnutritie Linker ventrikel hypertrofie Anemie
4	Ernstig nierfalen (pre-Terminaal nierfalen)	15 – 29	TG concentratie neemt toe Hyperphosphatemie Metabole acidose Neiging tot hyperkaliemie
5	Terminaal nierfalen (ESRD)	< 15	Azotaemie ontwikkelt

# PREVENTIEVE MAATREGELEN

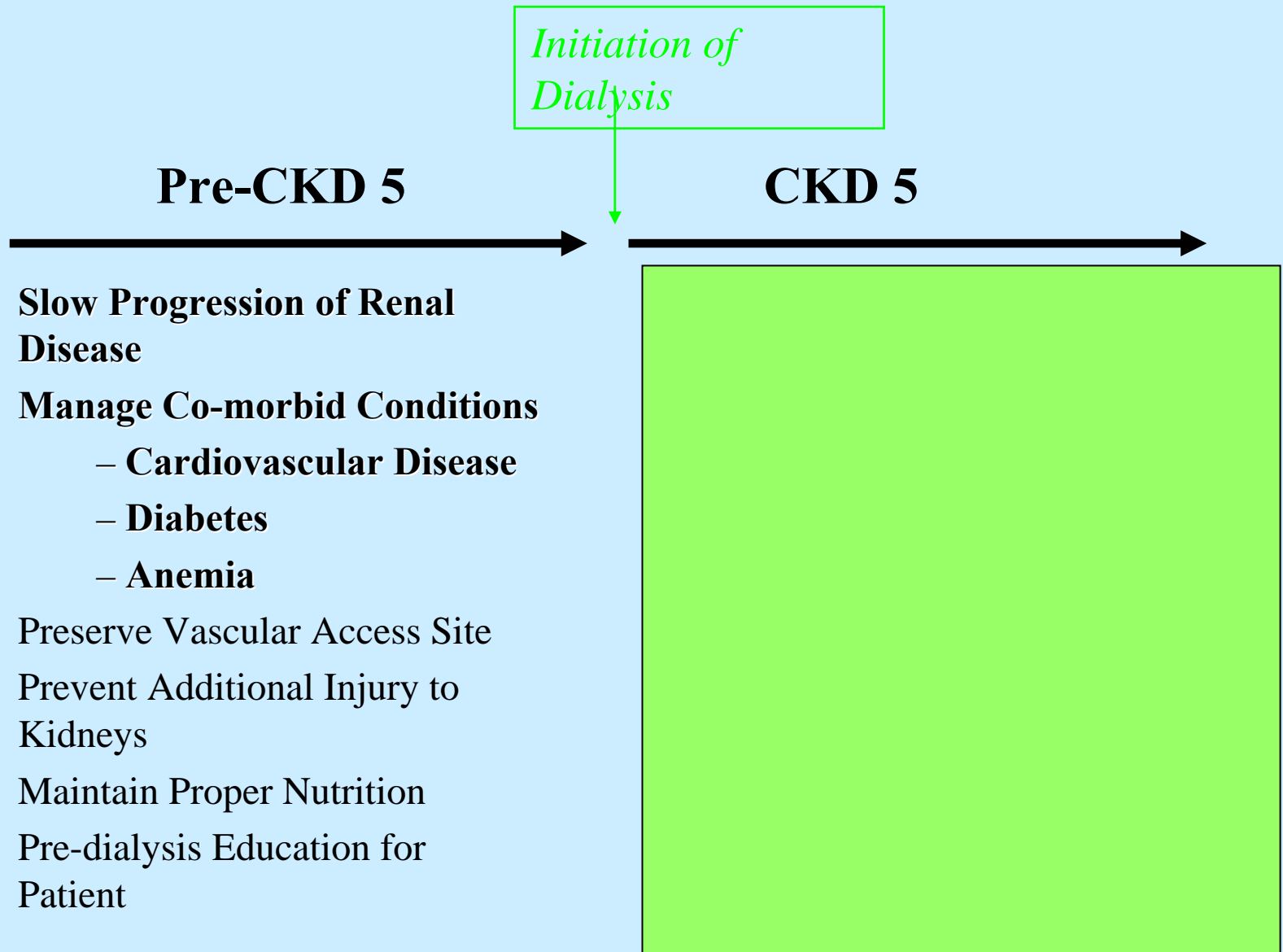
- **Rookstop**
  - **Zoutbeperking**
  - **Correctie BMI**
  - **Behandeling** hypertensie
  - **Lichaamsbeweging**
  - **Diabetes / insuline resistentie**
  - **Behandeling dyslipidemie**
  - **Behandeling hypercoagulabiliteit**
  - **Correctie anemie**
  - **Correcte vullingstoestand**
  - **Instandhouden voedingstoestand**
  - **Ca/P huishouding**
- **Vorbereiden nierfunctie vervanging**
    - **Beslissen welke therapie (PD/HD)**
    - **Vorbereiden vaattoegangsweg**
    - **Vorbereiden transplantatie**
    - **Hep B vaccinatie**

# BIJZONDERE AANDACHT

- **Diabetes mellitus**
- **Hypertensie**
- **Familiale geschiedenis nierziekte**
- **Voorafgaande nierschade of redenen voor nierschade**
- **Proteïnurie**
- **Roken**
- **Infectieziektes (Hep C, hep B, HIV)**
- **Leeftijd > 60**
- **Cardiovasculaire ziekte**
- **Obesitas / metabool syndroom**

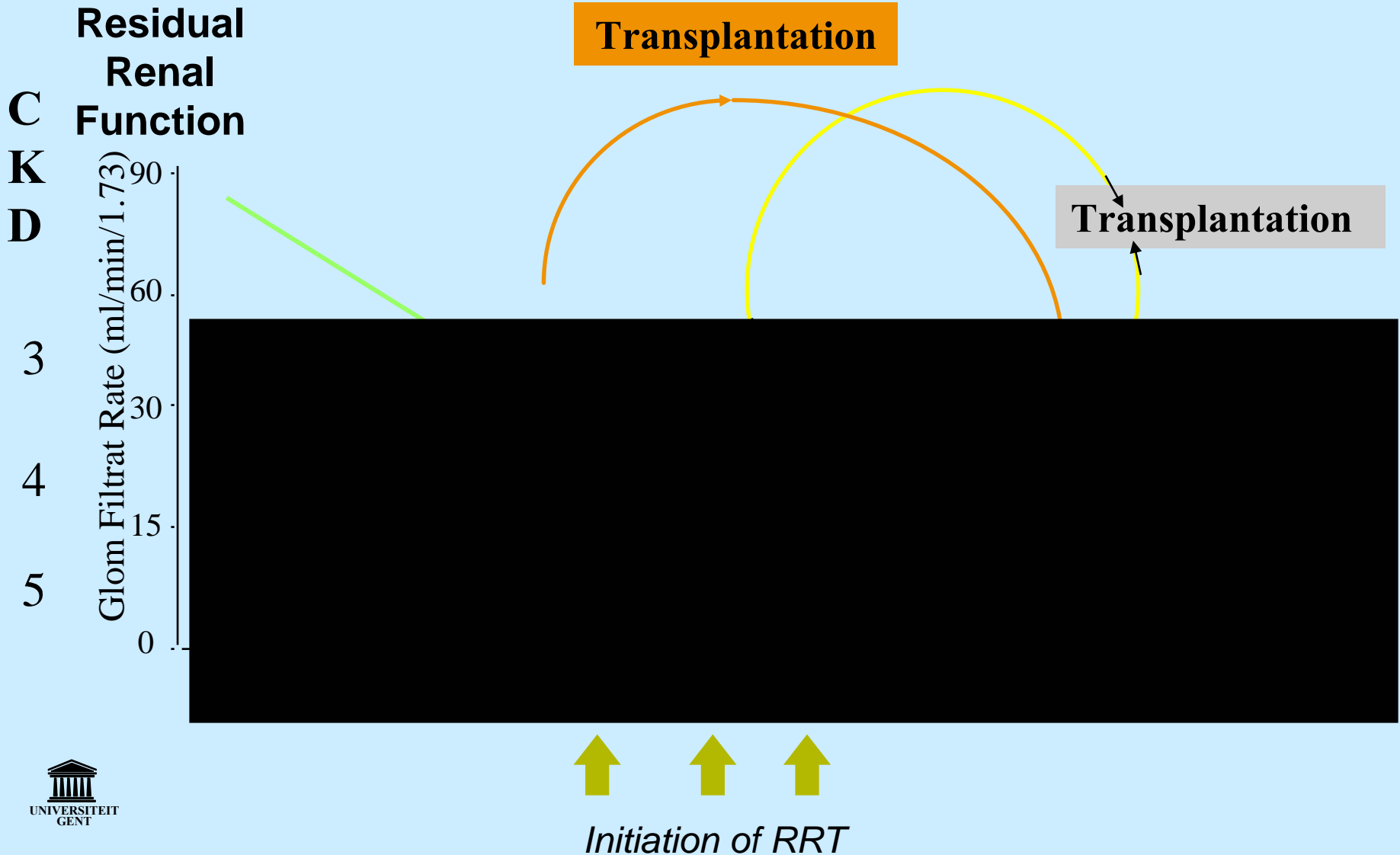
# Goals Before and Following Initiation of Dialysis

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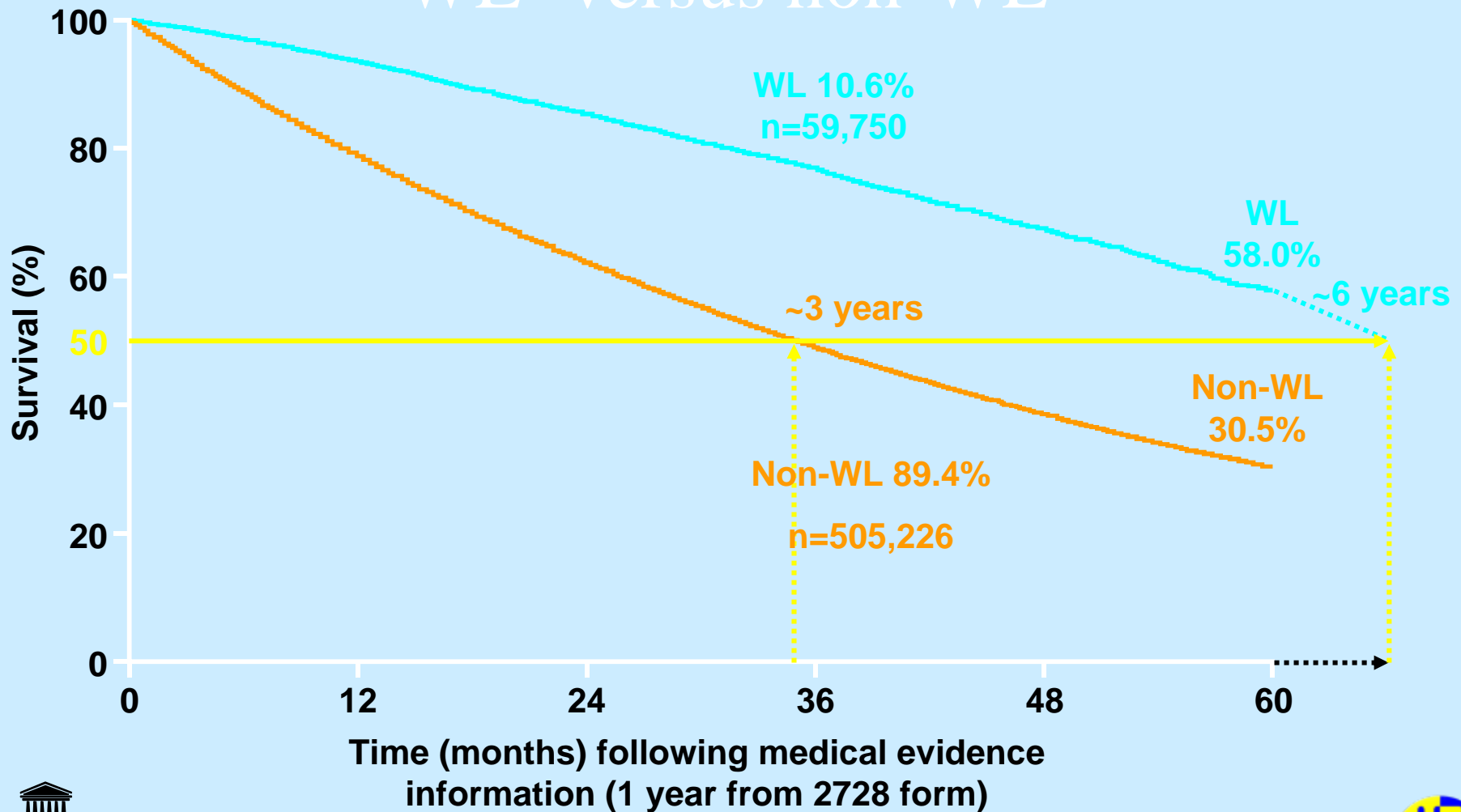


**Current dialysis strategies can be improved by  
“preventive action” in the pre-CKD 5 period**

# Integrated CKD Care



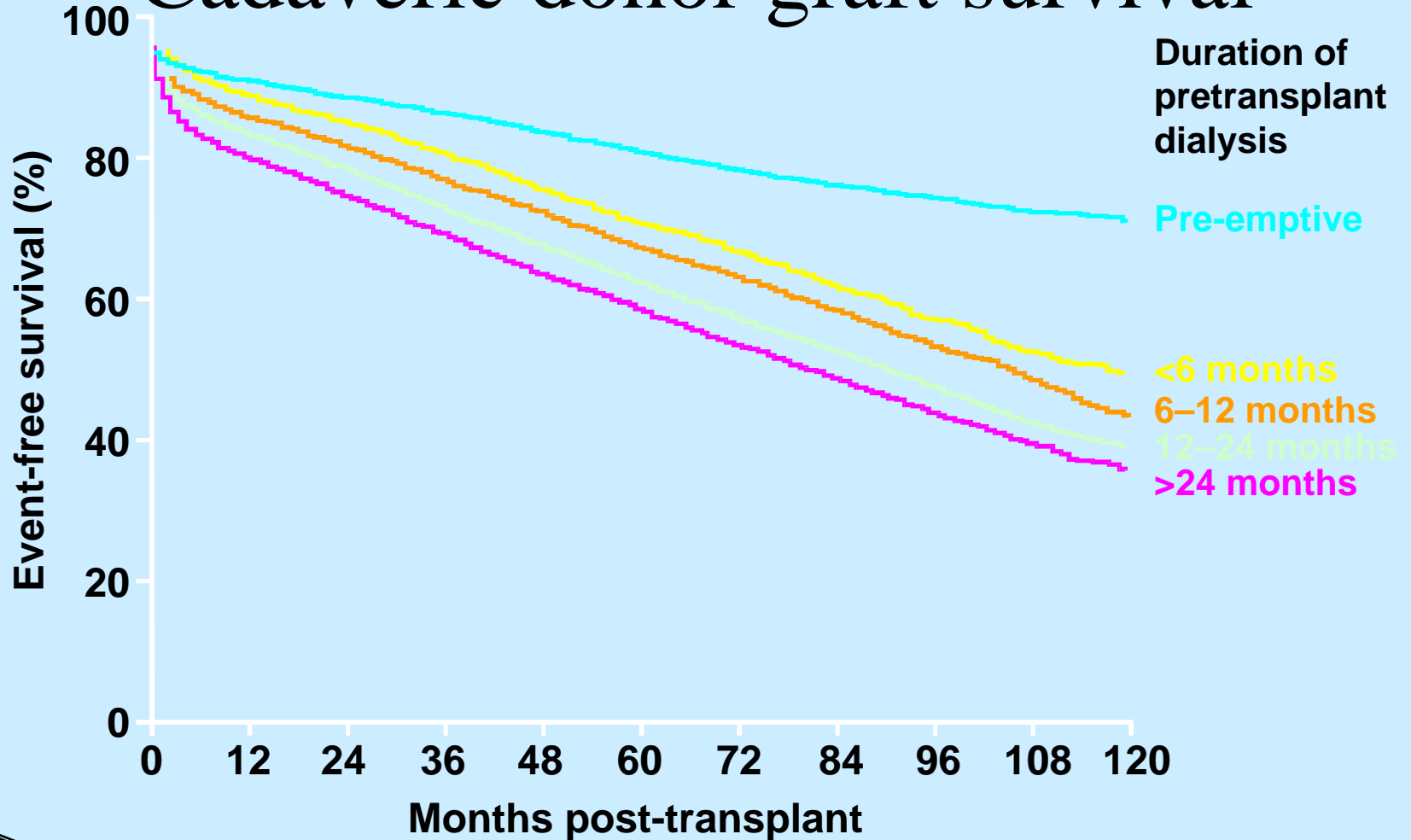
# Patient survival with ESRD: WL\* versus non-WL



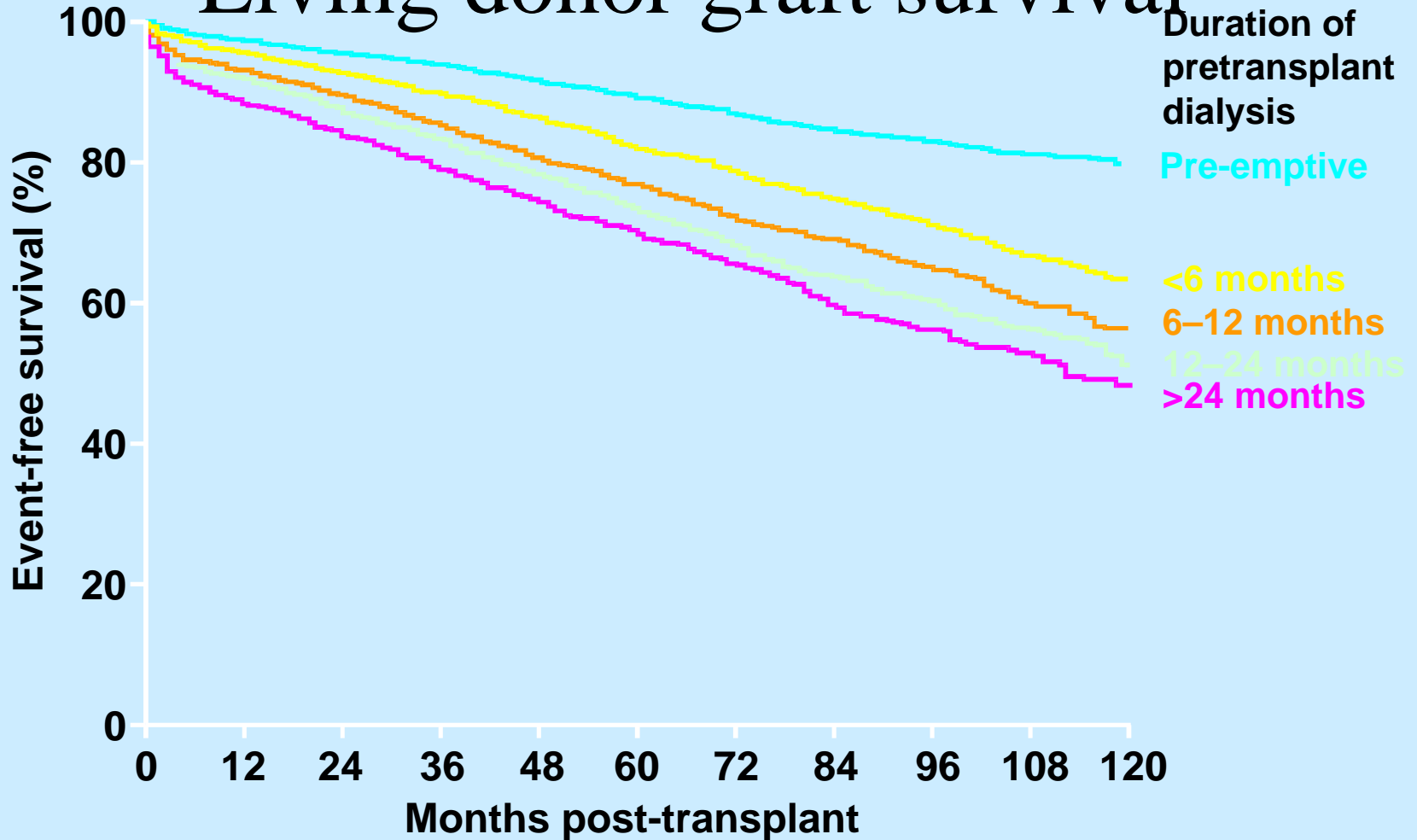
**TABLE 3. OUTCOME AMONG RECIPIENTS OF FIRST CADAVERIC TRANSPLANTS, ACCORDING TO CHARACTERISTICS AT THE TIME OF INITIAL PLACEMENT ON THE WAITING LIST, 1991–1997.\***

GROUP	RELATIVE RISK 18 MO AFTER TRANSPLANTATION (95% CI)†	P VALUE	TIME AT WHICH RISK OF DEATH EQUALS THAT IN REFERENCE GROUP	TIME AT WHICH LIKELIHOOD OF SURVIVAL EQUALS THAT IN REFERENCE GROUP	PROJECTED YEARS OF LIFE (IN REFERENCE GROUP) WITHOUT TRANSPLANTATION‡	PROJECTED YEARS OF LIFE WITH TRANSPLANTATION‡
			days after transplantation			
All recipients of first cadaveric transplants	0.32 (0.30–0.35)	<0.001	106	244	10	20
Age						
0–19 yr	0.33 (0.12–0.87)	0.03	3	5	26	39
20–39 yr	0.24 (0.20–0.29)	<0.001	11	57	14	31
40–59 yr	0.33 (0.29–0.37)	<0.001	95	251	11	22
60–74 yr	0.39 (0.33–0.47)	<0.001	148	369	6	10
Sex						
Male	0.34 (0.30–0.38)	<0.001	110	255	10	19
Female	0.30 (0.26–0.34)	<0.001	94	220	11	23

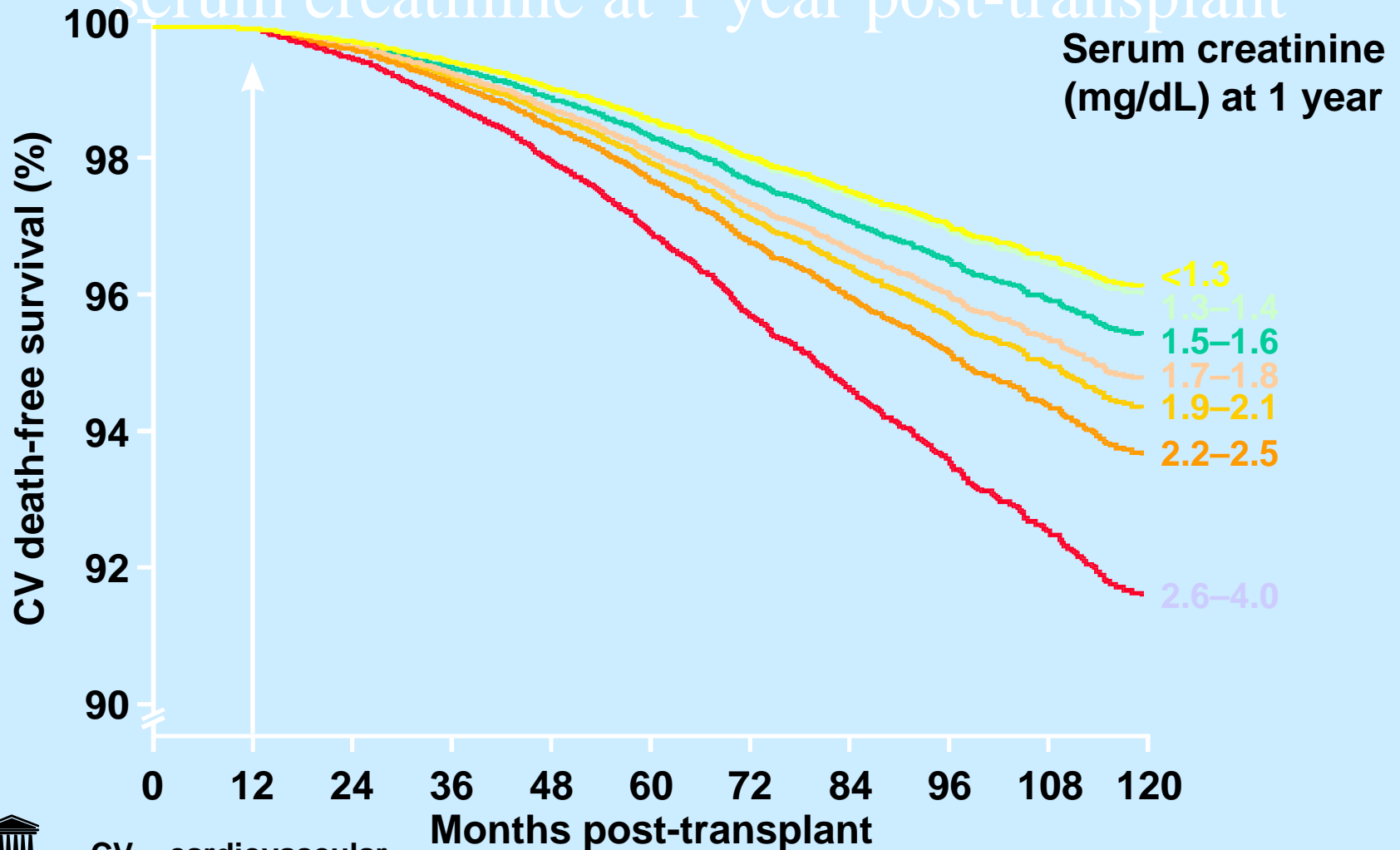
# Cadaveric donor graft survival



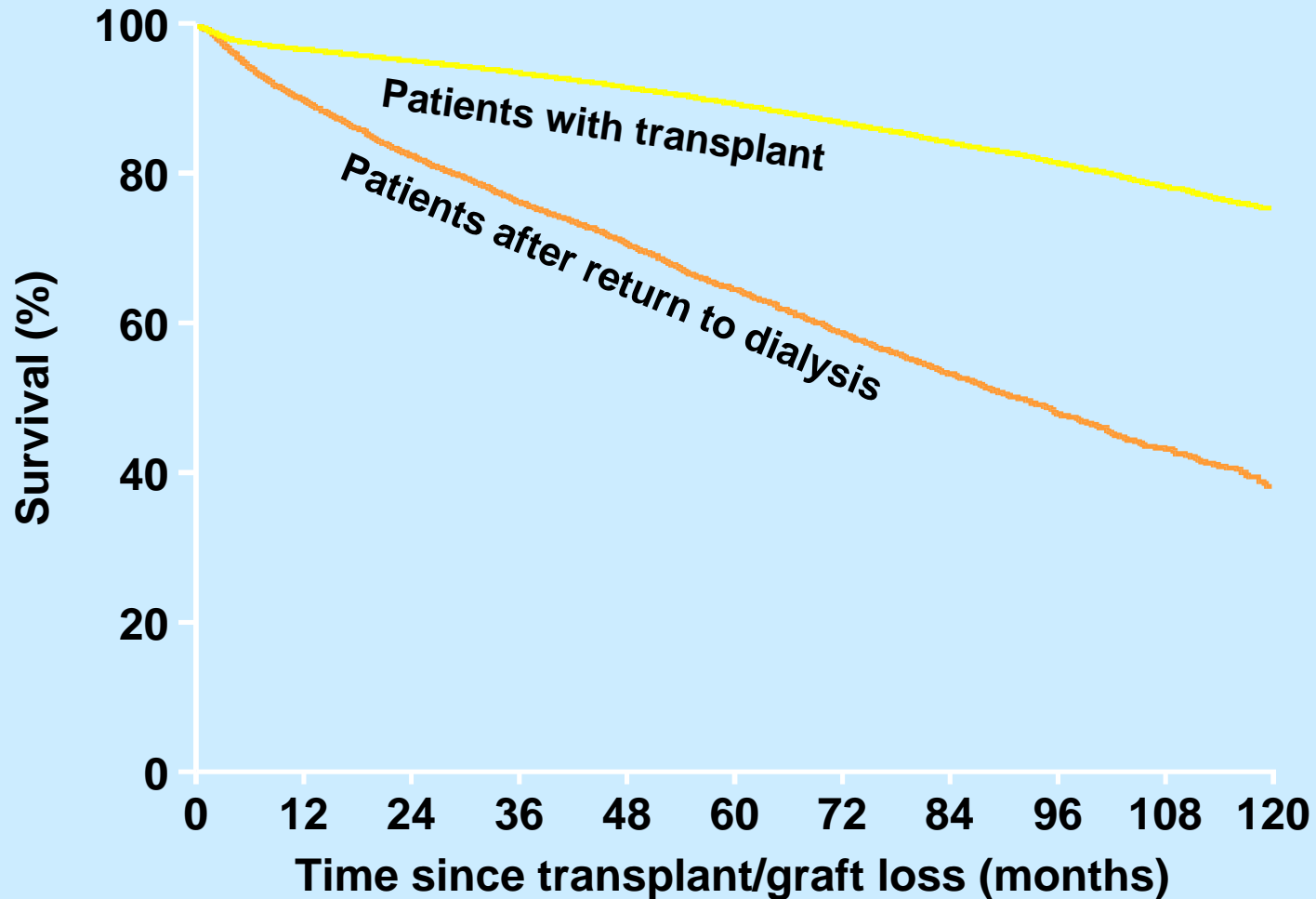
# Living donor graft survival



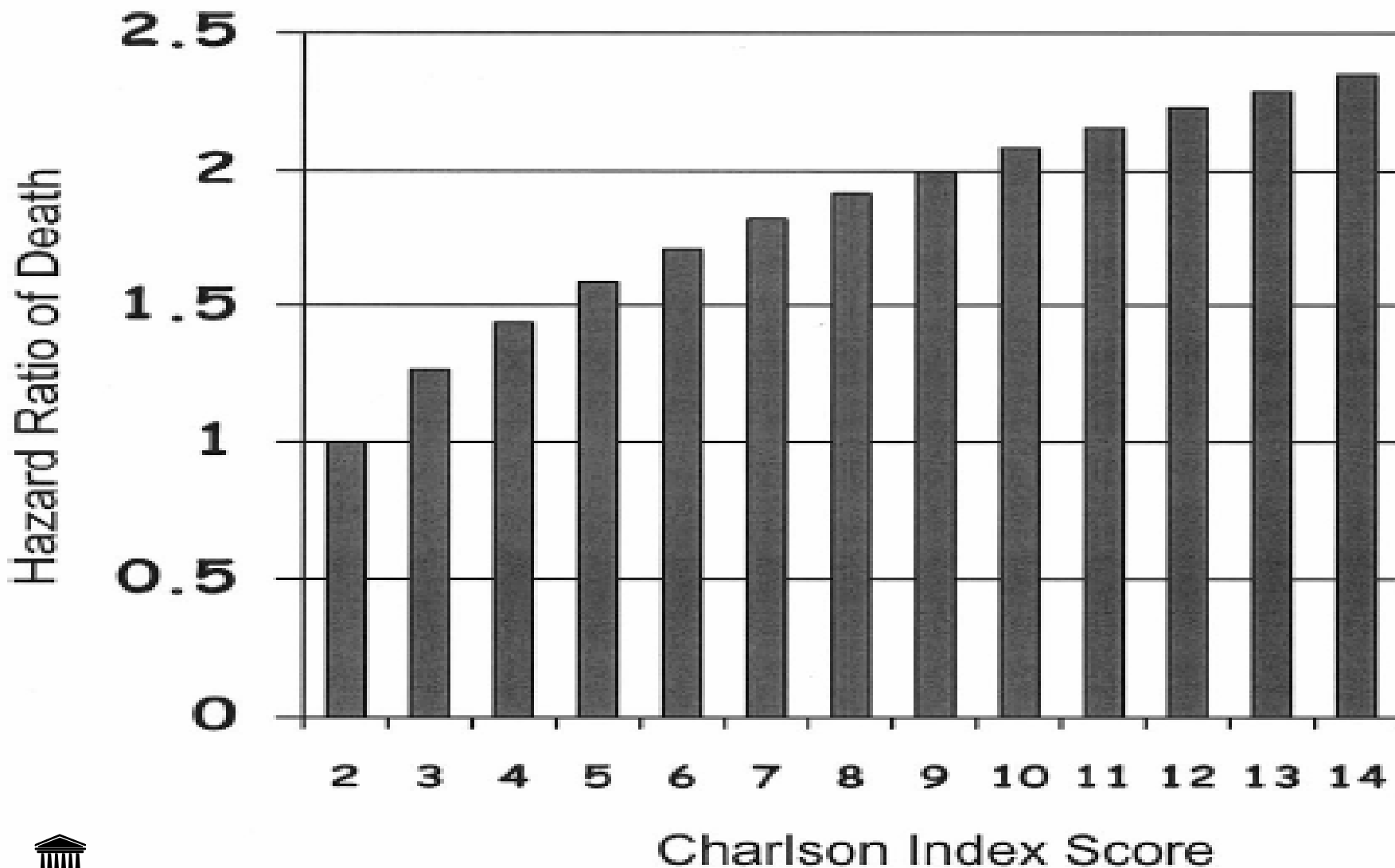
# Association between CV death and serum creatinine at 1 year post-transplant



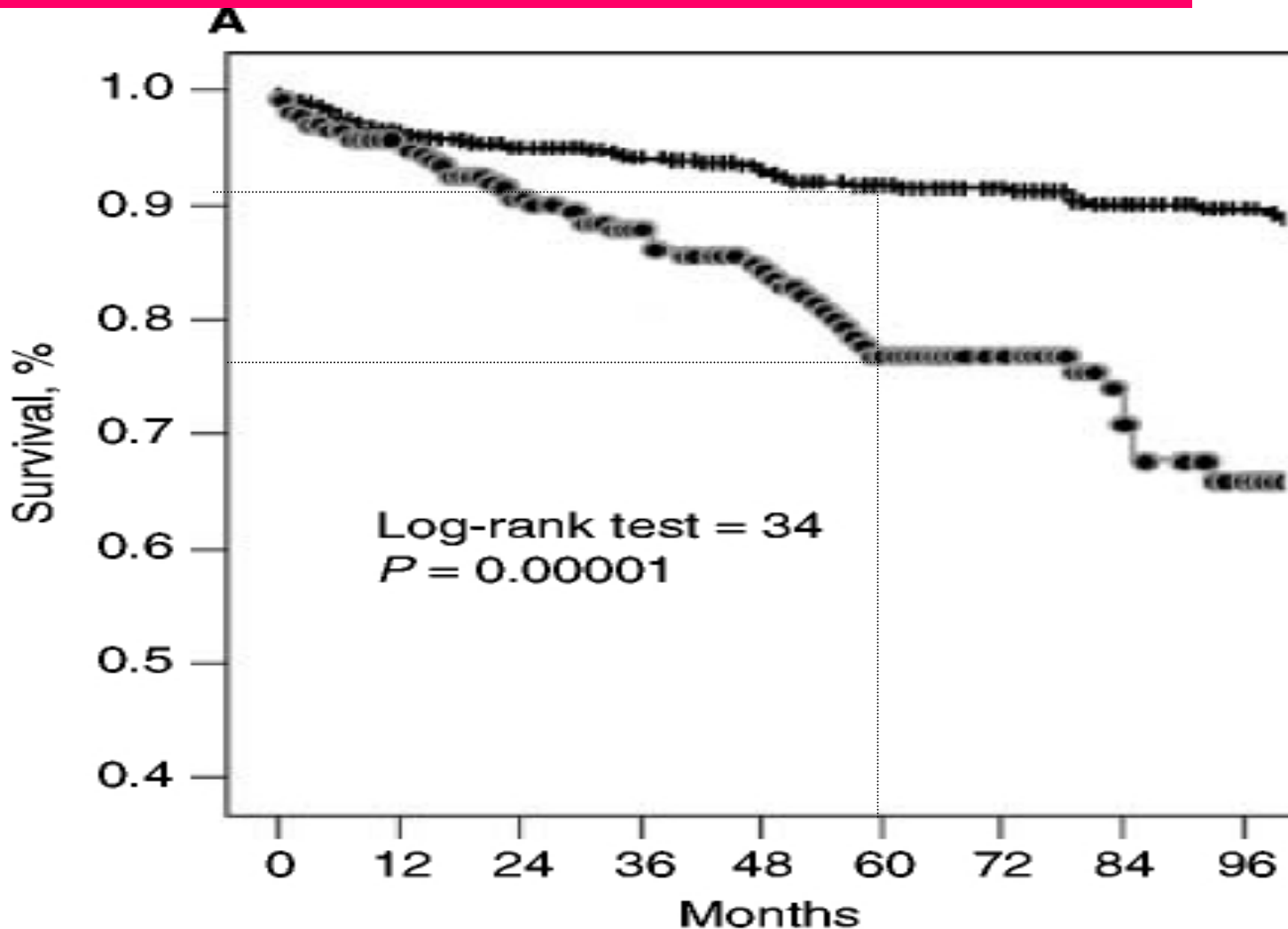
# Adjusted patient survival for patients with a transplant and for patients after transplant loss



# Comorbidity and outcome of transplantation



# Vascular disease and outcome after transplantation



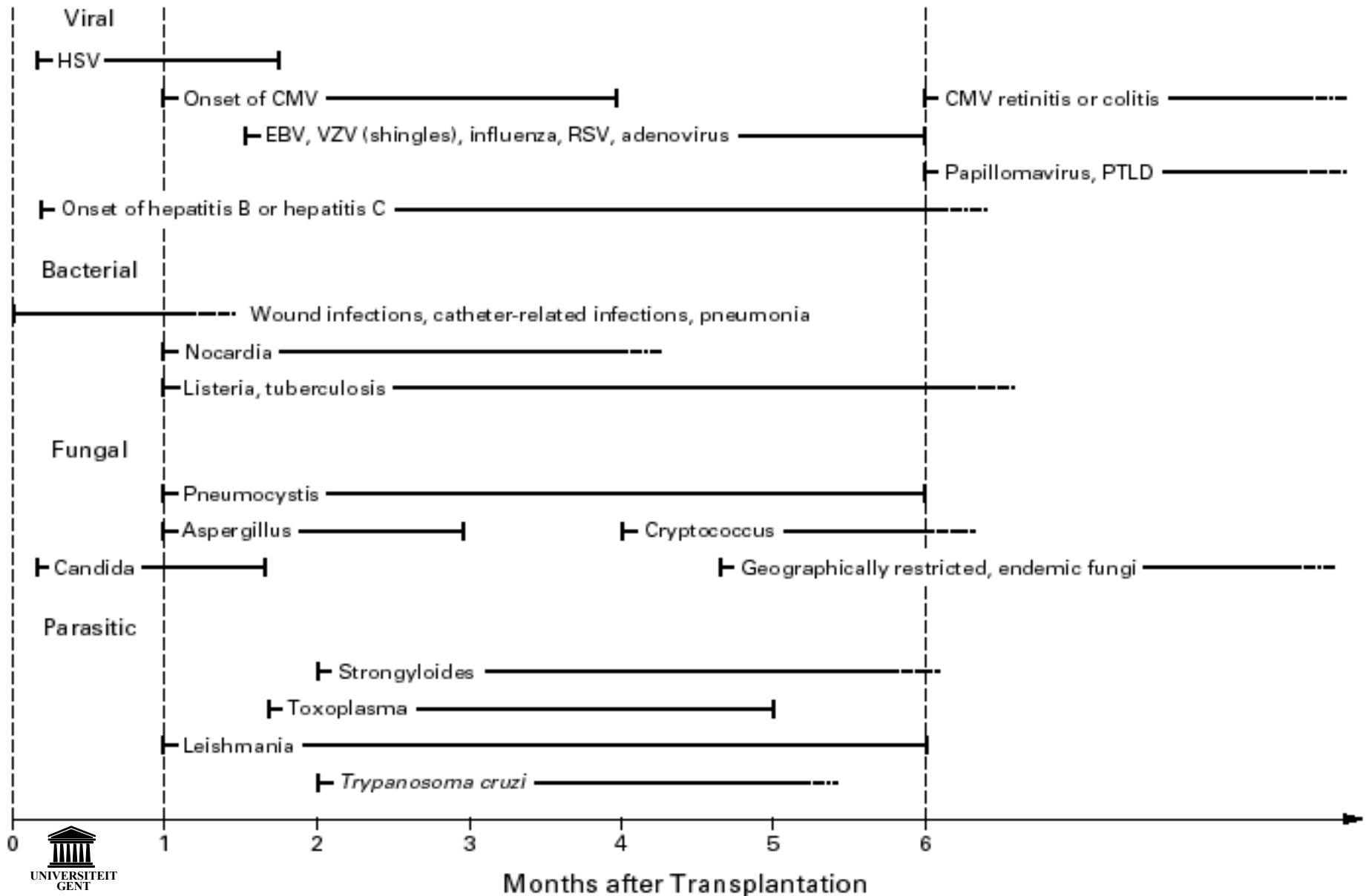
Number at risk

Patients without VC	676	571	499	444	381	337	284	234
Patients with VC	208	175	150	132	91	67	47	34

Conventional Nosocomial Infections

Unconventional or Opportunistic Infections

Community-Acquired or Persistent Infections



Immunologic factors

Poor HLA matching and previous sensitization

Delayed graft function

Episodes of acute rejection

Subacute and chronic alloimmune response

Noncompliance of patient

Suboptimal immunosuppression

Nonimmunologic factors

Older donor or poor graft quality

Brain-death injury, preservation injury, or ischemic injury

Acute peritransplantational injuries  
Delayed graft function

Hypertension

Hyperlipidemia

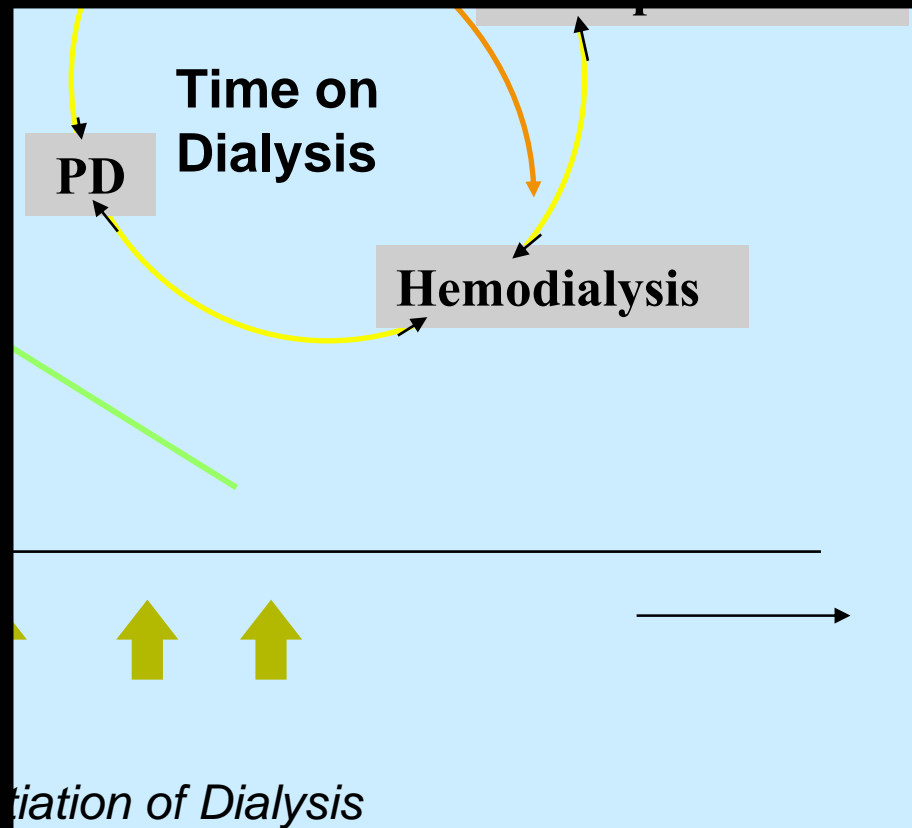
Chronic toxic effects of cyclosporine or tacrolimus

Chronic  
**IF/TA**

# TP-CKD

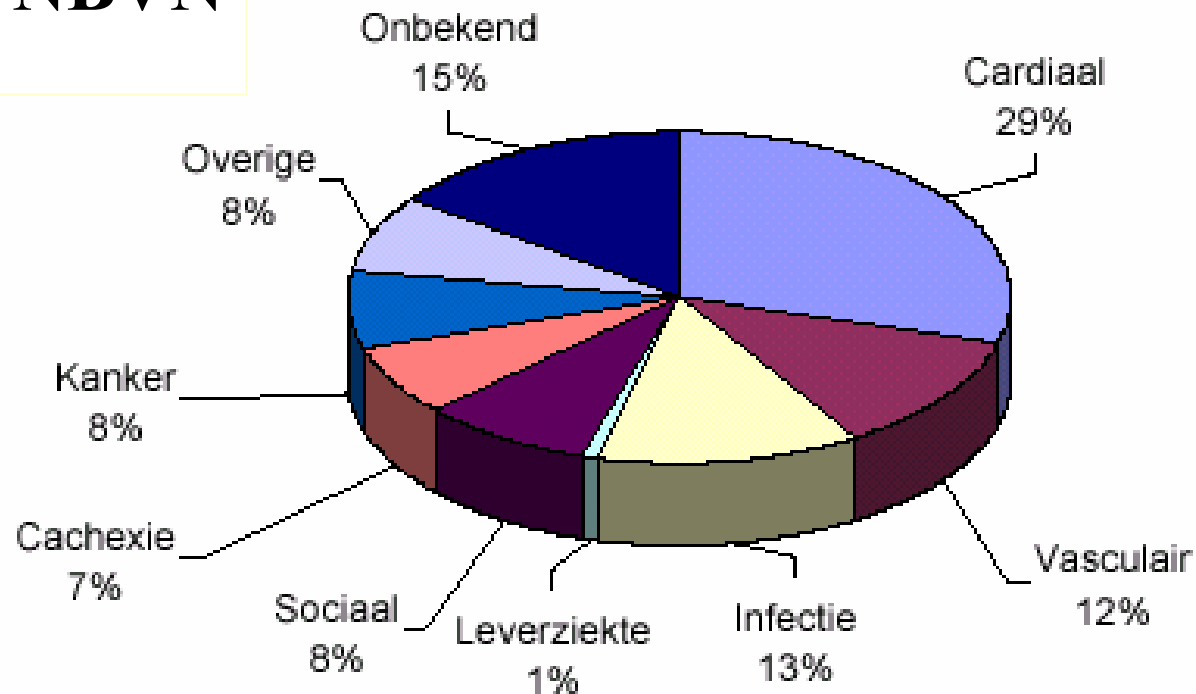
- Control BP
- Use CCB + ACEi liberally
- Control hyperlipidemia
- Control weight
- Control anaemia
- Smoking prevention
- Use Aspirin
- Worry about the bone
- Worry about compliance

# Integrated CKD Care



# Mortaliteit in Vlaanderen in RRT

**NBVN**



# top 10 van de comorbiede aandoeningen in Vlaanderen in CKD klasse 5

	%
hypertensie	71,6%
linkerventrikel hypertrofie	50%
inflammatoire status (CRP>1,5)	46,6%
hartfalen NYHA II-IV	36%
diabetes mellitus	32,4%
gastro-intestinale aandoeningen	25,2%
COPD	23,1%
ernstige hypoalbuminemie	23%
angina pectoris	22,8%
perifere vasculaire ziekte	21,5%



# Charlson score - leeftijd

	leeftijd bij aanvang RRT	aantal	Scores		
			Charlson	Charlson+leeftijd	
	15-24 jaar	1,69	2,47	2,47	
	25-34 jaar	1,60	2,66	2,66	
	35-44 jaar	1,97	2,93	2,93	
	45-54 jaar	2,78	3,52	4,15	
	55-64 jaar	3,67	3,99	5,54	
	65-74 jaar	4,43	4,48	7,05	
	75-84 jaar	4,51	4,43	7,86	
	85 en ouder	4,96	4,21	8,39	
	Totaal	4,00	4,14	6,50	

# Charlson score – RRT modus

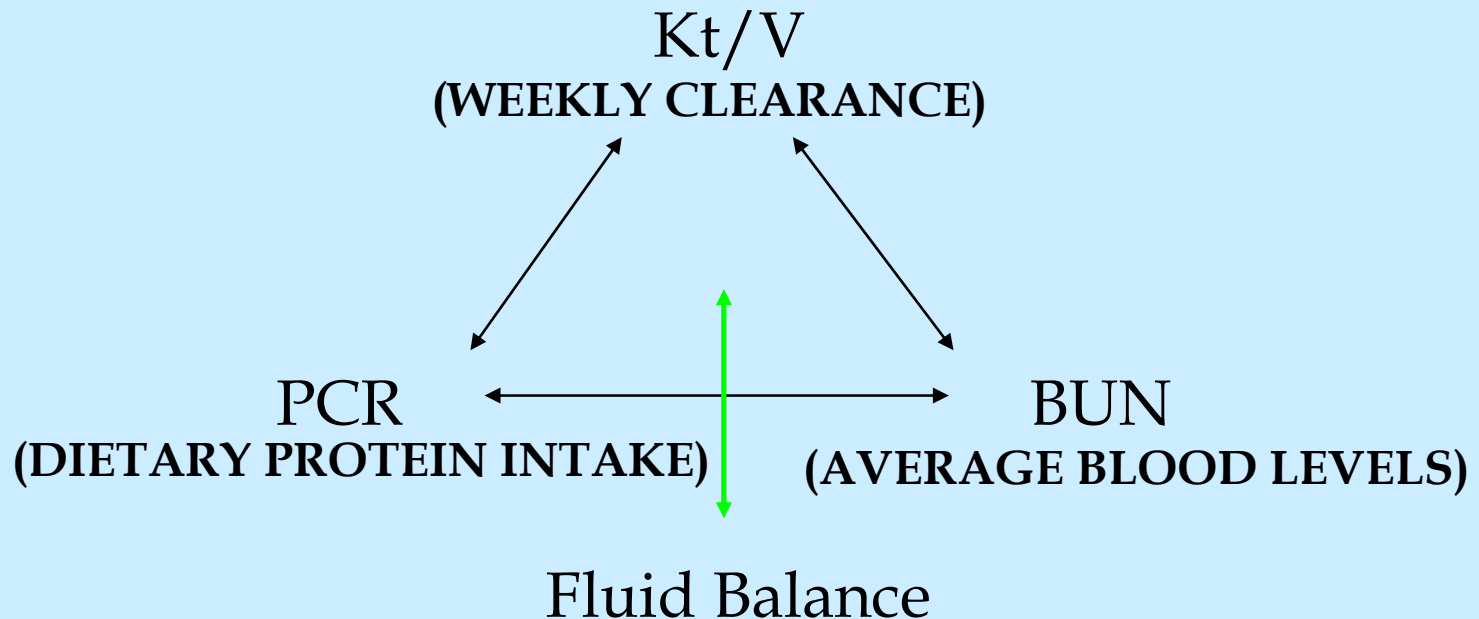
		<b>Scores</b>		
Geslacht	aantal	Charlson	Charlson+leeftijd	
Mannen	4,20	4,27	6,52	
Vrouwen	3,75	3,99	6,48	
<b>Totaal</b>	<b>4,00</b>	<b>4,14</b>	<b>6,50</b>	
		<b>Scores</b>		
1ste RRT	aantal	Charlson	Charlson+leeftijd	
HD	4,06	4,22	6,68	
CAD	4,28	4,20	6,53	
PD	3,11	3,48	5,07	
TX	3,00	3,80	4,60	
<b>Totaal</b>	<b>4,00</b>	<b>4,14</b>	<b>6,50</b>	

# Overlijden na 6 maanden

		Overleden binnen de 6 maanden			
niet gestorven binnen de 6 maand		1174	69,5%		
gestorven binnen de 6 maand		197	11,7%		
Totaal		1688	100,0%		
				Scores	
		aantal	Charlson	Charlson+leeftijd	
niet gestorven binnen de 6 maand		3,81	3,97	6,23	
gestorven binnen de 6 maand		5,31	5,15	8,20	
Totaal		4,00	4,14	6,50	

# Treatment Targets

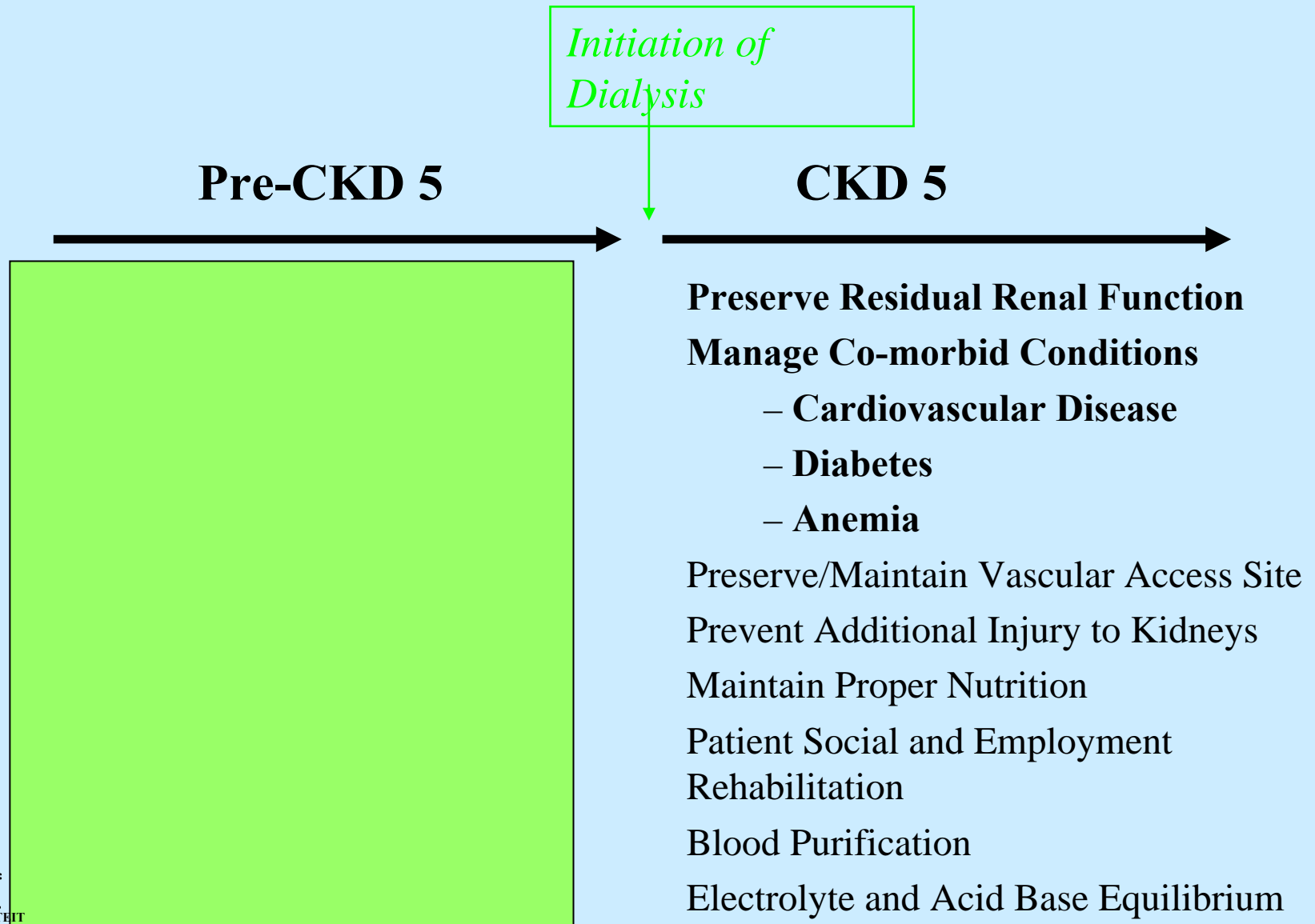
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Adapted from Ronco C, *Nephrol Dial Transplant*, 1997

# Goals Before and Following Initiation of Dialysis

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- Alternative dialysis strategies like daily and/or nocturnal dialysis give also very good outcomes**
- Current dialysis strategies are not always optimal**

<b>Guideline Recommendation :</b>	<b>Evidence:</b>	<b>Notes:</b>
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**CARI-Australia**

**CSN-Canada**

**EBPG-Europe 2002**

- LDL-cholesterol <100 mg/dL (2.6 mmol/L)
- Triglycerides < 180 mg/dl (2.0 mmol/L)
- Non-HDL cholesterol < 130 mg/dl (3.36 mmol/l)

**Guideline VII.2.6.,** p 5 of 8 website pdf pages  
**Guideline VII.2.6.,** p 5 of 8 website pdf pages  
**Guideline VII.2.9.,** p 7 of 8 website pfd pages

- Evidence level C  
 Evidence level C  
 Evidence level C
- Blood collections in fasting state
  - Measurements every 6 weeks during initiation intervention
  - Measurements every 4-6 months in steady state
  - Not after surgery or during acute conditions

**KDOQI-US 2003**

- LDL-cholesterol <100 mg/dl (2.6 mmol/L)
- Triglycerides < 200 mg/dl (2.26 mmol/L)
- Non-HDL cholesterol < 130 mg/dl (3.36 mmol/l)

**Guideline 4.2.**  
**Guideline 4.3.**  
**Guideline 4.3.**

**UK-Guidelines 2002**

- Total cholesterol < 195 mg/dl (5 mmol/L) or 30% reduction from baseline
- Total cholesterol < 195 mg/dl (5 mmol/L) or 30% reduction from baseline, or LDL-cholesterol < 115 mg/dl (3 mmol/L)

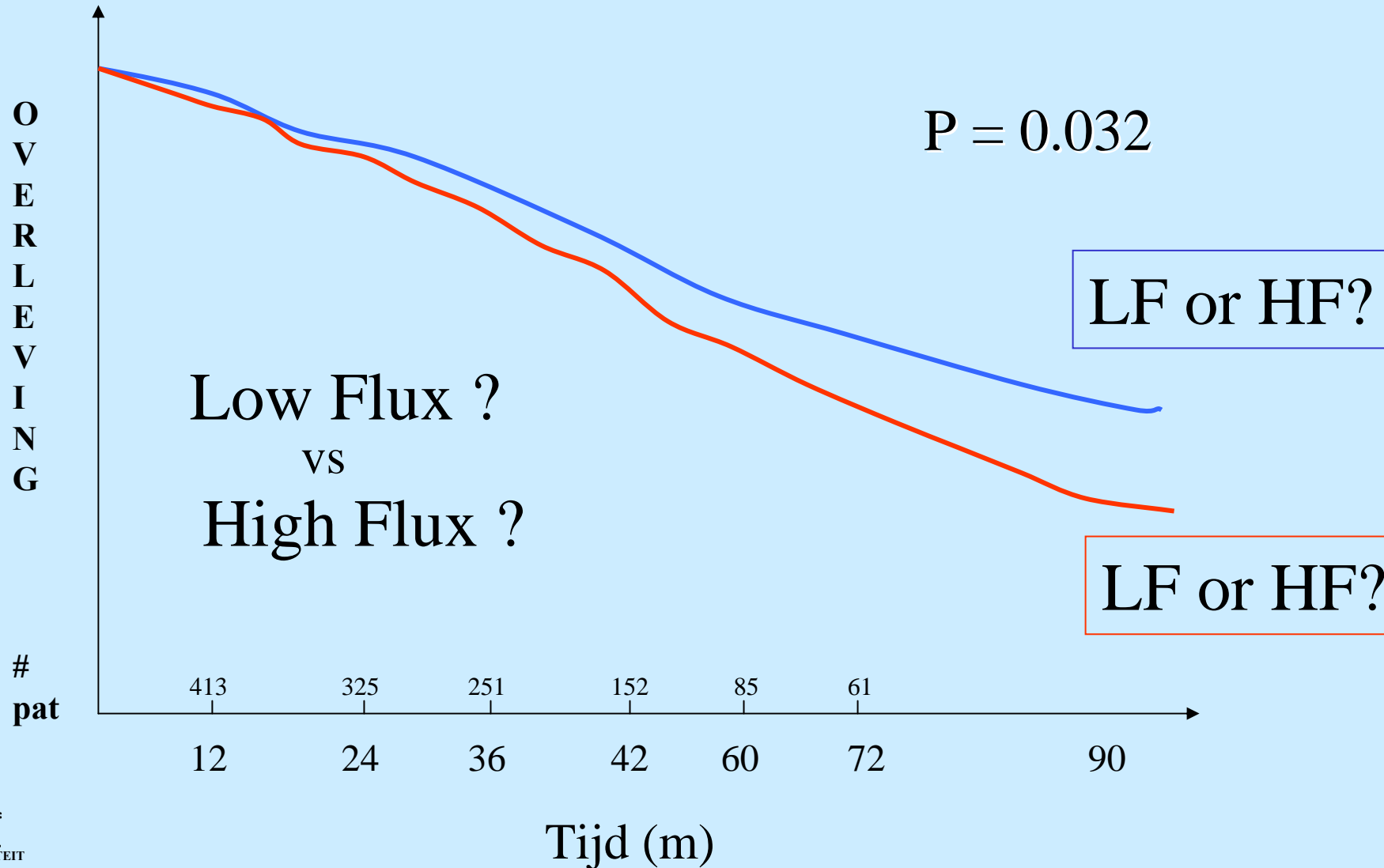
See "Primary prevention of atherosclerotic cardiovascular disease". **Proper guideline and rationale on p 111 of 204 website pdf pages**

See "Secondary prevention of atherosclerotic cardiovascular disease". **Proper guideline and rationale on p 162 of 204 website pdf-pages**

Evidence level C

# MPO

S albumine  $\leq 4$  g/dl



# CONCLUSIE

“the nephrologist is the only specialist who treats more the other organs than its own - the kidney”

# CONCLUSIE

R/

1.XXXXXX.XY.**580**

