Υπέρταση και Νεφροί: Οι βλάβες, η διάγνωση, η θεραπεία

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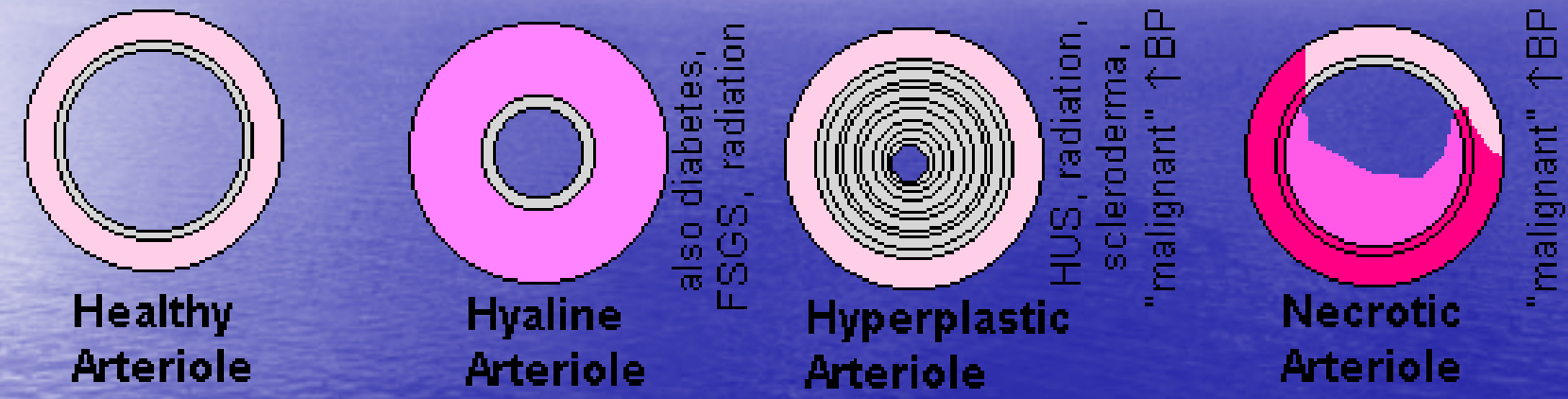
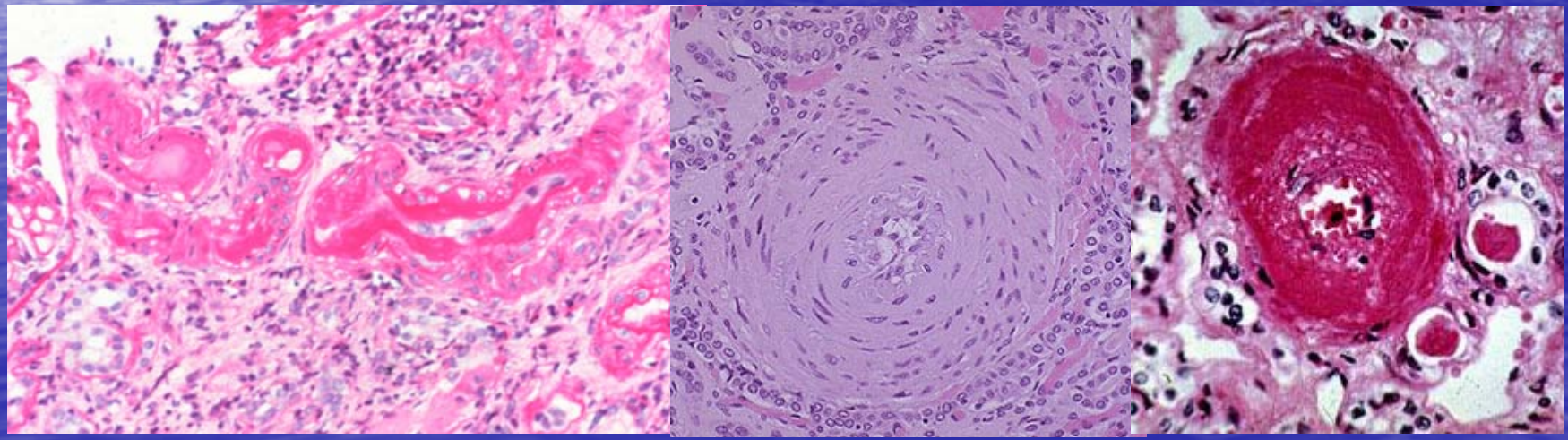
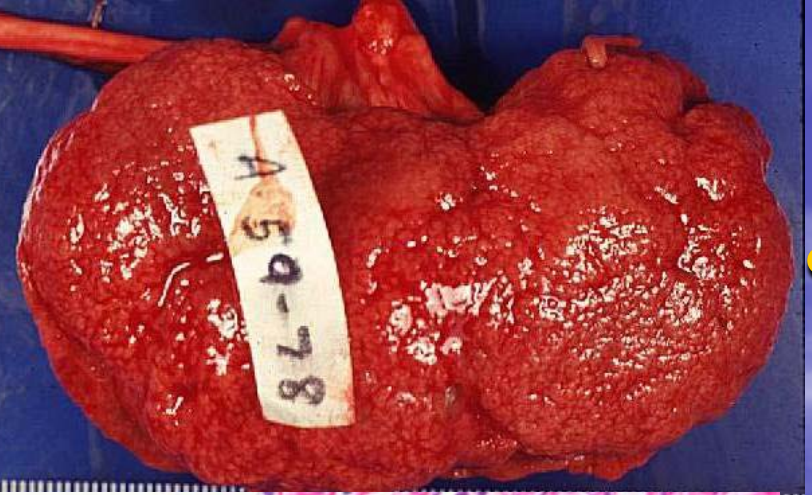
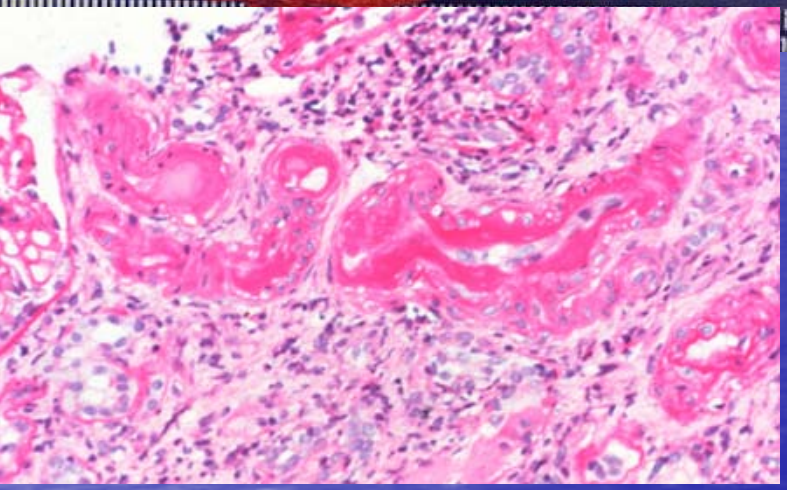
Αγγεία και Υπέρταση







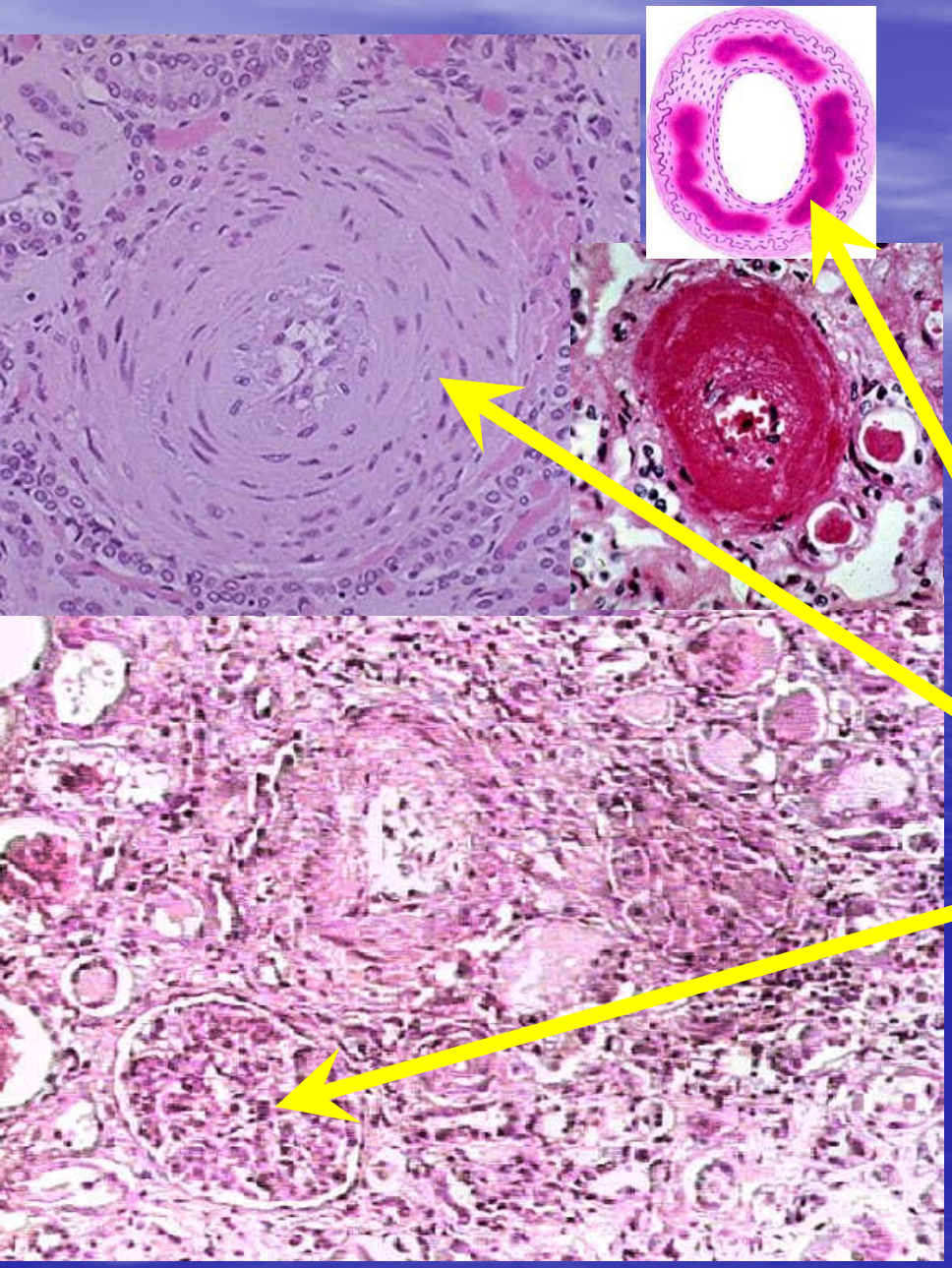


Characterized histologically by arteriolar hyalinosis caused by insudation of plasma proteins and medial thickening caused by both hypertrophy and hyperplasia of vascular smooth muscle cells (periodic acid-Schiff stain, ×200).

Characteristics of benign nephrosclerosis

- Renal dysfunction probably due to compensatory glomerular hyperfiltration
- Increase glomerular pressure is associated with proteinuria
- Hyperfiltration of certain glomeruli tends to induce sclerosis
- Renal impairment progresses slowly; after 10 yr, only 1 to 2% of pts develop renal dysfunction.

Renal manifestation of malignant hypertension



- Renal failure within days-weeks; Treatment: typically IV vasodilators e.g. nitroprusside sodium or nitroglycerin

- Three renal histological changes associated with malignant hypertension

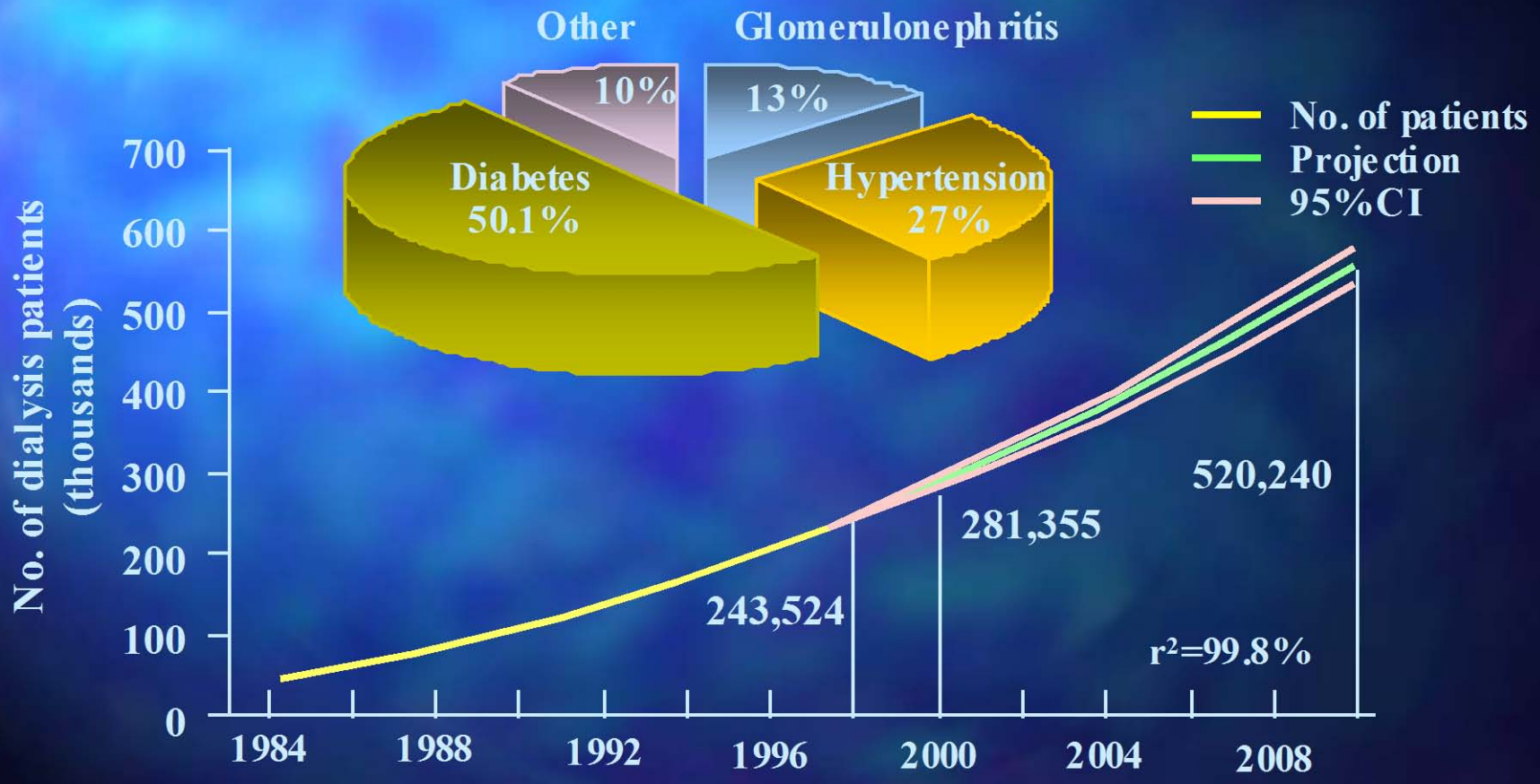
1) Arteriolar fibrinoid necrosis

2) Hyperplastic arteriosclerosis {arteriolar "onion-skinning"}

3) Glomerulitis in the hypercellular glomerulus

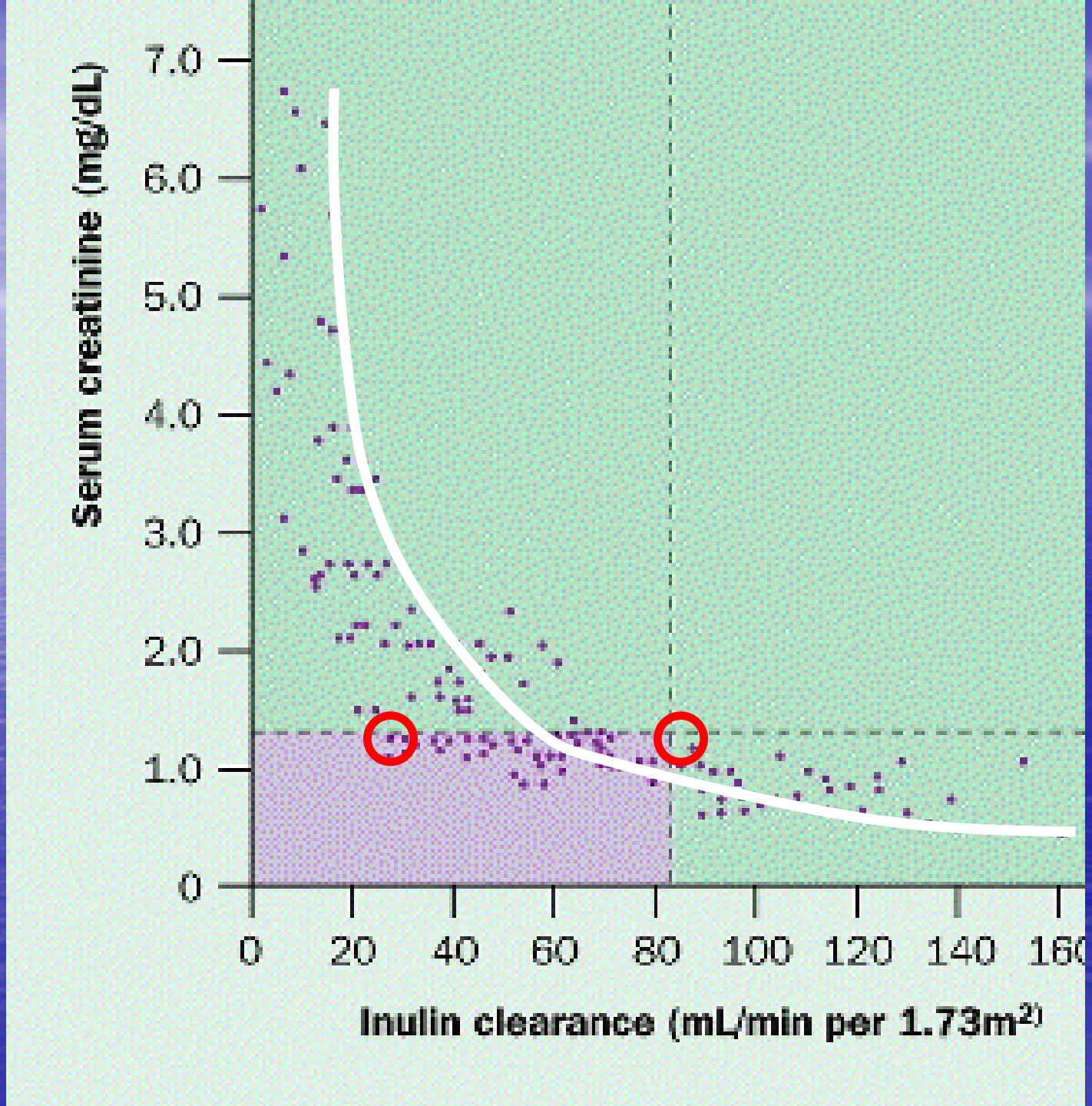
ΑΙΤΙΑ ΤΣΝΑ

Διάγνωση ασθενών που άρχισαν εξωνεφρική υποστήριξη



United States Renal Data System. Annual data report. 2000.

Υπέρταση και Νεφροί:
Οι βλάβες, **η διάγνωση**,
η θεραπεία


Serum creatinine (mg/dL)
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
0
20
40
60
80
100
120
140
160
Inulin clearance (mL/min per 1.73m2)

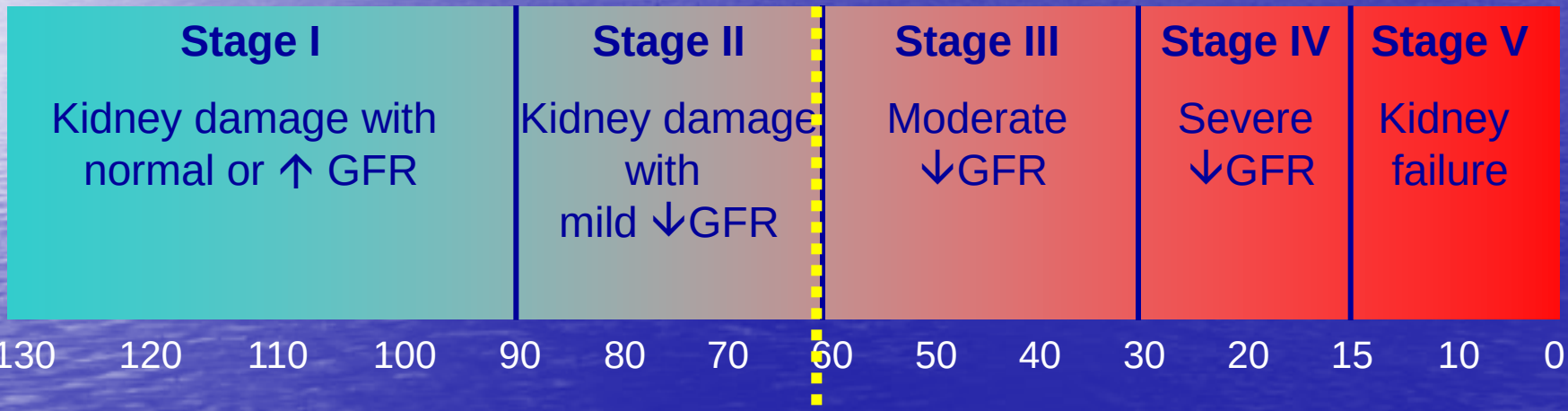
Υπολογισμός νεφρικής καθάρσεως (ml/min)

$$\frac{(140 - \text{ηλικία σε έτη}) \times (\text{Βάρος σε Kg})}{(72 \text{ ή } 85) \times (\text{Κρεα,mg\%})}$$

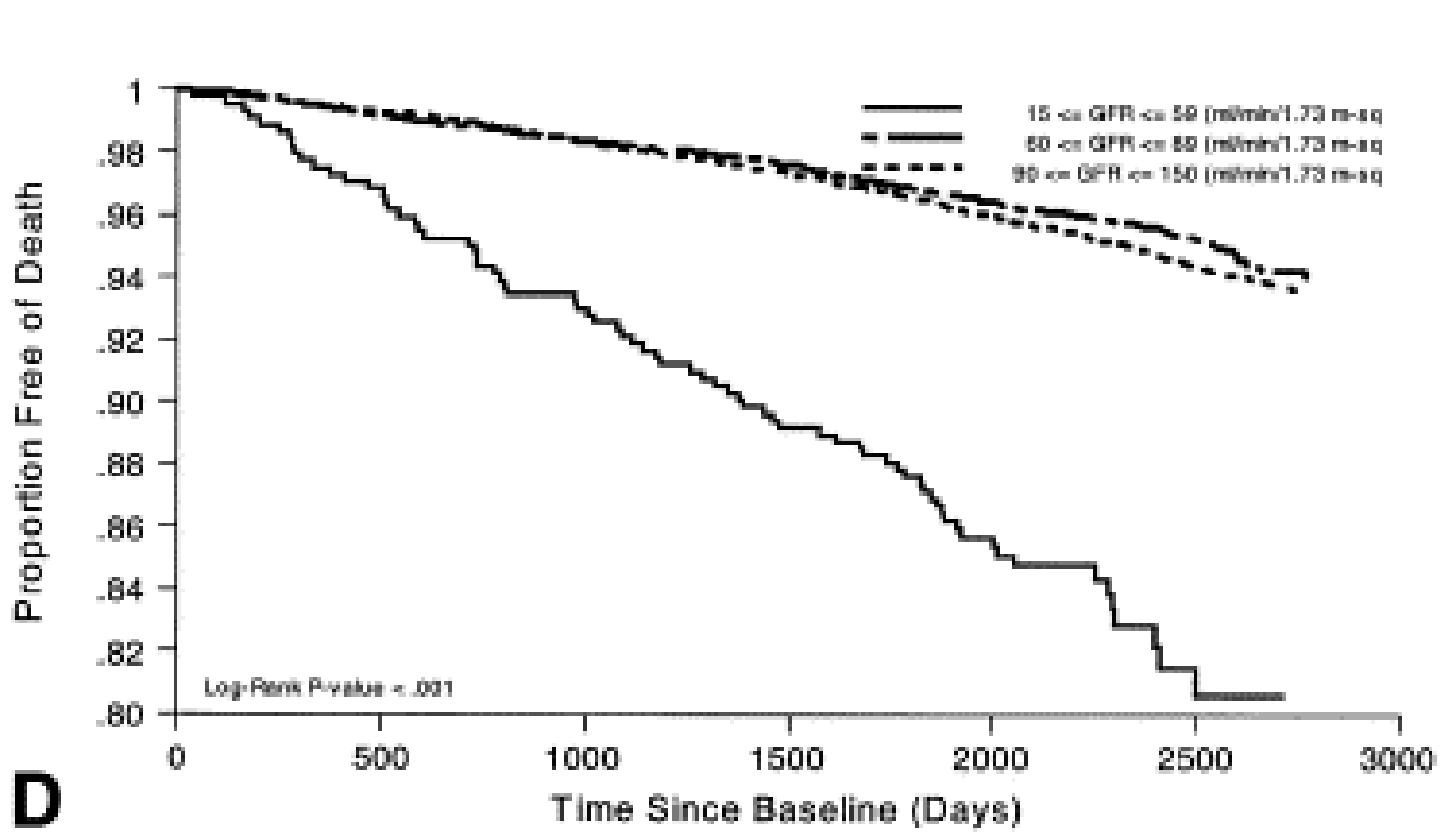
60 ml/min

Βλάβη

Νόσος

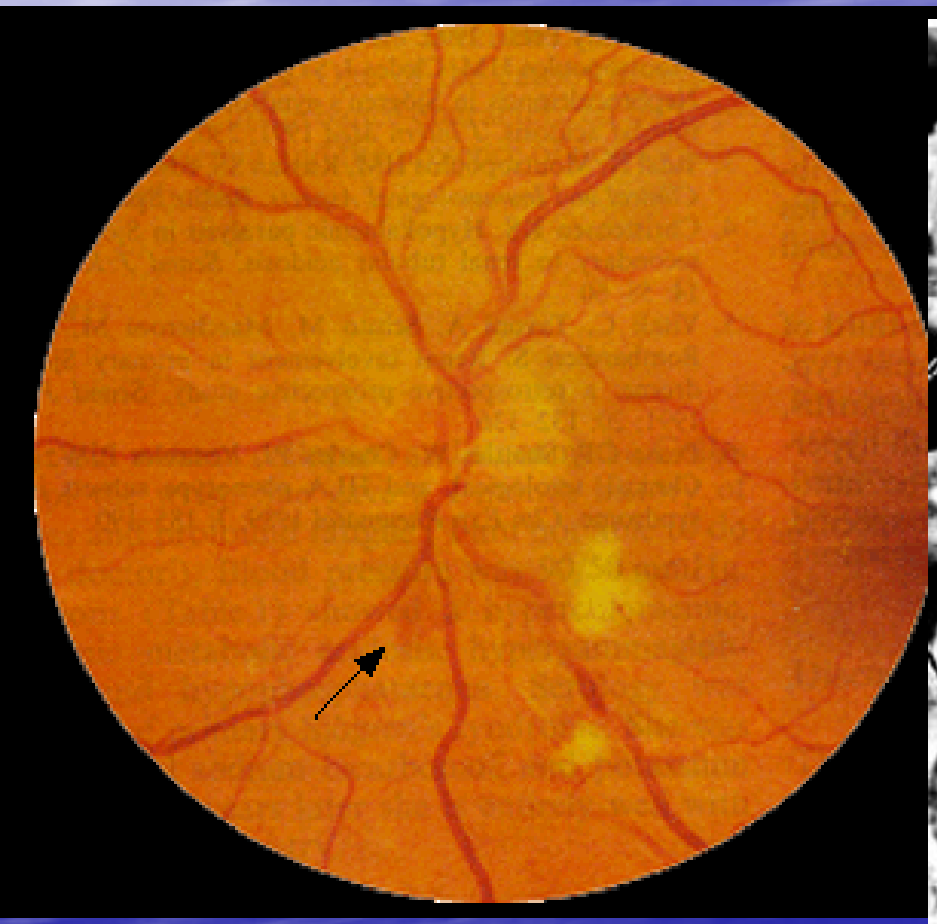


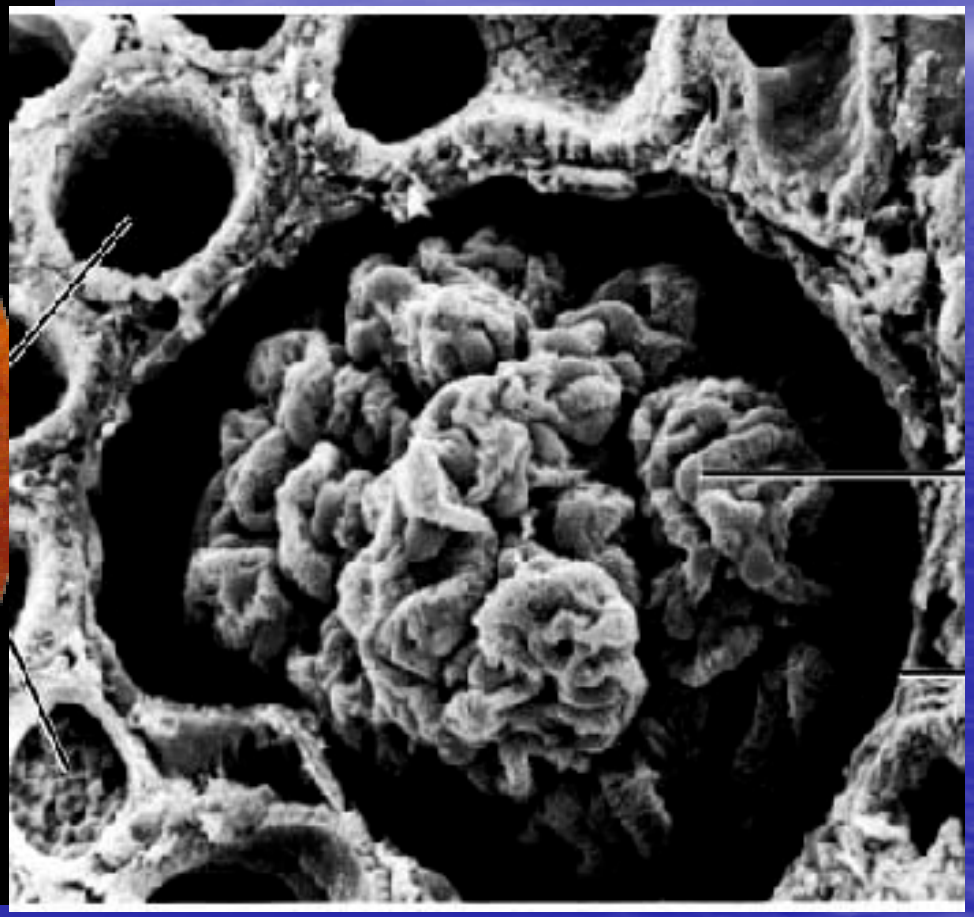
National Kidney Foundation. *Am J Kidney Dis* 2002; 39(2 Suppl 1):S1–S266



Ο βαθμός της νεφρικής βλάβης αποτελεί ανεξάρτητο παράγοντα κινδύνου για θάνατο από καρδιαγγειακή νόσο, JACC 2003

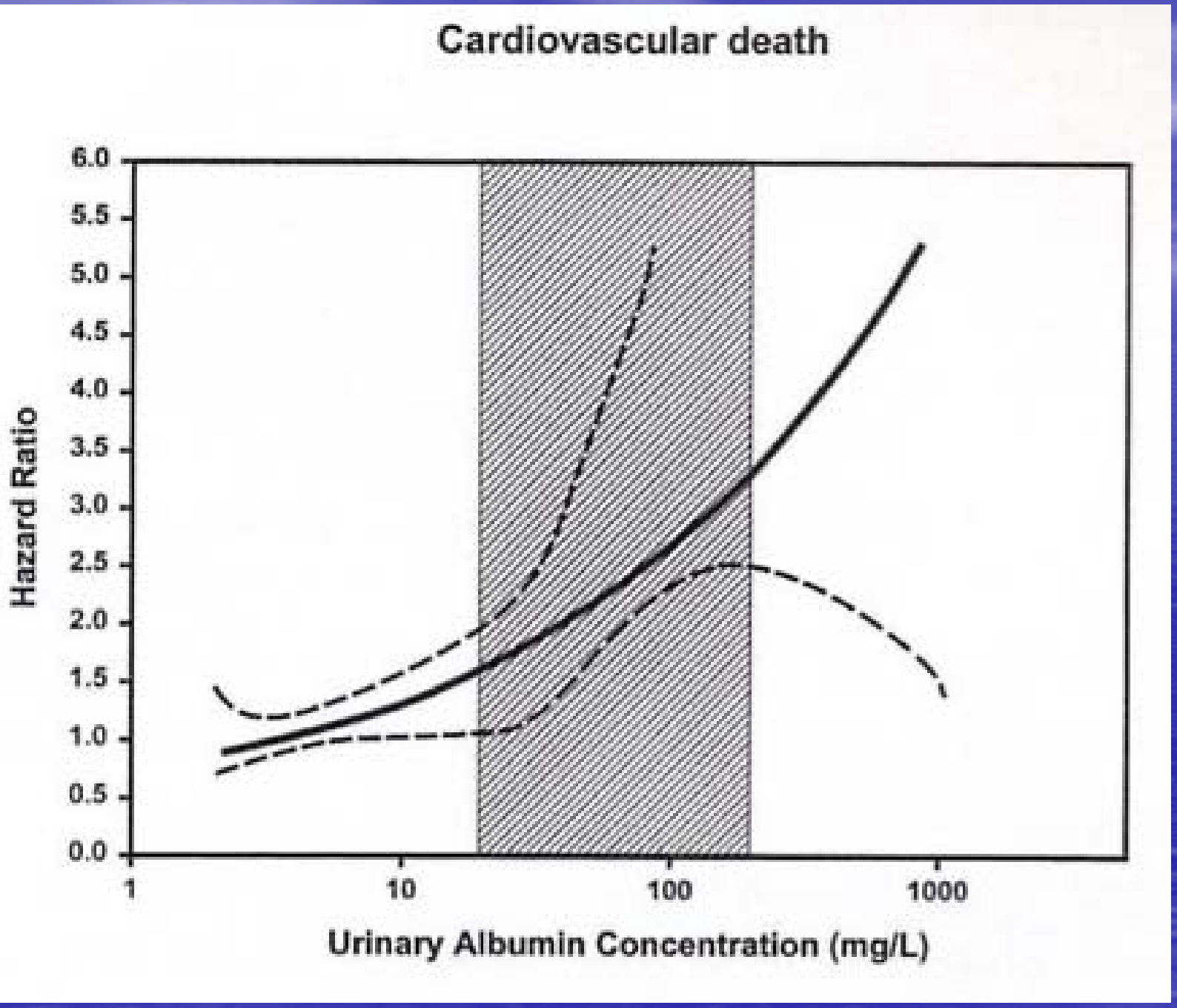
Μικροαγγειοπάθεια

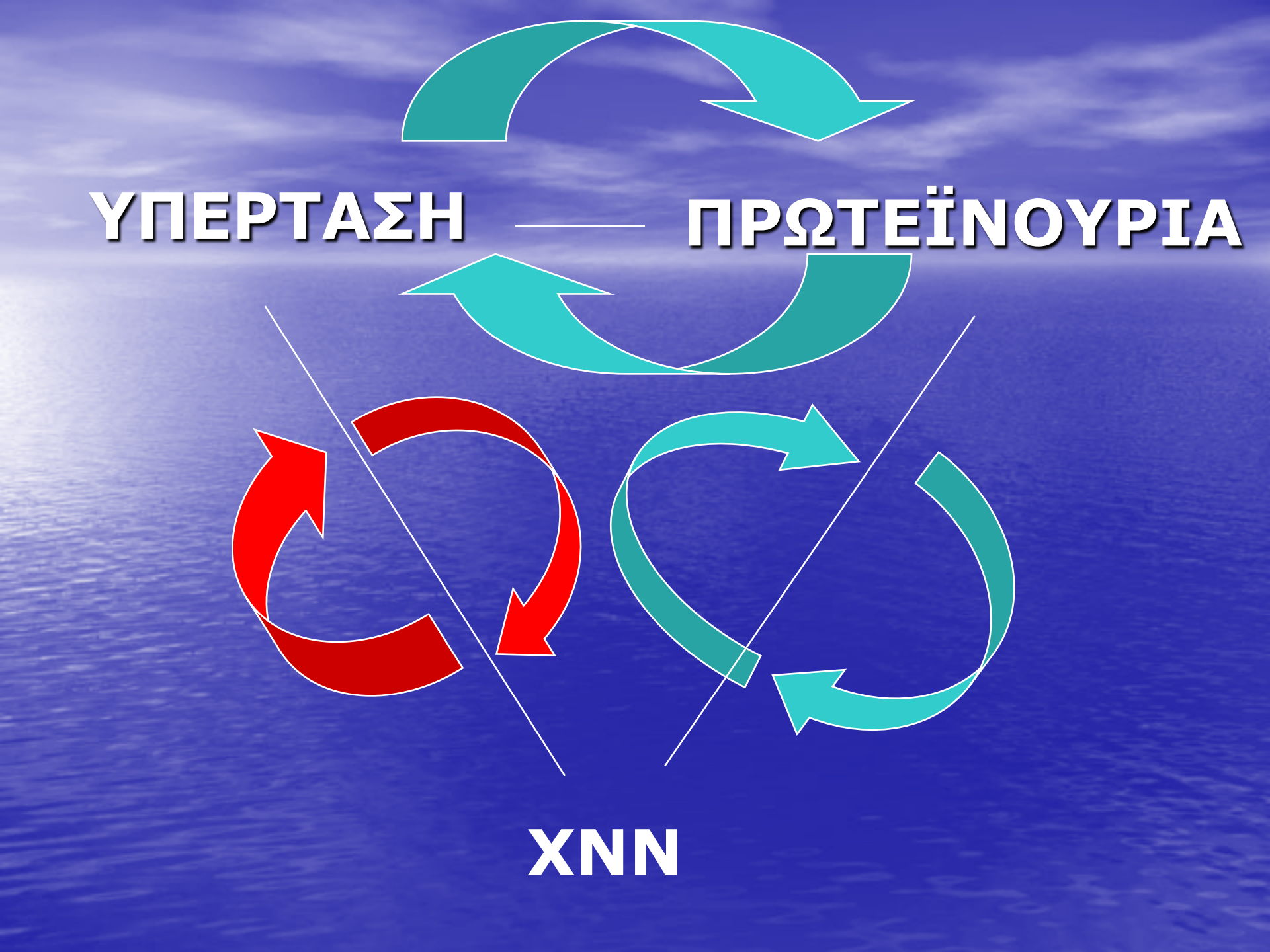




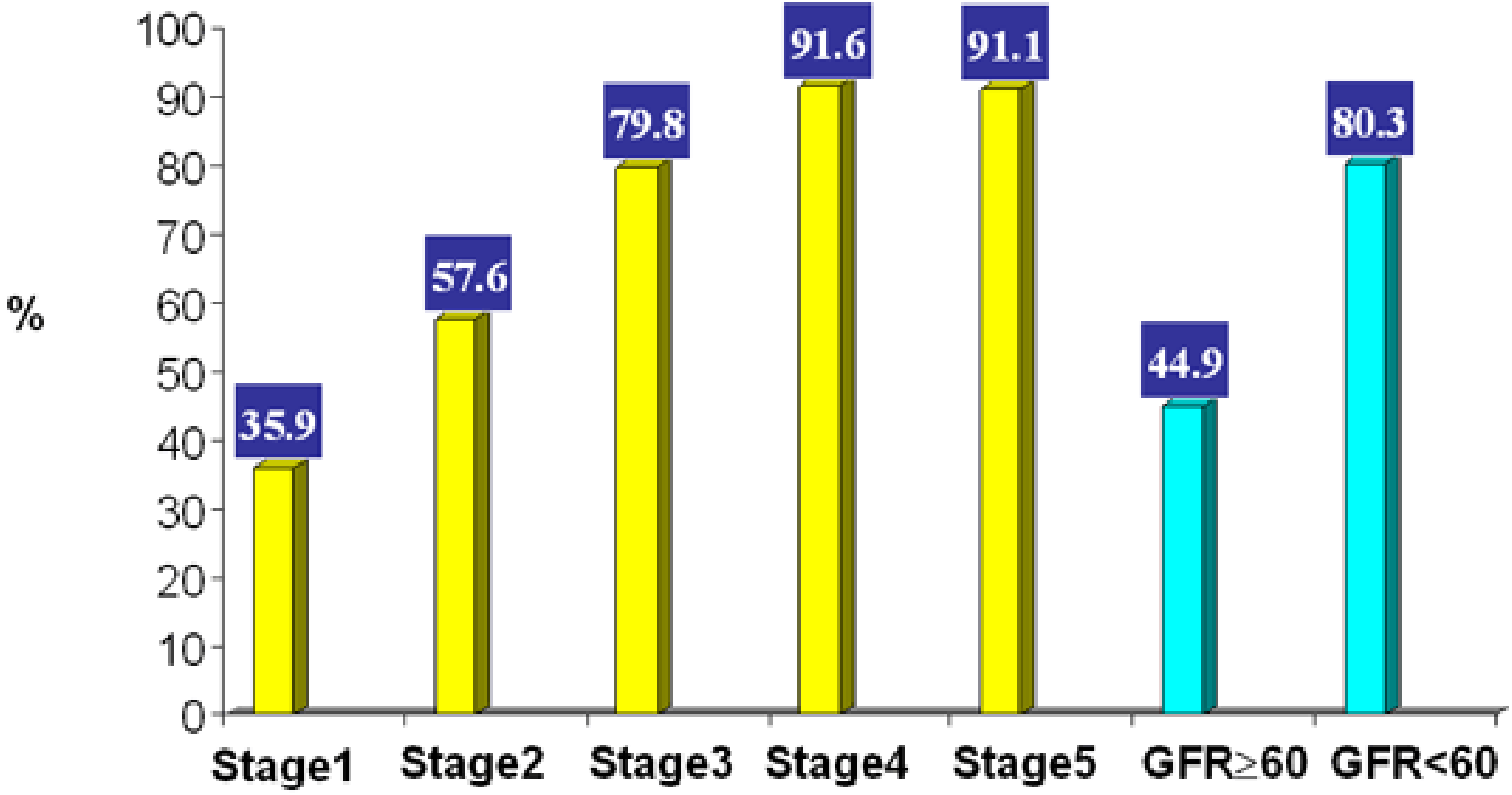
Parameter	Normal	Micro-albuminuria	Macro-albuminuria
Urine AER (µg/min)	< 20	20 - 200	>200
Urine AER (mg/24h)	< 30	30 - 300	>300
Urine albumin/ Cr# ratio (mg/gm)	< 30	30 - 300	>300

AER = Albumin excretion rate CR# = creatinine

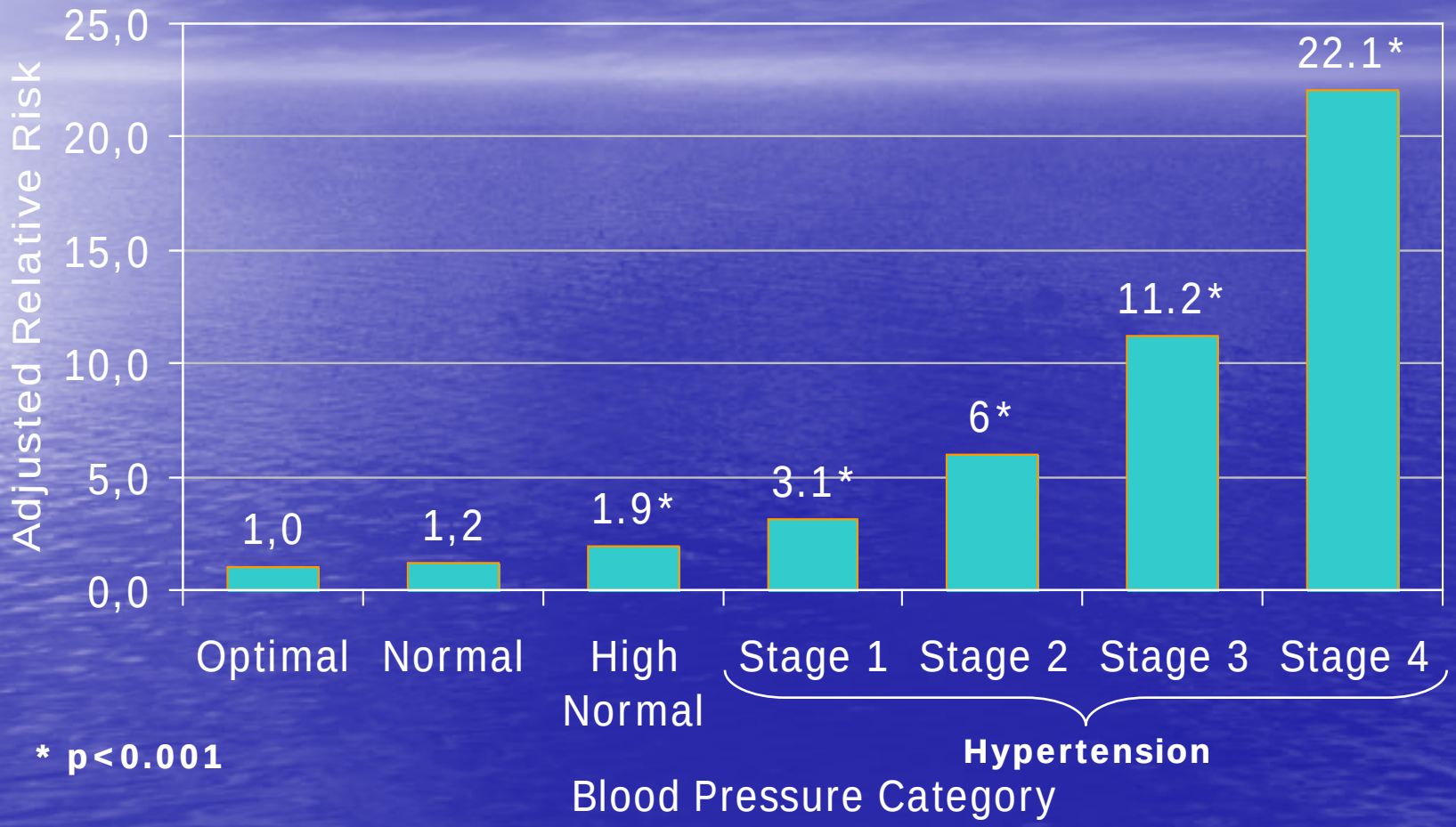

Cardiovascular death
Hazard Ratio
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1
10
100
1000
Urinary Albumin Concentration (mg/L)


ΥΠΕΡΤΑΣΗ
ΠΡΩΤΕΪΝΟΥΡΙΑ
ΧΝΝ

Hypertension and CKD



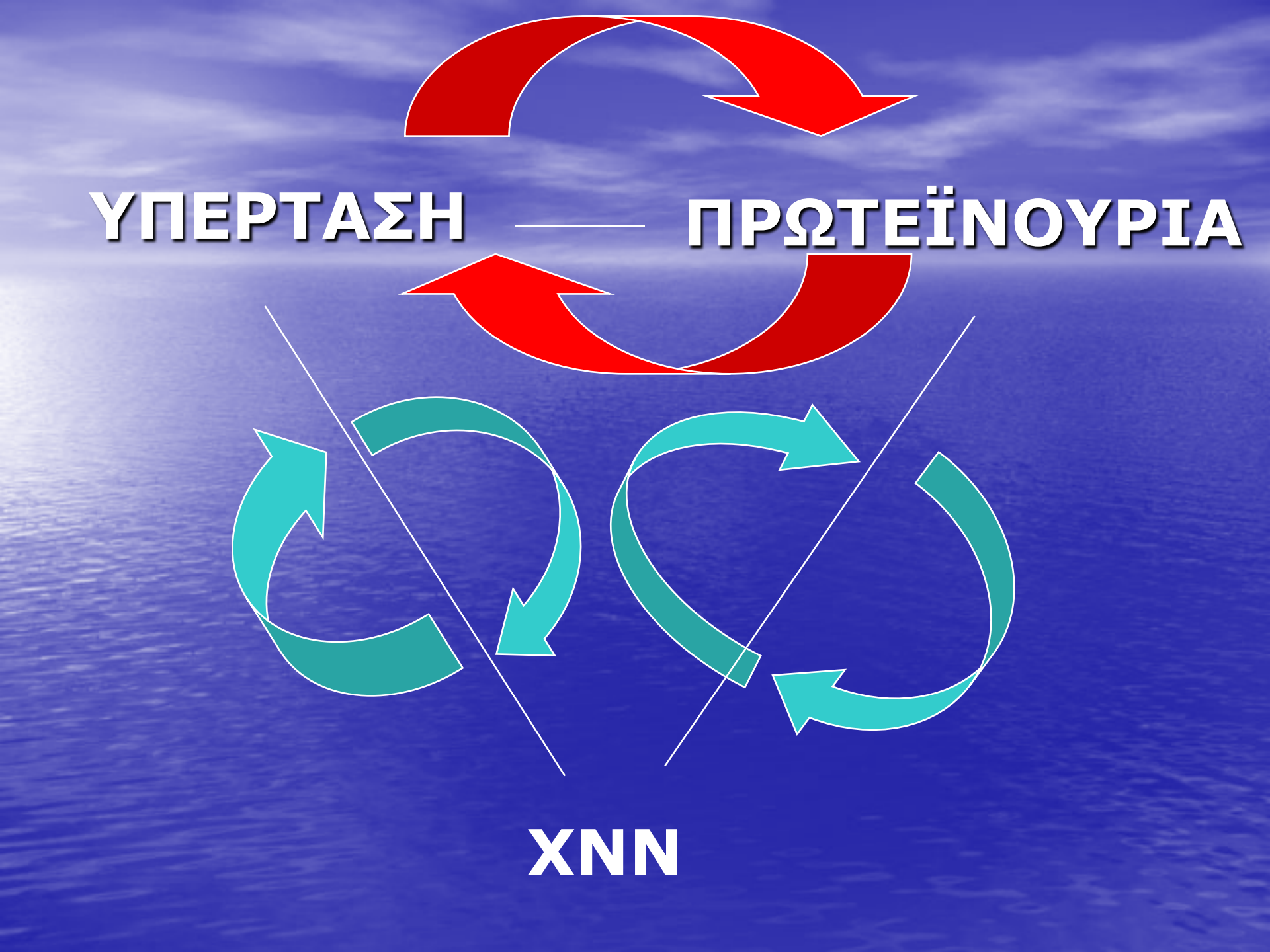
ESRD Due to Any Cause
In 332,544 Men Screened for MRFIT
Adjusted Relative Risk§



*** p<0.001**

§ Men with optimal blood pressure was the reference category.

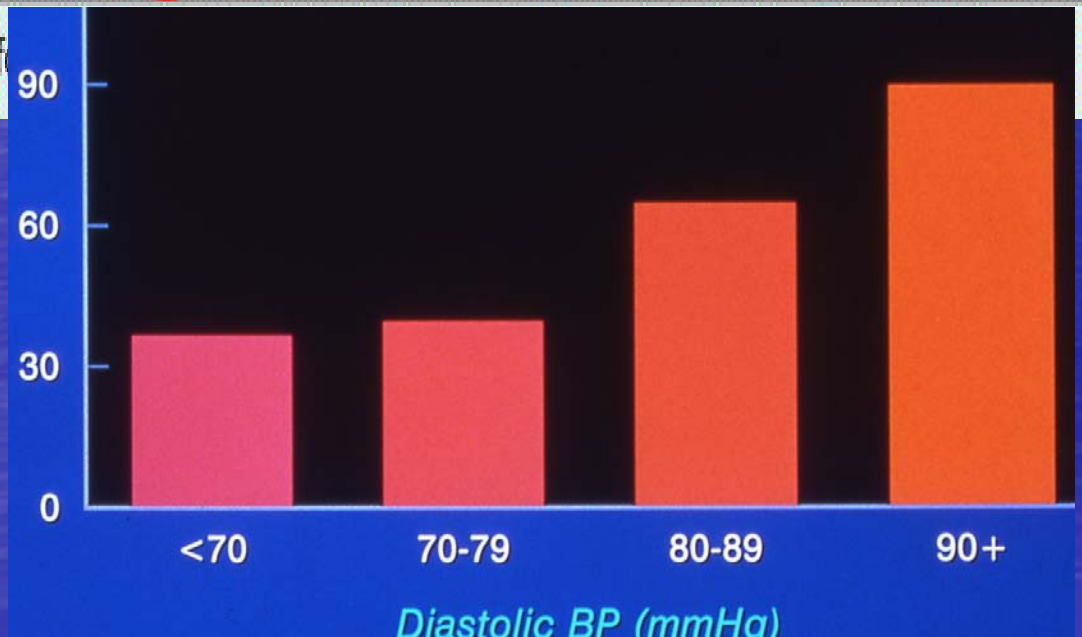
Klag MJ, et al. NEJM 1996;334:13-18.

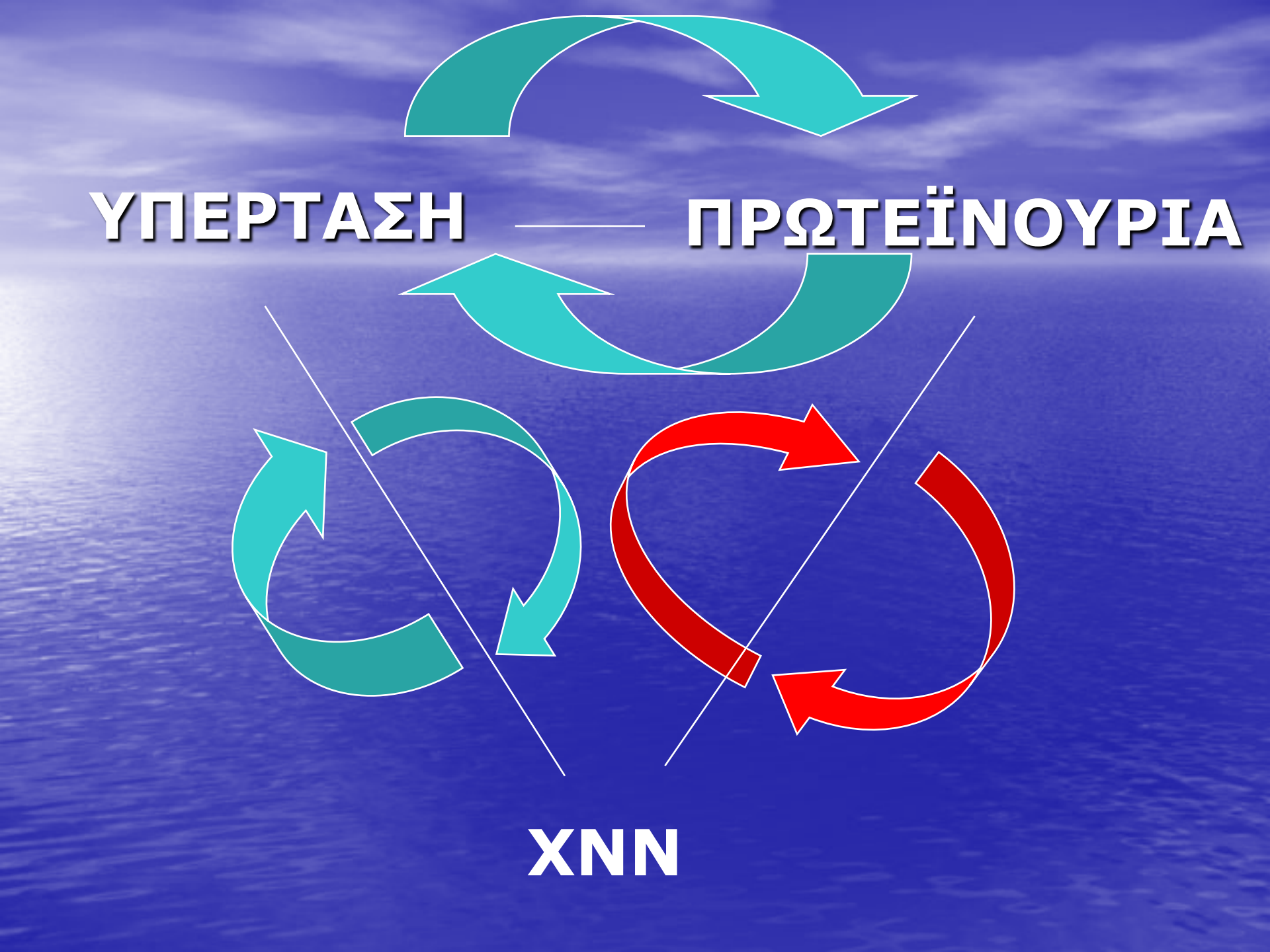

ΥΠΕΡΤΑΣΗ
ΠΡΩΤΕΪΝΟΥΡΙΑ
ΧΝΝ

Albuminuria in type 1 diabetics and the development of hypertension, retinopathy, and neuropathy

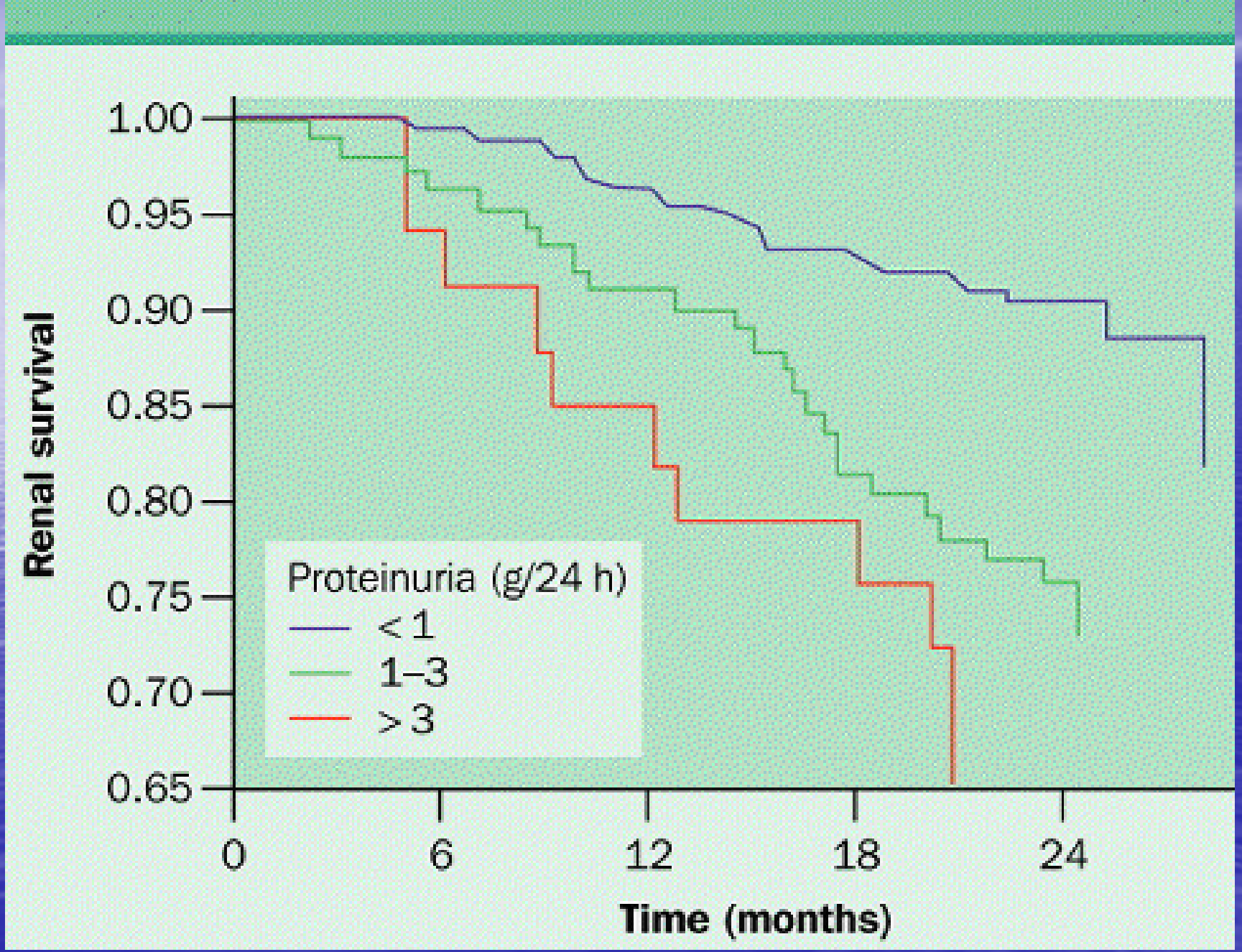
Urine albumin excretion status	Prevalence of hypertension (>140/90 mmHg) (%)	Prevalence of proliferative retinopathy(%)[a]	Prevalence of diabetes-related blindness(%)	Prevalence neuropathy
Normoalbuminuria	20	12	1	21
Microalbuminuria	40	28	6	31
Macroalbuminuria	80	58	11	50

[a] Background retinopathy is f




ΥΠΕΡΤΑΣΗ
ΠΡΩΤΕΪΝΟΥΡΙΑ
ΧΝΝ

Renal survival and level of proteinuria



Υπέρταση και Νεφροί:
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η θεραπεία

2003 European Society of Hypertension–European Society of Cardiology guidelines for the management of arterial hypertension*

Guidelines Committee**

Journal of Hypertension 2003, **21**:1011–1053

Other risk factors and disease history	Blood pressure (mmHg)				
	Normal SBP 120–129 or DBP 80–84	High normal SBP 130–139 or DBP 85–89	Grade 1 SBP 140–159 or DBP 90–99	Grade 2 SBP 160–179 or DBP 100–109	Grade 3 SBP ⩾ 180 or DBP ⩾ 110
No other risk factors	Average risk	Average risk	Low added risk	Moderate added risk	High added risk
1–2 risk factors	Low added risk	Low added risk	Moderate added risk	Moderate added risk	Very high added risk
3 or more risk factors or TOD or diabetes	Moderate added risk	High added risk	High added risk	High added risk	Very high added risk
ACC	High added risk	Very high added risk	Very high added risk	Very high added risk	Very high added risk

ACC, associated clinical conditions; TOD, target organ damage; SBP, systolic blood pressure; DBP, diastolic blood pressure.

Target organ damage (TOD)

- Left ventricular hypertrophy (electrocardiogram: Sokolow–Lyons >38 mm; Cornell >2440 mm*ms; echocardiogram: LVMI M ⩾ 125, W ⩾ 110 g/m^2)
- Ultrasound evidence of arterial wall thickening (carotid IMT ⩾ 0.9 mm) or atherosclerotic plaque

GFR 60-90 ml/min

- Slight increase in serum creatinine (M 115–133, W 107– 124 μmol/l; M 1.3–1.5, W 1.2–1.4 mg/dl)
- Microalbuminuria (30–300 mg/24 h; albumin–creatinine ratio M ⩾ 22, W ⩾31 mg/g; M ⩾ 2.5, W ⩾ 3.5 mg/mmol)

ESH, 2003

Associated clinical conditions (ACC)

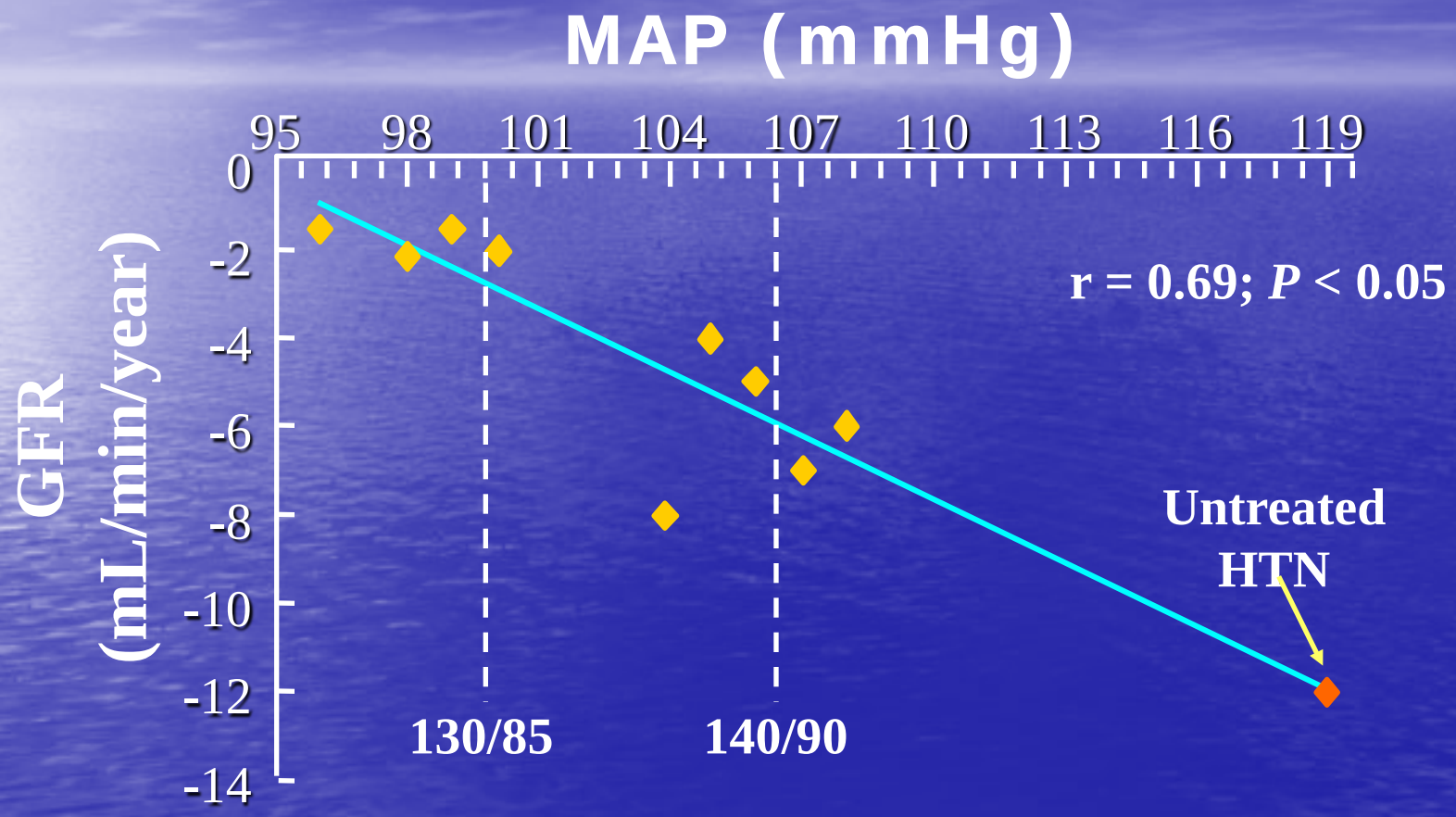
- Cerebrovascular disease:
  ischaemic stroke;
  cerebral haemorrhage;
  transient ischaemic attack
- Heart disease:
  myocardial infarction;
  angina;
  coronary revascularization;
  congestive heart failure
- Renal disease:
  diabetic nephropathy;
  renal impairment
  (serum creatinine M > 133, W >124 μmol/l;
  M >1.5, W > 1.4 mg/dl)
  proteinuria (>300 mg/24 h)

GFR < 60 ml/min

- Peripheral vascular disease
- Advanced retinopathy:
  haemorrhages or exudates,
  papilloedema

ESH, 2003

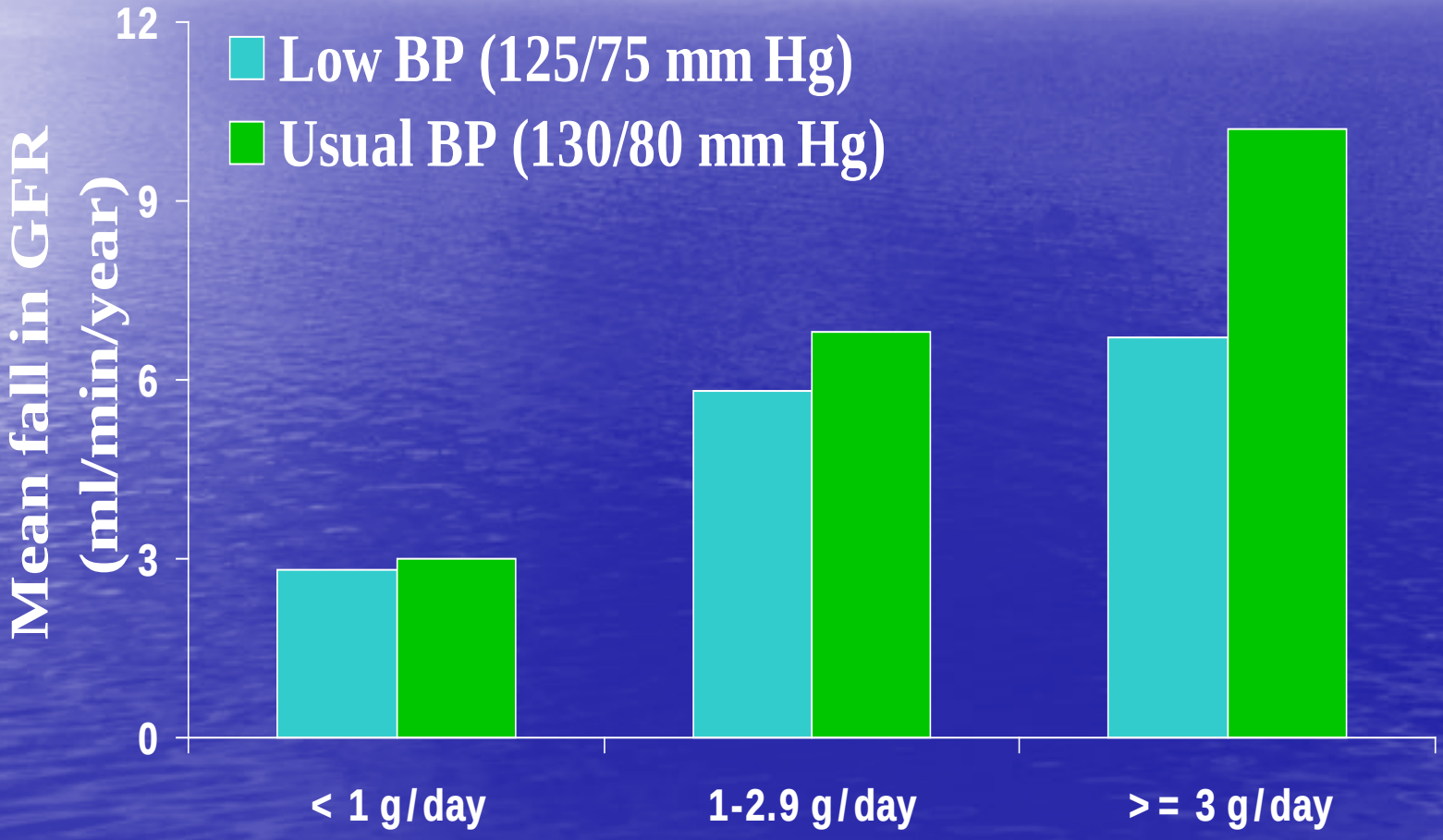
Lower BP Results in Slower Rates of Decline in GFR



Bakris GL, et al. Am J Kidney Dis. 2000;36(3):646-661.

Aggressive Blood Pressure Control

Modification of Diet in Renal Disease Study



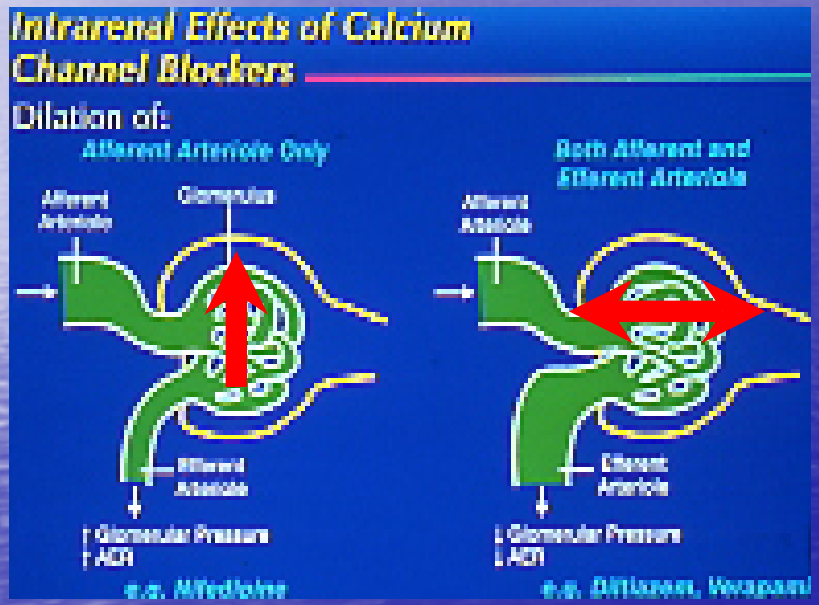
Mean GFR = 39 ml/min

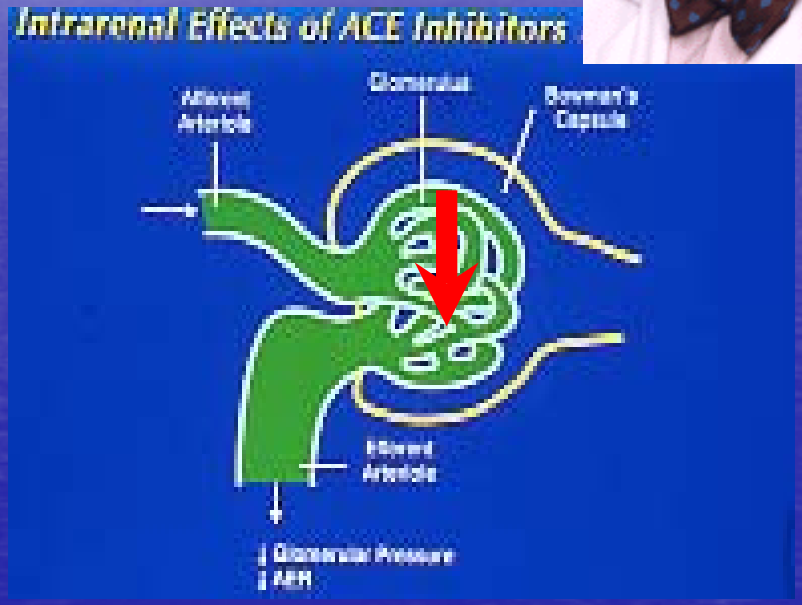
Klahr S et al: *N Engl J Med* 330:877-884, 1994

Treatment of Patients with Kidney Disease

	BP treatment goal	# drugs required
< 1 gm Proteinuria	<130/80	~2-3
>1gm Proteinuria	<125/75	~3-4

Intraglomerular pressure





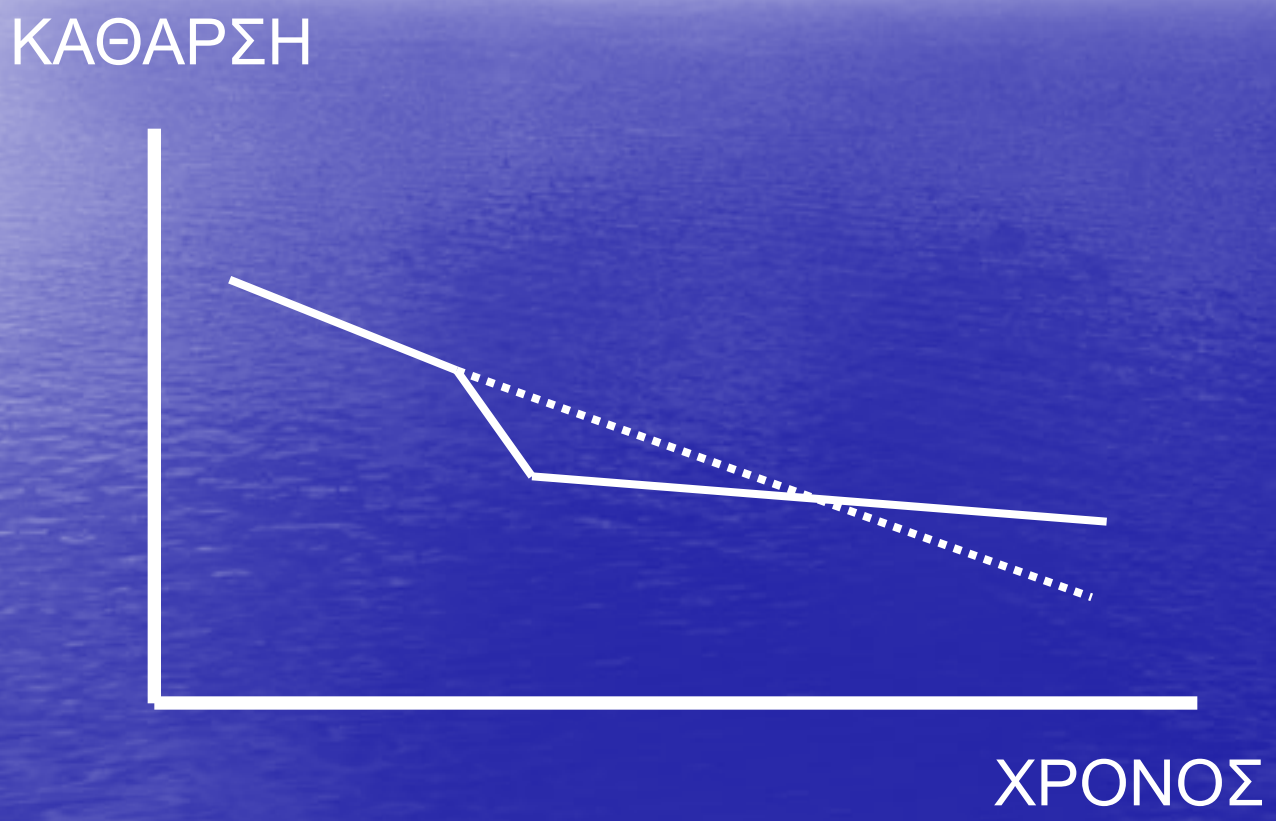
DHP CCB

nonDHP CCB

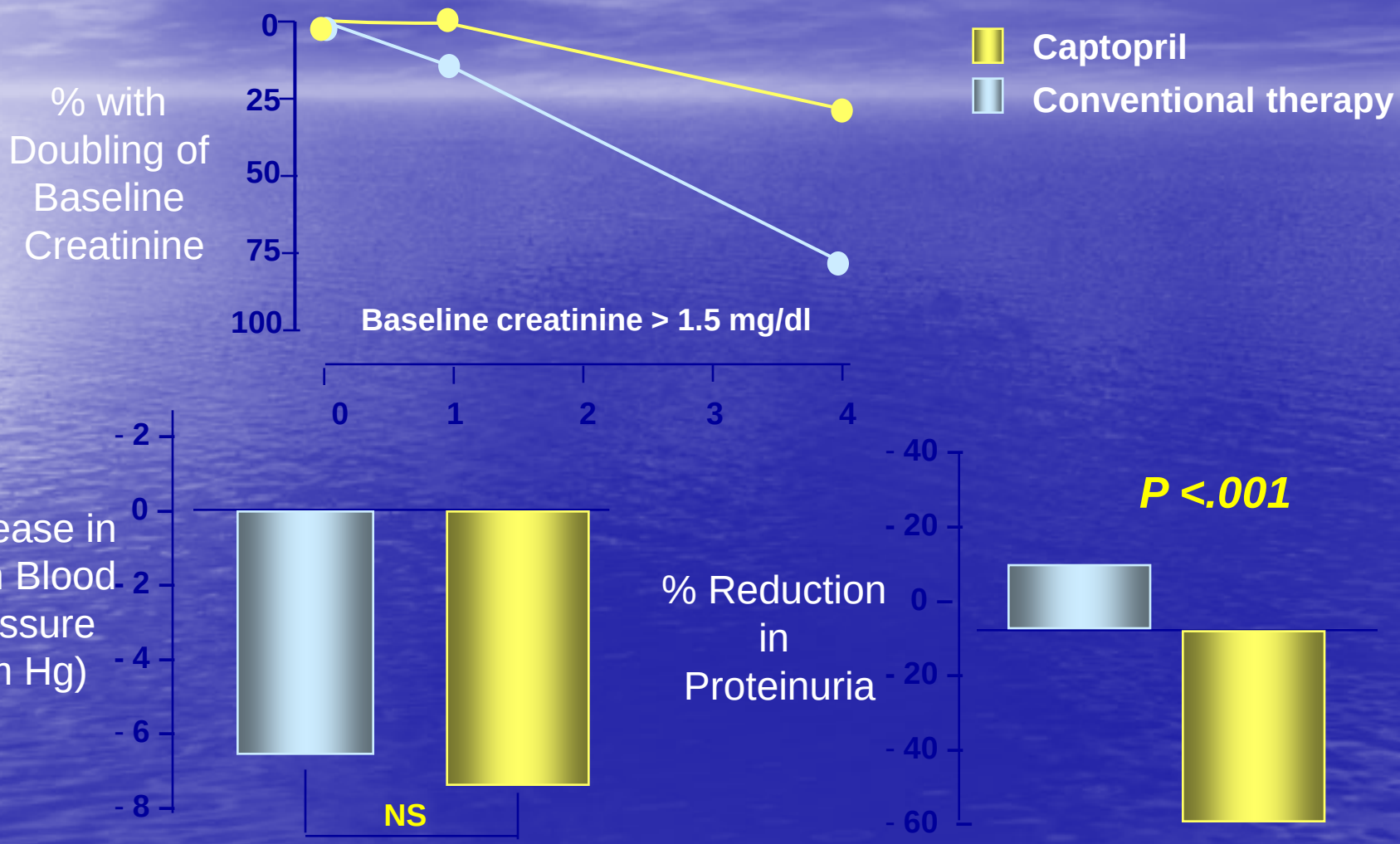
ACEi, ARB's

Renin Antagonists

Μεταβολή σπειραματικής διήθησης με την αναστολή του άξονα Ρενίνης-Αγγειοτασίνης



ACE-I is More Renoprotective than Conventional Therapy in Type 1 Diabetes (Total N = 409)

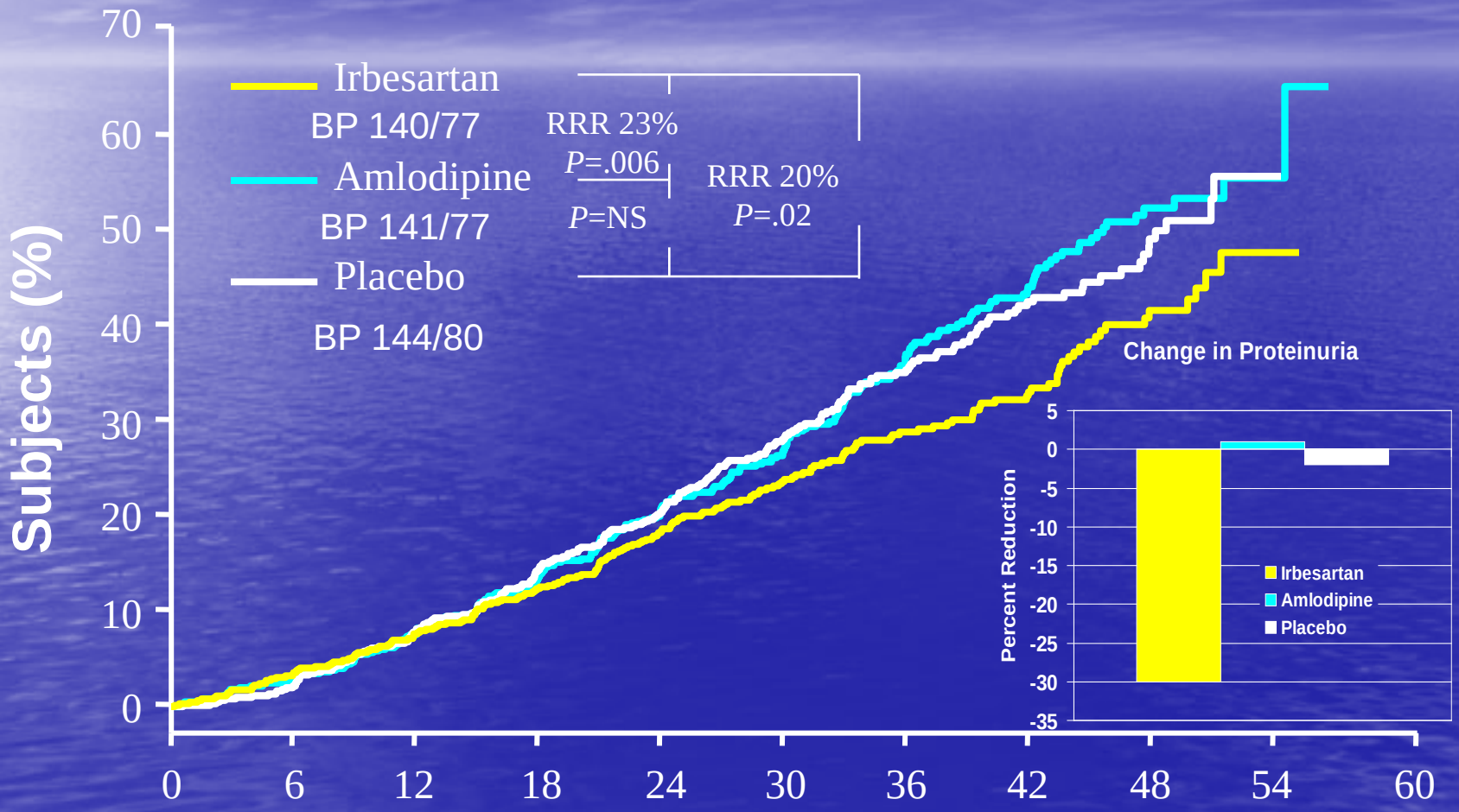


Lewis et al. *N Engl J Med*. 1993;329:1456-1462.

Irbesartan in Diabetic Nephropathy Trial:

Time to Doubling of Serum Creatinine, ESRD, or Death

1,715 Type 2 Diabetics with Nephropathy



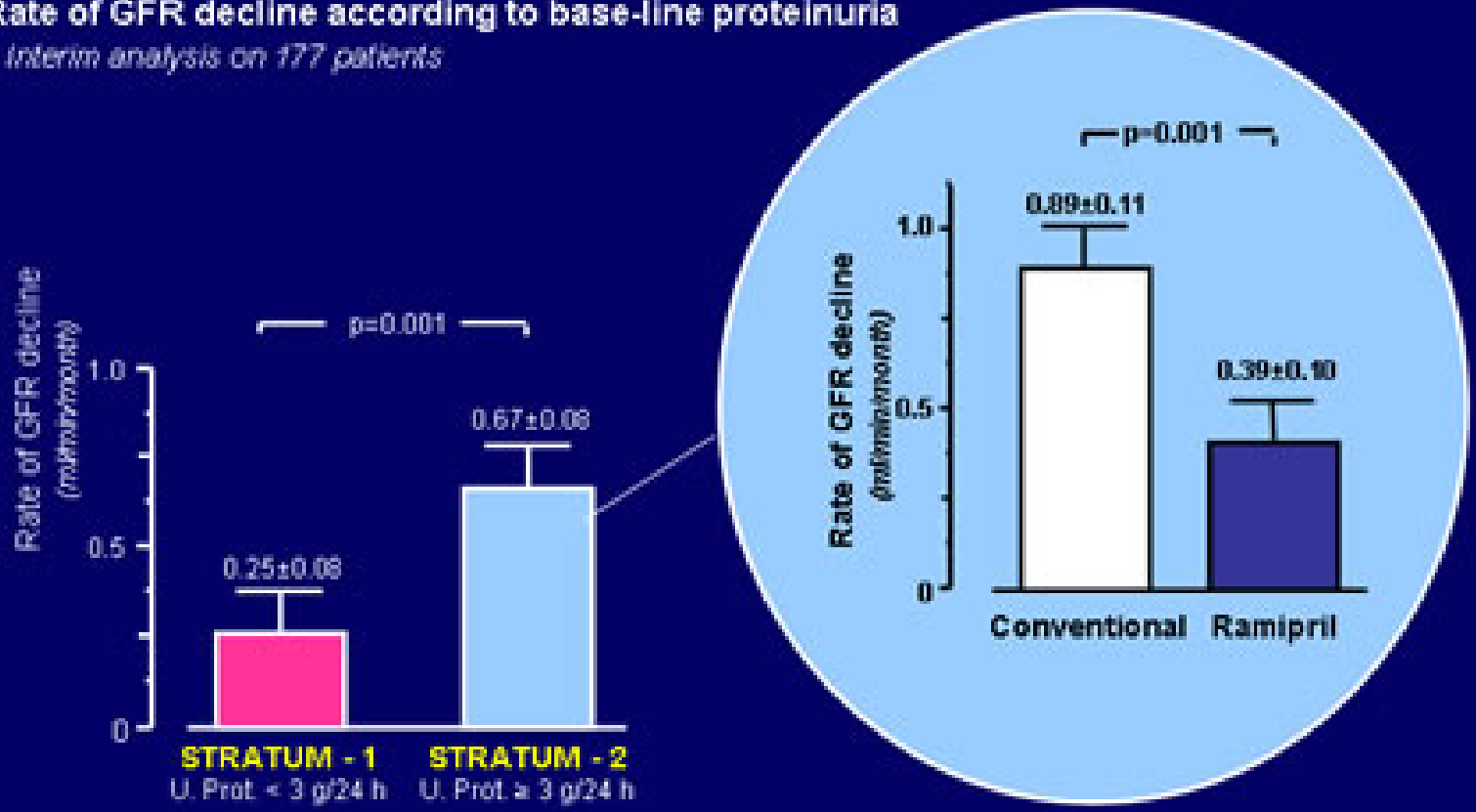
Lewis EJ, et al. *N Engl J Med.* 2001;345:851-860.

The REIN Study

REIN CORE

Rate of GFR decline according to base-line proteinuria

- interim analysis on 177 patients

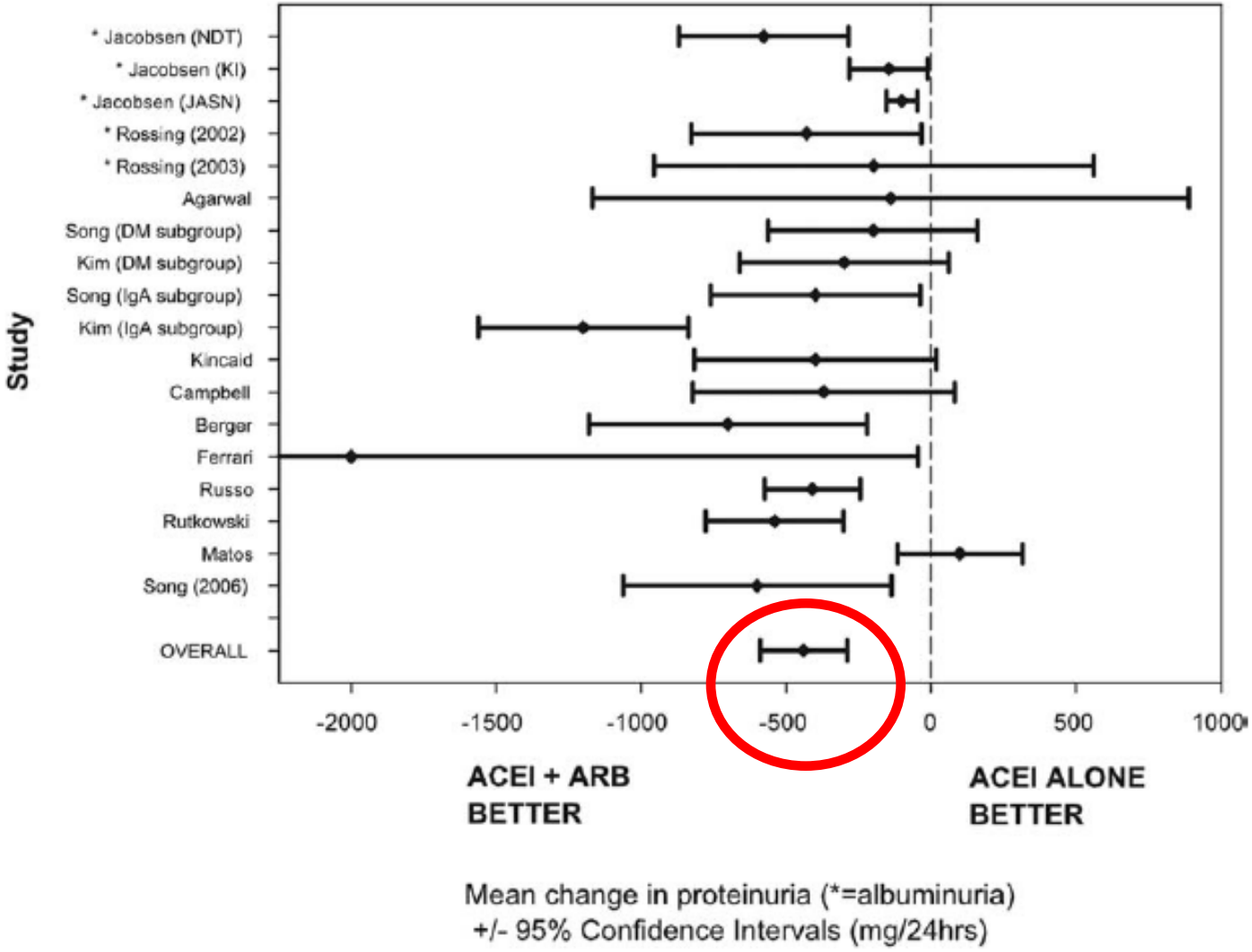


Kidney survival: Conventional **54 %** Ramipril **77 %**

GISEN Group, *Lancet*, 1997

ΣΥΝΔΙΑΣΜΕΝΗ ΘΕΡΑΠΕΙΑ ΜΕ ΑΜΕΑ & ARBs ΚΑΙ ΥΦΕΣΗ ΛΕΥΚΩΜΑΤΟΥΡΙΑΣ

(MacKinnon M et al, Am J Kidney DIs 2007;48;8-20)



COOPERATE, Lancet 2003

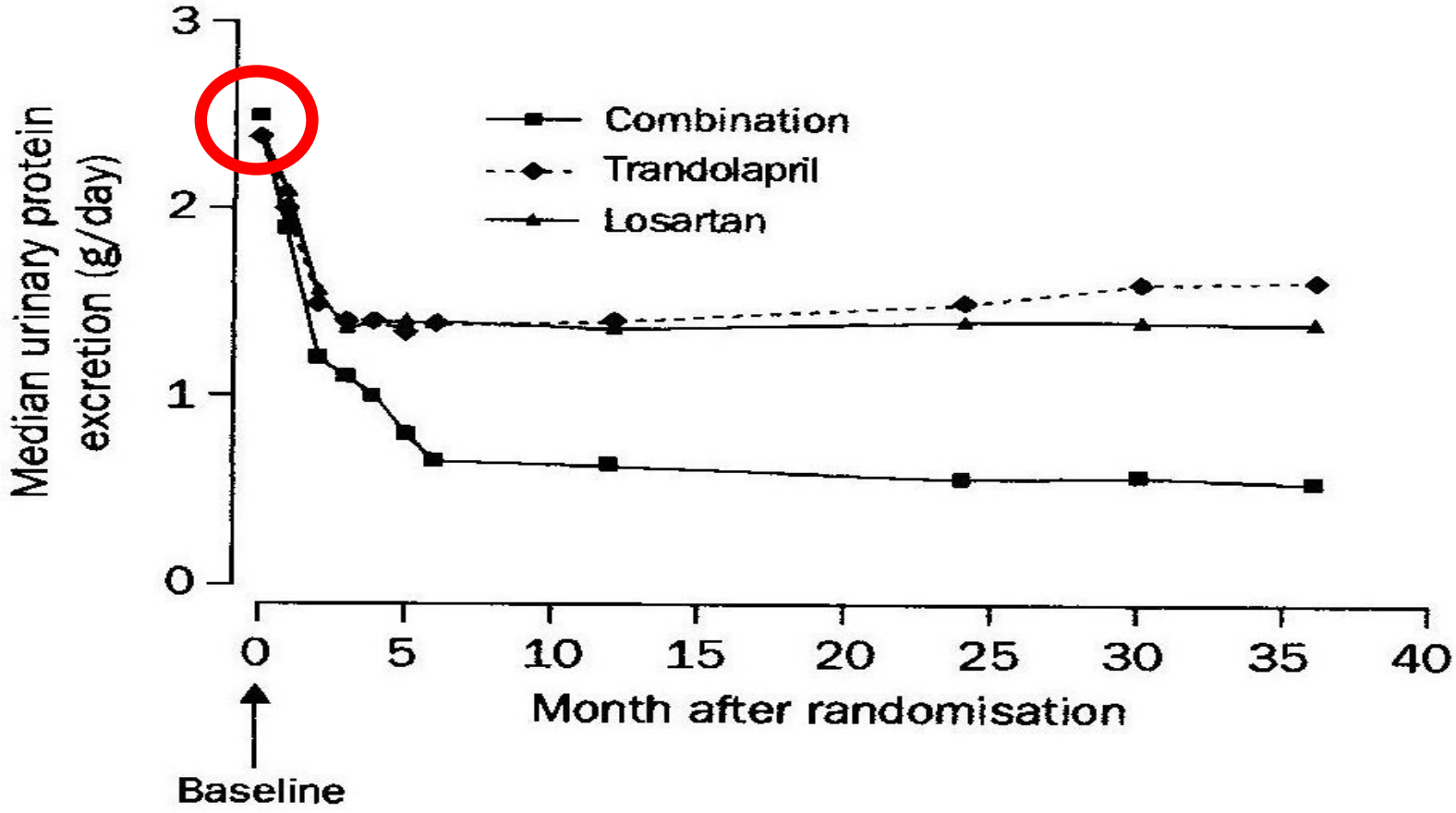
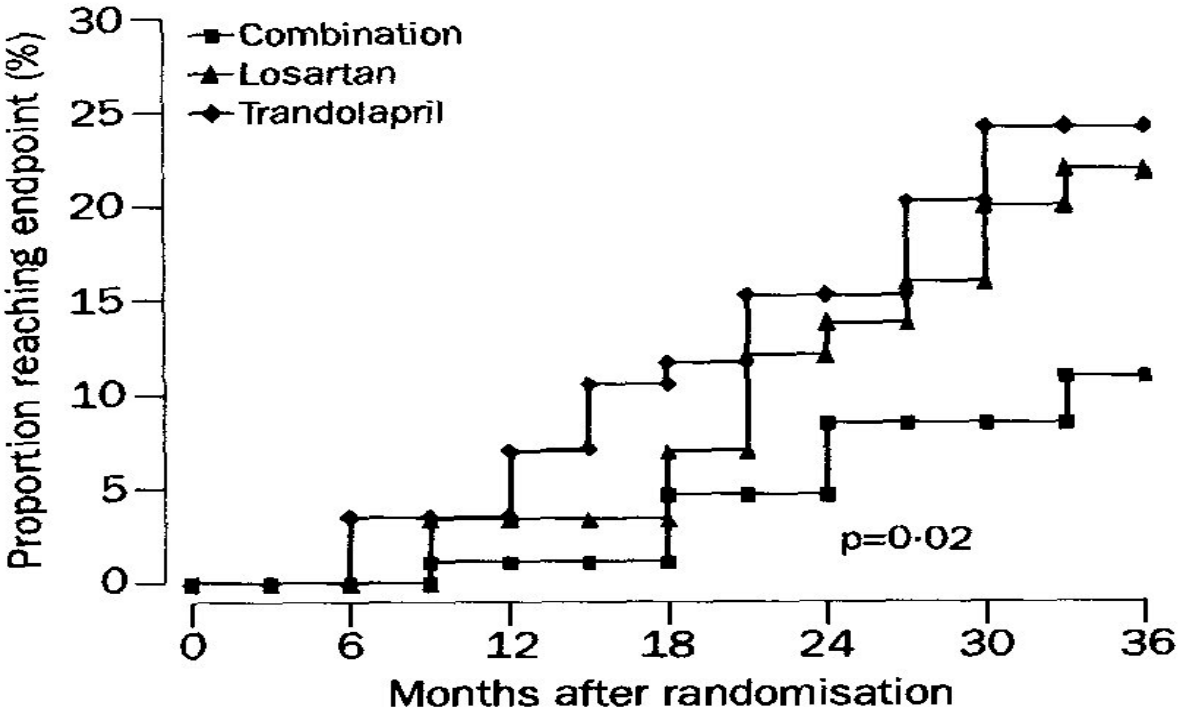


Figure 4: **Median urinary protein excretion by treatment group**

COOPERATE, Lancet 2003



Number at risk							
Losartan	89	88	84	79	65	59	47
Trandolapril	86	85	83	75	72	63	58
Combination	88	87	86	83	76	73	67

Figure 2: **Proportion of patients reaching endpoint**

Endpoint: Doubling of serum creatinine or ESRD

ONTARGET: Incidence of primary and secondary renal outcomes

Outcome	R, n (%)	T, n (%)	R + T, n (%)	T vs R HR	p	R + T vs R HR	p
All dialysis, doubling of creatinine, death	1150 (13.4)	1147 (13.4)	1233 (14.5)	1.00	0.968	1.09	0.037
All dialysis and doubling of creatinine	174 (2.03)	189 (2.21)	212 (2.49)	1.09	0.420	1.24	0.038

R=ramipril
T=telmisartan

Mann JFE et al. *Lancet* 2008; 372:547-553.

THINK KIDNEY!!

-LOGOS NEPHRON

NEPHROLOGY

- *ΔΙΑΓΝΩΣΗ*
- *ΠΡΟΓΝΩΣΗ*
- *ΘΕΡΑΠΕΙΑ*

ΕΥΧΑΡΙΣΤΩ ΠΟΛΥ!