ARMI A DISPOSIZIONE SINO ALL'AVVENTO DEI NUOVI FARMACI

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Management del paziente diabetico con Nefropatia

- *Diagnosi appropriata (biopsia renale)*
- *Terapia*

Quale tra le seguenti non è una indicazione assoluta alla biopsia renale nel paziente diabetico

a) recente insorgenza di proteinuria nefrosica

b) rapido peggioramento della funzione renale

c) proteinuria nefrosica in paziente con breve durata della malattia diabetica

d) microalbuminuria in paziente con diabete mellito >10 anni con retinopatia diabetica

Nutrition, Metabolism & Cardiovascular Diseases (2020) 30, 2123–2132

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Nutrition, Metabolism & Cardiovascular Diseases

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

REVIEW

Indications for renal biopsy in patients with diabetes. Joint position statement of the Italian Society of Nephrology and the Italian Diabetes Society

Salvatore Di Paolo [a,*], Marco Fiorentino [a], Luca De Nicola [b], Gianpaolo Reboldi [c], Loreto Gesualdo [d,e], Federica Barutta [f], Andrea Natali [g,h], Giuseppe Penno [g,i], Paola Fioretto [j,k], Giuseppe Pugliese [l,m] on behalf of the Italian Society of Nephrology and the Italian Diabetes Society

glomerular changes (class 2), other glomerulonephritides superimposed on diabetic glomerulosclerosis (class 4a), or glomerulonephritides without the presence of diabetic glomerulosclerosis (class 3b). Although no significant differences were found for class 2 (detected in 15% and 16% of patients from CRPs and the CUP, respectively), the frequency of the other two classes was strongly biased by the biopsy policy. Class 1 was found in 29% and 51% of cases, and class 3 in 57% and 33% of cases from CRPs and the CUP, respectively. Moreover, class 3a was more common (67%) in the CUP, and class 3b (78%) in CRPs. Our findings may explain conflicting data from the literature and the influence that type of adopted biopsy policy may have on an epidemiological evaluation. This study helps clarify the frequency of renal changes in patients with type 2 diabetes and suggests more extensive use of renal biopsy to obtain reliable prognostic indications and plan a rational therapeutic approach.

…orms of DN are rather developing non-…ypical features of DN overlap with other

…t (2017) 32: 97–110

…tion 4 May 2016

…psy in patients with diabetes: a pooled meta-analysis …lies

…o[1], Davide Bolignano[2,3], Vladimir Tesar[4], Anna Pisano[2], Wim Van Biesen[3], …i[2], Graziella D'Arrigo[2] and Loreto Gesualdo[1] on behalf of the ERA-EDTA …Group

Table 2 Indications for renal biopsy in patients with diabetes.

Diagnostic definition in all patients with clinical suspicion of NDRD for the presence of one or more of the following features:
- Diabetic disease duration <5 years (in type 1 diabetes);
- Absence of diabetic retinopathy (particularly in type 1 diabetes);
- Rapid onset and progression of albuminuria or sudden onset of nephrotic syndrome;
- Rapid decline of renal function (GFR) with or without albuminuria;
- Presence of hematuria (dysmorphic erythrocytes);
- Active urine sediment;
- Clinical suspicion of other nephropathies (e.g., vasculitis, amyloidosis);
- Positivity for *markers* of other systemic diseases (e.g., ANCA, ANA, dsDNA, low complement factors, cryoglobulinemia).
Prognostic evaluation in selected patients with clinical suspicion of DN.

…dies on …NDRD …e values …y meta- …plaining …ored by …lence of …%, 3 to …ely. IgA …PVs for …nfidence …d 19.7% …nbining …). Meta- …luration …NDRD, …ms and …RD and …95% CI: …ith dia- …ses and …ification

according to individual factors is needed for selecting patients who might benefit from biopsy.

Terapia della Nefropatia Diabetica

- ***Compenso glicemico***
- ***Normalizzazione Pressione arteriosa***
- ***Riduzione della Proteinuria***

Effect of intensive glucose lowering treatment on renal events

	ACCORD	ADVANCE	UKPDS	VADT	overall°
HbA1c	-1,01	-0,72	-0,66	-1,16	-0,88
eventi microvascolari maggiori	0,95	0,86	0,75	-	-
eventi renali*	-	0,79	-	0,62	-
incidenza di microalbuminuria	0,79/0,85	0,91	0,67	0,71	0,90 (0,85-0,96)
incidenza di macroalbuminuria	0,68/0,71	0,7	0,66	0,64	-
raddoppio dei livelli di creatinina	1,07/1,04	1,15	0,26	1	1,03 (0,98-1,08)
ESRD	0,95/0,92	0,64	0,73	0,63	

* nuova nefropatia o progressione della nefropatia.

° Boussageon 2011.

Intensive glucose control and Outcomes

	UKPDS (n = 3,867)	ADVANCE (n = 11,140)	ACCORD (n = 10,251)	VADT (n = 1,791)
Disease Progression				
Duration of diabetes (yr)	0	8	10	11.5
Mean baseline HbA1c (%)	7.1	7.5	8.3	9.4
Mean baseline FPG (mmol/l)	8.0	8.5	9.7	11.4
Mean age (yr)	53	66	62	60
Micro	↓	↓	=↓	=
Macro	↓	=	↑	=

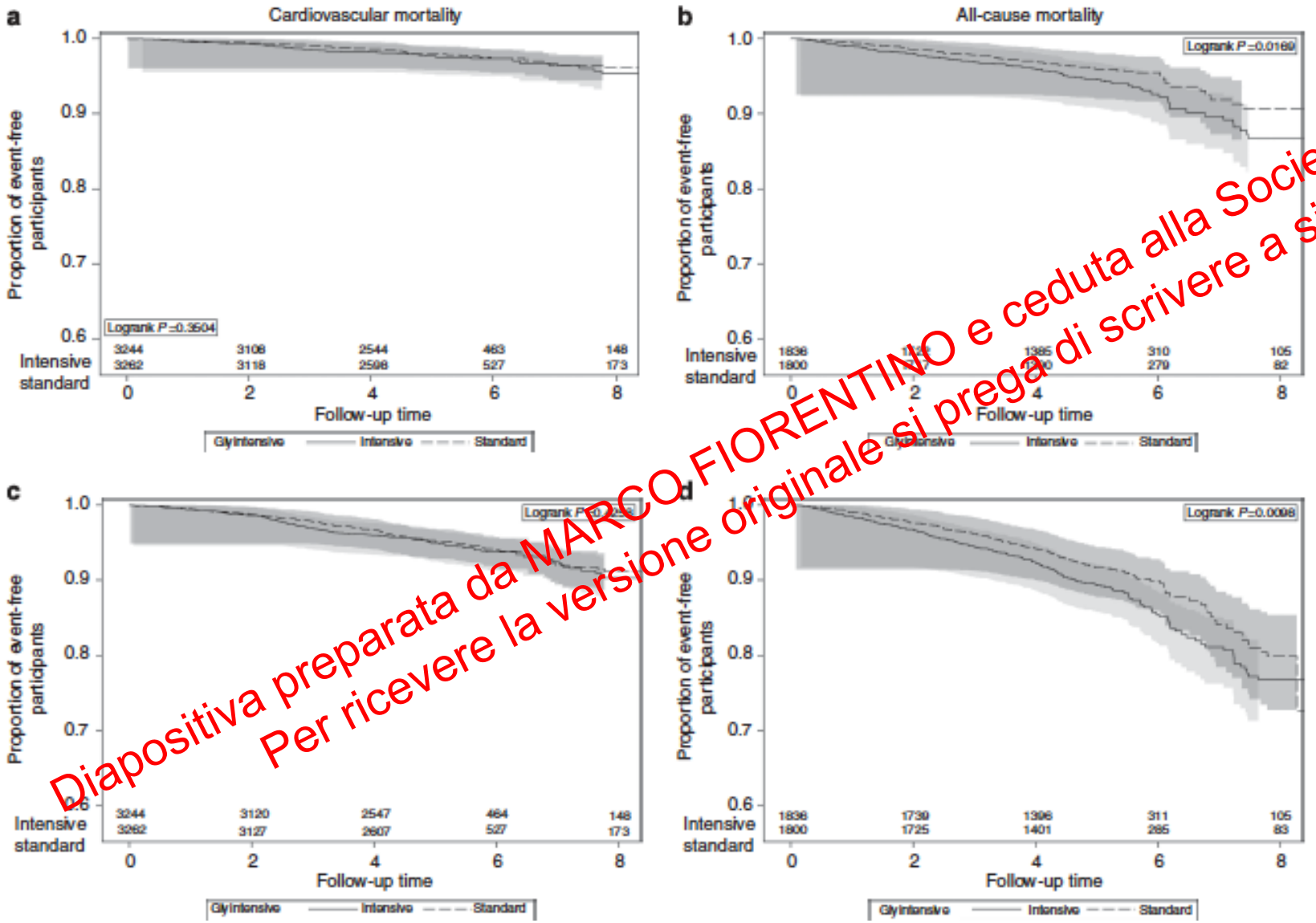
Compared with UKPDS, which enrolled newly diagnosed patients, recent trials have enrolled high-risk patient populations: longer duration of disease, older age, and more severe hyperglycemia

Effects of Intensive Control of Glycemia on Clinical Kidney Outcomes in Type 2 Diabetes Patients Compared with Standard Control: A Meta-Analysis

- Gli studi disponibili concordano nel riconoscere un effetto dei trattamenti farmacologici sulla albuminuria, mentre è assai dubbio l'impatto favorevole sulla CKD clinicamente manifesta
- Il controllo glicemico intensivo sembra ridurre solo la mortalità da uremia terminale
- Probabilmente la progressione da CKD a ESRD è indipendente dal controllo glicemico, una volta che si sia instaurato il danno d'organo.
- Inoltre, al progredire della CKD il trattamento intensivo si associa ad incremento di rischio di Ipoglicemia

Herrera-Gomez F, 2017

Intensive glucose control, CKD and CV Outcomes



In high-risk patients with type II diabetes, mild and moderate CKD is associated with increased cardiovascular risk.

Intensive glycemic control significantly increases the risk of cardiovascular and all-cause mortality in this population.

Papademetriou V, Kidney Int 2015
(ACCORD Study Group)

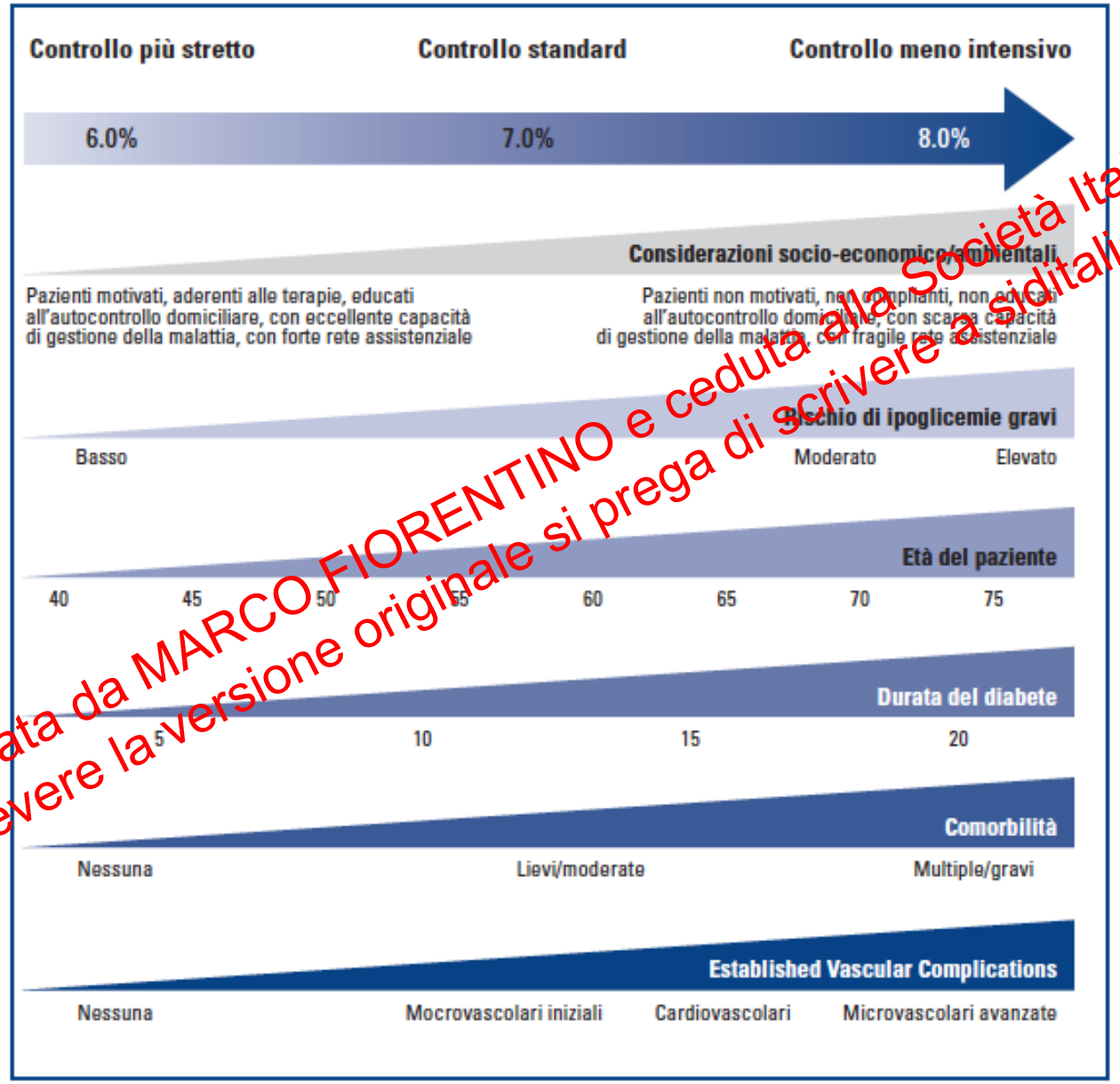
ACCORD, ADVANCE, and VADT Trials were unable to show a significant impact of glycemic control on CV events. These trials included patients with a long duration of the disease, and with previous unsatisfactory glycemic control. Chronic exposure to hyperglycemia may cause a kind of negative metabolic memory, and thereby reduce the potential impact of good glycemic control.

The UKPDS which recruited only subjects with newly diagnosed diabetes and without prior CV events. In these patients, early achievement of glycemic control translated into a long-term reduction of the risk of micro- and macrovascular complications.

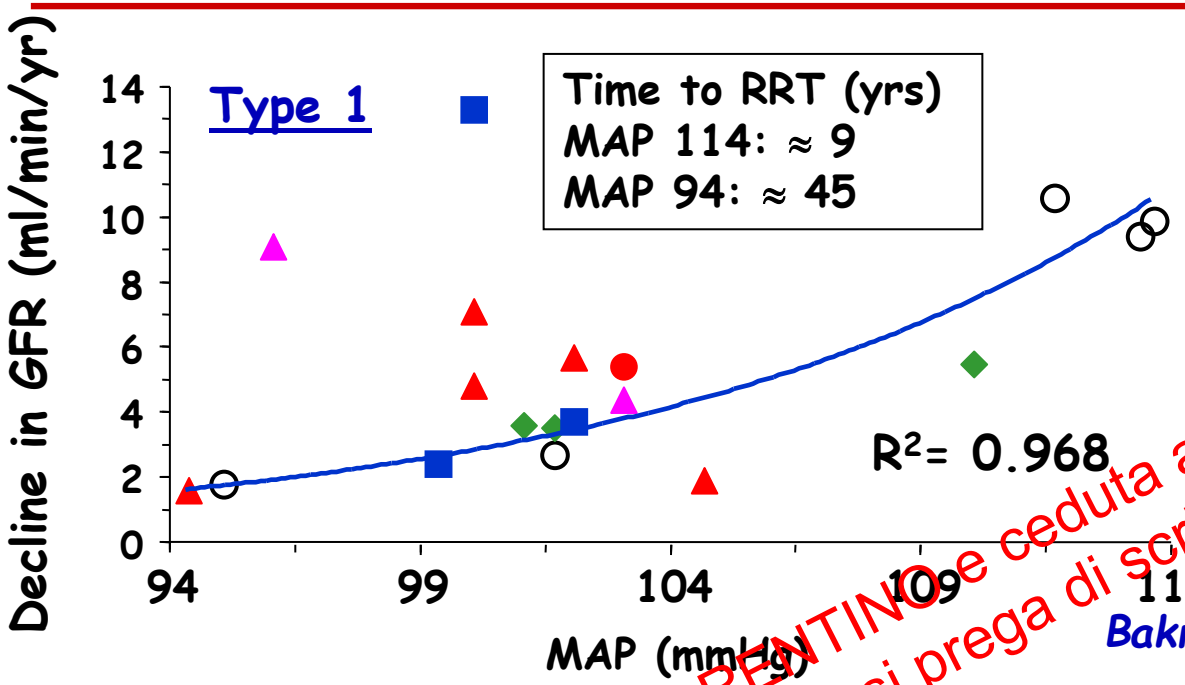
This observation supports the need for early and appropriate treatment of hyperglycemia and associated metabolic disturbances (positive “glycemic legacy”).

This should be feasible now through the selection of individual targets and personalized pharmacologic treatments. In doing so, the potential risks of intensive treatment might then be avoided.

Treatment goal Personalization



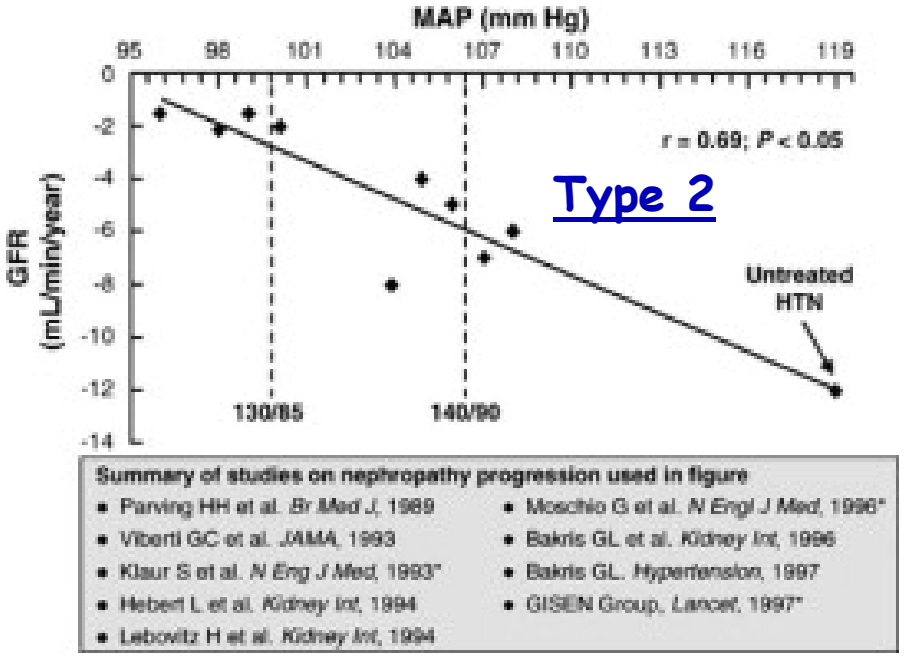
CONTROLLO PRESSORIO: Prevenzione Terziaria



Deferrari G
Diabetes/Metab Rev 1997

Bakris GL, Am J Kidney Dis, 2000

○ No AHT ▲ ACE-I ± Diur. ■ Conv. Tx (T)
▲ ACE-I + T ◆ β-Blockers ± Diur. ● CCB



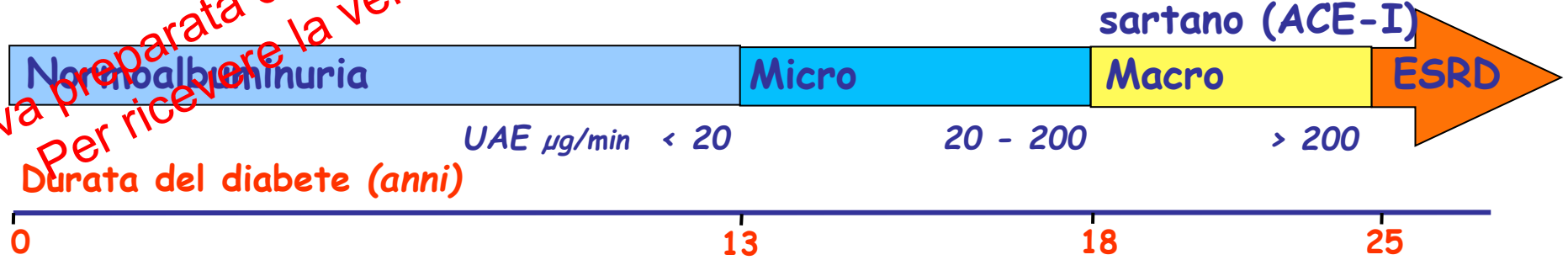
Il controllo pressorio, indipendentemente dalla classe di farmaci utilizzati, rallenta il declino del filtrato glomerulare (PREVENZIONE TERZIARIA) e, forse, la progressione da Micro- a Macro-Albuminuria (PREVENZ.SECONDARIA)

Gli inibitori del Sistema Renina Angiotensina impiegati nelle varie fasi della nefropatia diabetica

ROADMAP	BENEDICT	IRMA 2	RENAAL IDNT ORIENT
Sartano	ACE-inibitore	Sartano	Sartano

Avoid, Altitude

Inibitore renina + sartano (ACE-I)



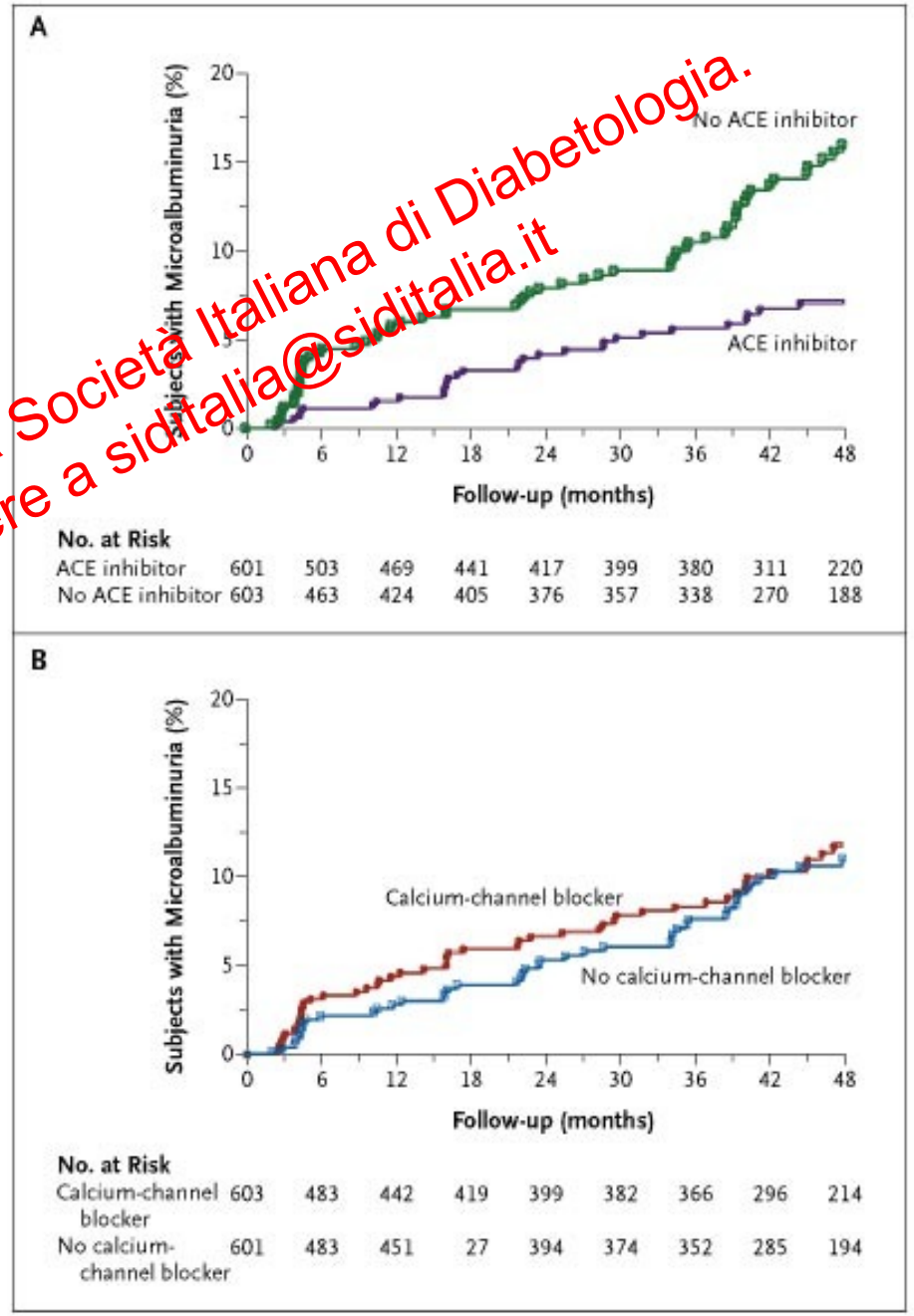
ORIGINAL ARTICLE

Preventing Microalbuminuria in Type 2 Diabetes

Piero Ruggenenti, M.D., Anna Fassi, M.D., Anelja Parvanova Ilieva, M.D., Simona Bruno, M.D., Ilian Petrov Iliev, M.D., Varusca Brusegan, M.D., Nadia Rubis, R.N., Giulia Gherardi, R.N., Federica Arnoldi, R.N., Maria Ganeva, Stat.Sci.D., Bogdan Ene-Iordache, Eng.D., Flavio Gaspari, Ph.D., et al., for the Bergamo Nephrologic Diabetes Complications Trial (BENEDICT) Investigators

1204 subjects
randomly assigned to receive at least three years of treatment with
-trandolapril (at a dose of 2 mg per day) plus verapamil (sustained-release formulation, 180 mg per day),
-trandolapril alone (2 mg per day),
-verapamil alone (sustained-release formulation, 240 mg per day),
-placebo.

The target blood pressure was 130/80 mm Hg.
The primary end point was the development of persistent microalbuminuria (overnight albumin excretion, ≥20 µg per minute at two consecutive visits).



The NEW ENGLAND JOURNAL of MEDICINE

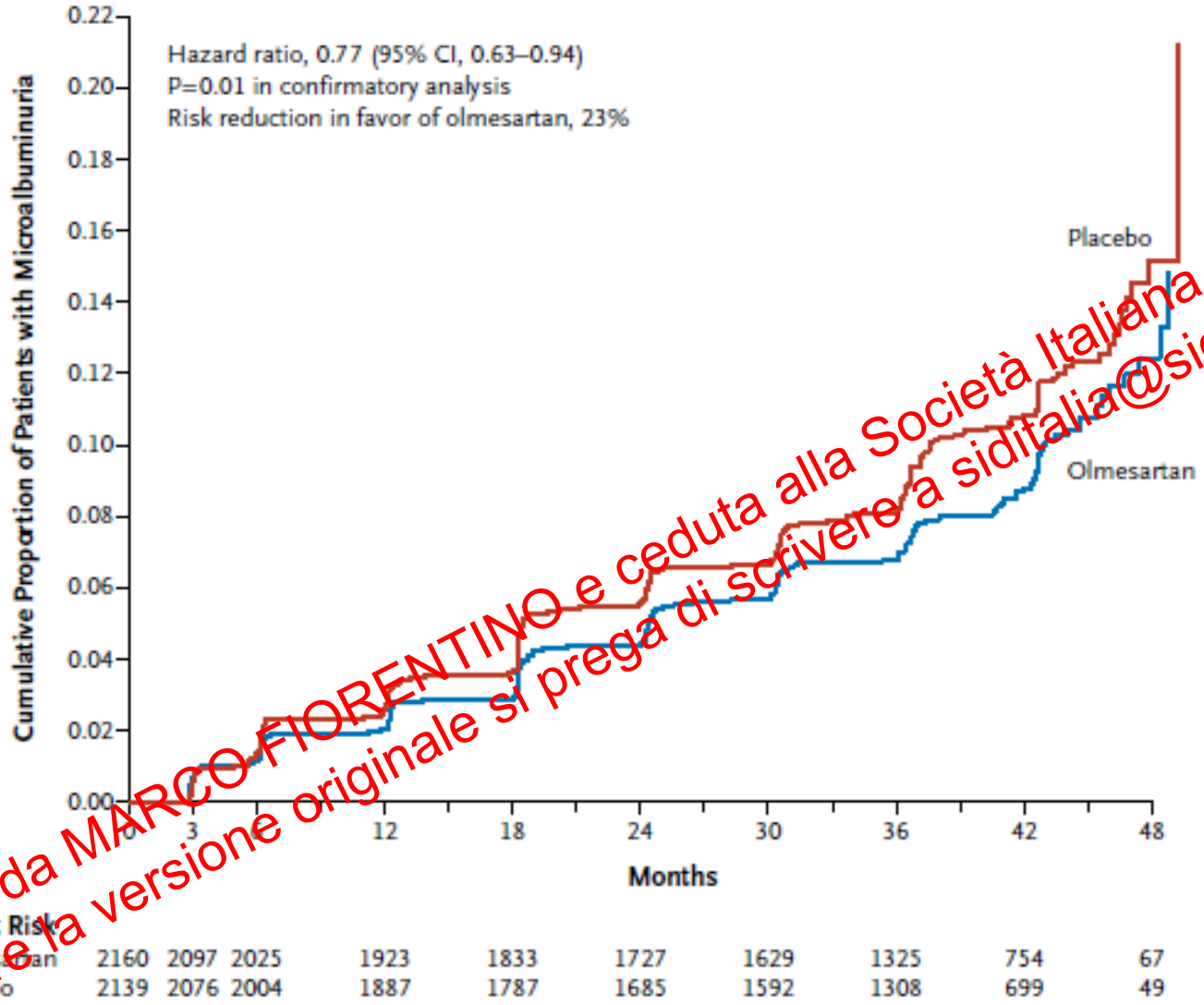
MARCH 10, 2011

ORIGINAL ARTICLE

Olmesartan for the Delay or Prevention of Microalbuminuria in Type 2 Diabetes

Hermann Haller, M.D., Sadayoshi Ito, M.D., Ph.D., Joseph L. Izzo, Jr., M.D., Andrzej Januszewicz, M.D., Shigehiro Katayama, M.D., Ph.D., Jan Menne, M.D., Albert Mimran, M.D., Ton J. Rabelink, M.D., Ph.D., Eberhard Ritz, M.D., Luis M. Ruilope, M.D., Lars C. Rump, M.D., and Giancarlo Viberti, M.D., for the ROADMAP Trial Investigators*

- Randomized, double-blind trial.
- 4447 Normoalbuminuric T2DM patients, eGFR: 84.9±17.2 mL/min/1.73 m^2
- Olmesartan 40 mg once daily or placebo for a median of 3.2 years.
- Target blood pressure less than 130/80 mm Hg.
- Primary outcome was the time to the first onset of microalbuminuria.



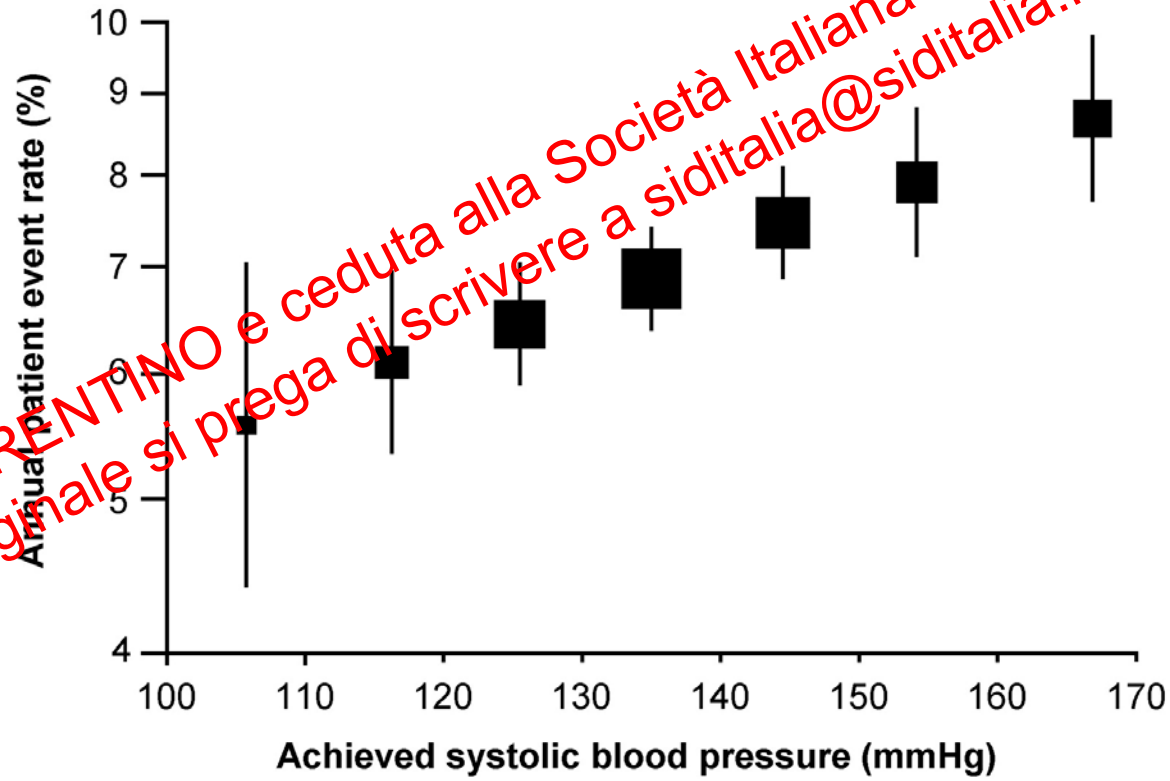
Olmesartan was associated with a delayed onset of microalbuminuria. The higher rate of fatal cardiovascular events with olmesartan among patients with preexisting coronary heart disease is of concern

Lowering Blood Pressure Reduces Renal Events in Type 2 Diabetes *ADVANCE Study*

11.140 pts eGFR<60 ml/min 19% MacroAlbum. 3.5%

Patients were randomly assigned to fixed combination perindopril-indapamide or placebo

During a mean follow-up of 4.3 yr, active treatment reduced the risk for renal events by 21% ($P < 0.0001$), which was driven by reduced risks for developing microalbuminuria and macroalbuminuria (both $P < 0.003$).

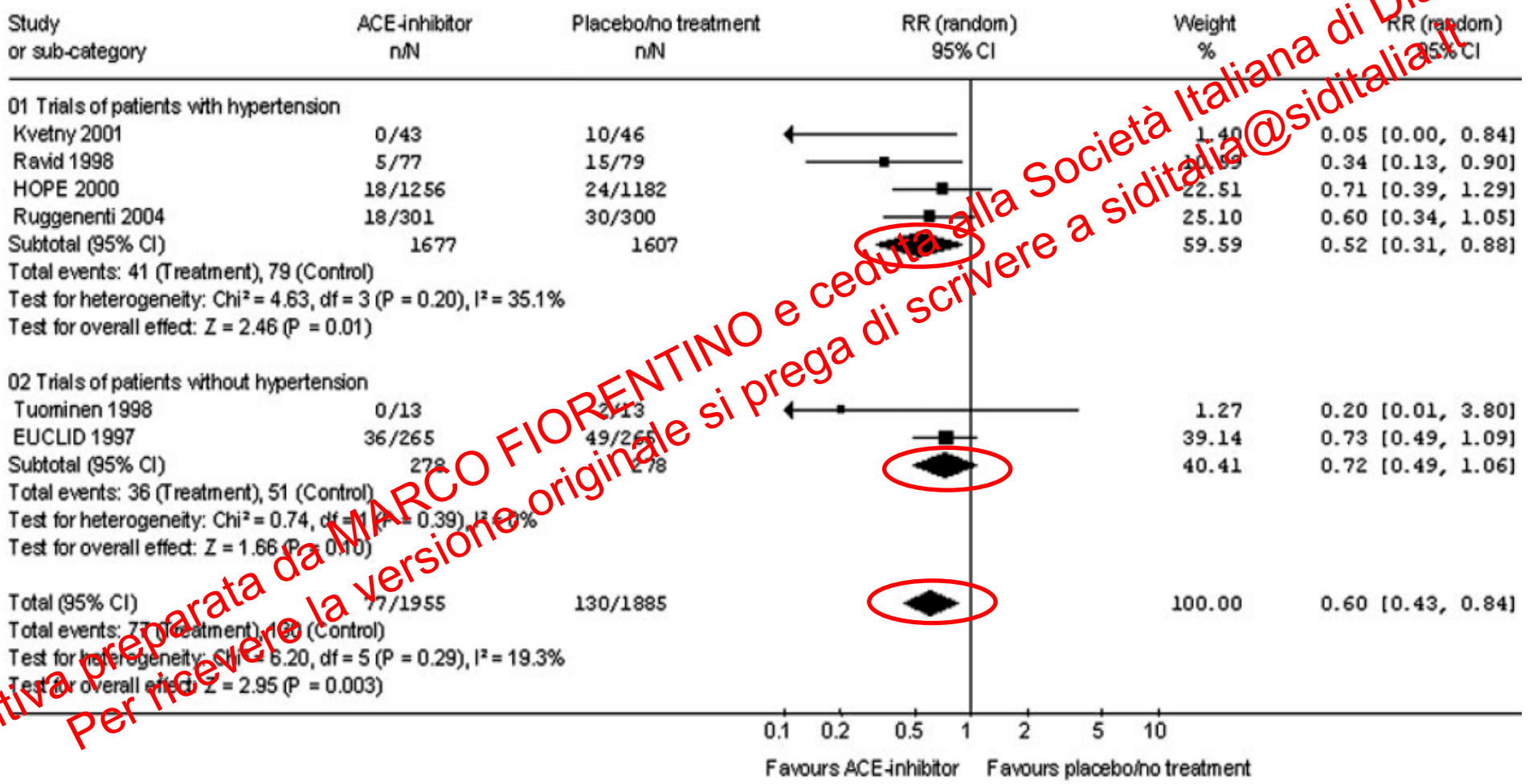


Median systolic blood pressure (mmHg)	106	116	125	135	144	154	168
No. of person-years	1431	4266	8974	11983	9138	4942	3470

JASN *de Galan BE, 2009*

Antihypertensive Agents for Primary Prevention of Diabetic Nephropathy

Giovanni F.M. Strippoli, Maria Craig, Francesco P. Schena, and Jonathan C. Craig

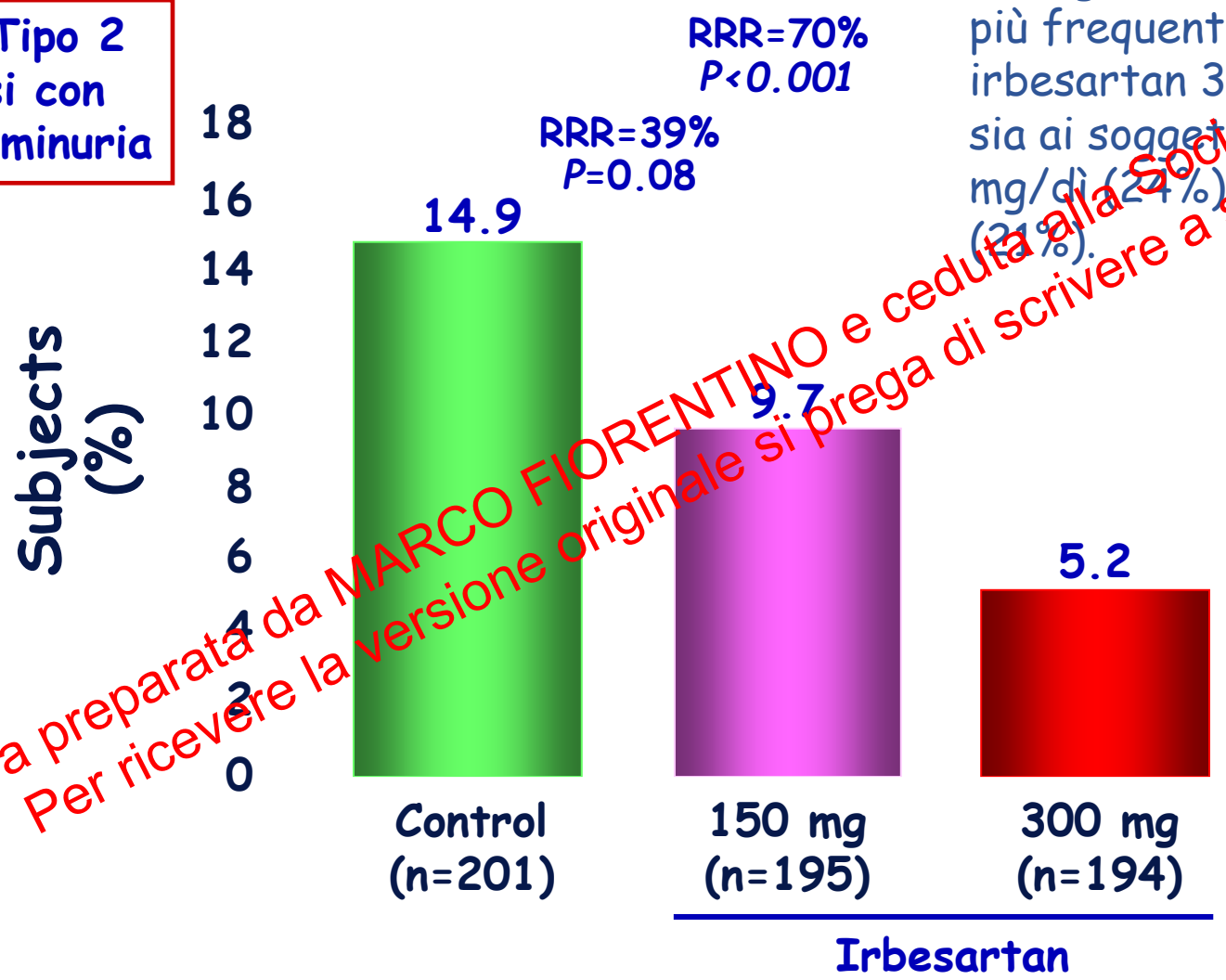


ACEi e sviluppo di micro-/macro-alb in diabetici normoalb, sia NORMOTESI che ipertesi

SARTANI: Prevenzione Secondaria

Studio IRMA 2

590 pz Tipo 2 Ipertesi con Microalbuminuria



La regressione verso la normoalbuminuria era più frequente nel gruppo in trattamento con irbesartan 300 mg/dì (36%; p=0,006) rispetto sia ai soggetti trattati con irbesartan 150 mg/dì (24%) sia a quelli trattati con placebo (21%).

Parving H-H, N Engl J Med 2001

Lowering Blood Pressure Reduces Renal Events in Type 2 Diabetes

Table 4. Incidence of renal end points[a]

End Point	Perindopril- Indapamide (No. of Events/Patient [%])	Placebo	NR (95% CI)	*P*	NNT
Progression of nephropathy					
all renal events	1243/5569 (22.3)	1500/5571 (26.9)	0.79 (0.73 to 0.85)	<0.0001	20
progression of ≥1 albuminuria stage	1179/5436 (21.7)	1442/5412 (26.6)	0.78 (0.72 to 0.84)	<0.0001	18
new-onset microalbuminuria	1094/3995 (27.4)	1317/3991 (33.0)	0.79 (0.73 to 0.86)	<0.0001	16
new-onset macroalbuminuria	114/5436 (2.1)	163/5412 (3.0)	0.69 (0.54 to 0.88)	0.0027	97
patients with normoalbuminuria	25/3995 (0.6)	35/3991 (0.9)	0.71 (0.42 to 1.18)	0.1841	NA
patients with microalbuminuria	89/1441 (6.2)	128/1421 (9.0)	0.69 (0.52 to 0.91)	0.0074	32
doubling of serum creatinine >200 μmol/L	55/5569 (1.0)	45/5571 (0.8)	1.21 (0.81 to 1.79)	0.3483	NA
end-stage kidney disease[b]	25/5569 (0.4)	21/5571 (0.4)	1.18 (0.66 to 2.11)	0.5736	NA
Regression of nephropathy					
regression of ≥1 albuminuria stage	908/1638 (55.4)	816/1625 (50.2)	1.16 (1.06 to 1.28)	0.0017	19
regression to normoalbuminuria	848/1638 (51.8)	745/1625 (45.8)	1.15 (1.04 to 1.27)	0.0059	16
patients with microalbuminuria	797/1441 (55.3)	698/1421 (49.1)	1.15 (1.04 to 1.27)	0.0067	16
patients with macroalbuminuria	51/197 (25.9)	47/204 (23.0)	1.08 (0.72 to 1.60)	0.7146	NA

[a]NA, not applicable; NNT, number needed to treat to prevent one event of nephropathy progression or to promote one event of nephropathy regression over 5 yr.

[b]Defined as requirement of renal replacement therapy or renal death.

JASN *de Galan BE, 2009*

ACE-INIBITORI: Prevenzione Secondaria

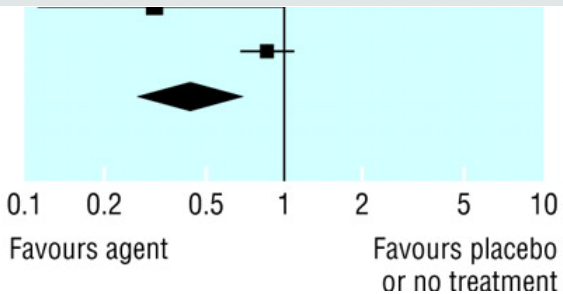
risk of progression from microalbuminuria to macroalbuminuria

	No of patients with event/total No of patients		Relative risk (random) 95% CI	Weight (%)	Relative risk (random) 95% CI
	Angiotensin converting	Placebo or no treatment			
Microalbuminuria to macr					
Muirhead 1999[w55]					0.16 (0.02 to 1.44)
Tan 2002[w59]				3	0.57 (0.18 to 1.80)
Parving 2001[w38 w39 w58]				3	0.50 (0.31 to 0.81)
Total (95% CI)				00	0.49 (0.32 to 0.75)
Test for heterogeneity: χ^2=					
Test for overall effect: z=3.2					
Micro-HOPE 2000[w56]	104/552	127/587		17.57	0.87 (0.69 to 1.10)
Total (95% CI)	1043	967		100.00	0.45 (0.28 to 0.71)
Test for heterogeneity: χ^2=25.78, df=13, P=0.02, I^2=49.6%					
Test for overall effect: z=3.38, P=0.0007					

Evidence exists that ACE inhibitors prevent early death in patients with diabetic nephropathy but no such evidence for AIIRAs

The two classes of drugs have equivalent effects on renal outcomes

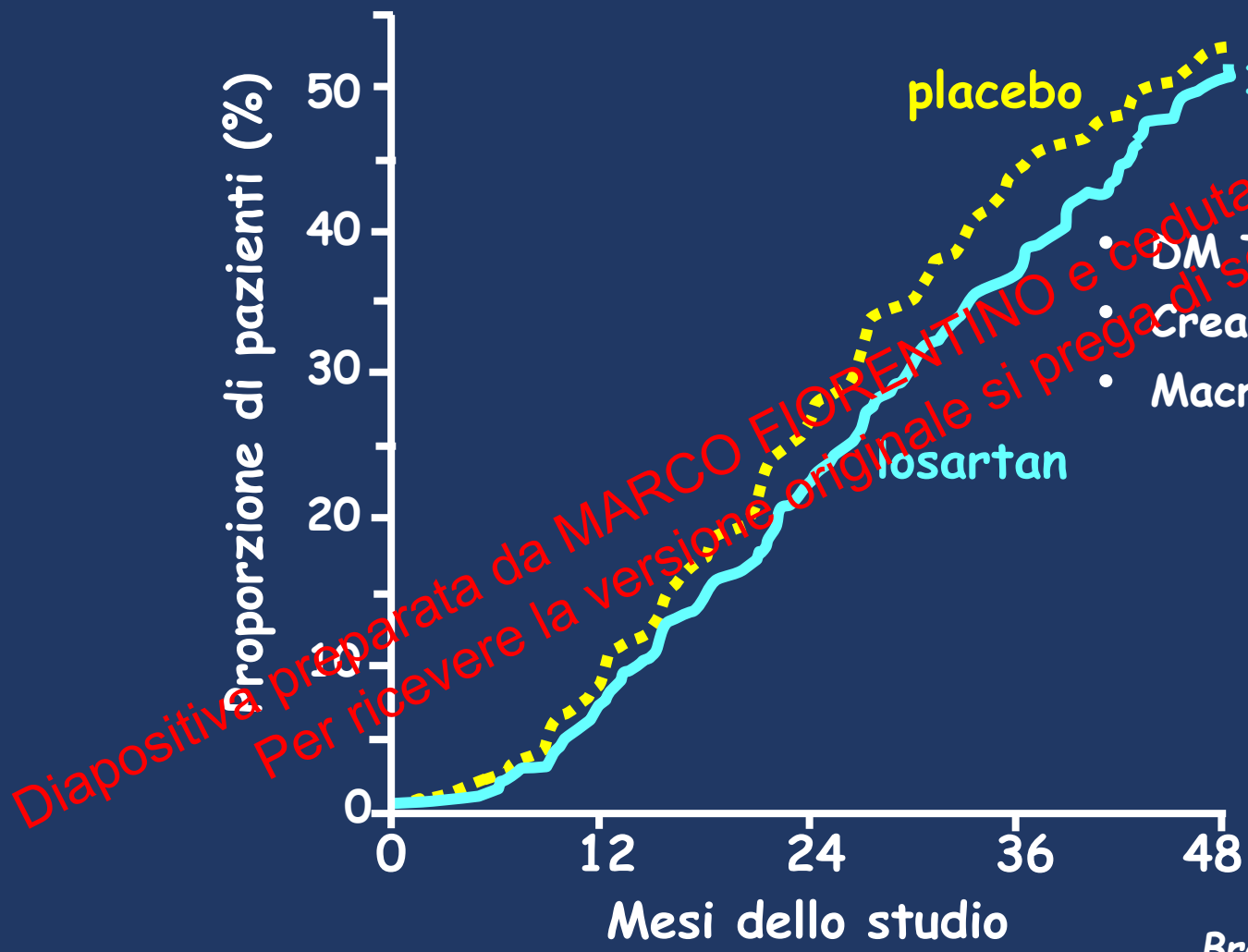
The relative effects of ACE inhibitors and AIIRAs on survival are unknown owing to the lack of adequate head to headtrials



BMJ Strippoli G. F. M. 200

Sartani: Prevenzione Terziaria nel DM Tipo 2

STUDIO RENAAL



- DM Tipo 2. N=1513
- Creatinina basale media: 1.9 mg/dL
- Macro-Albuminuria

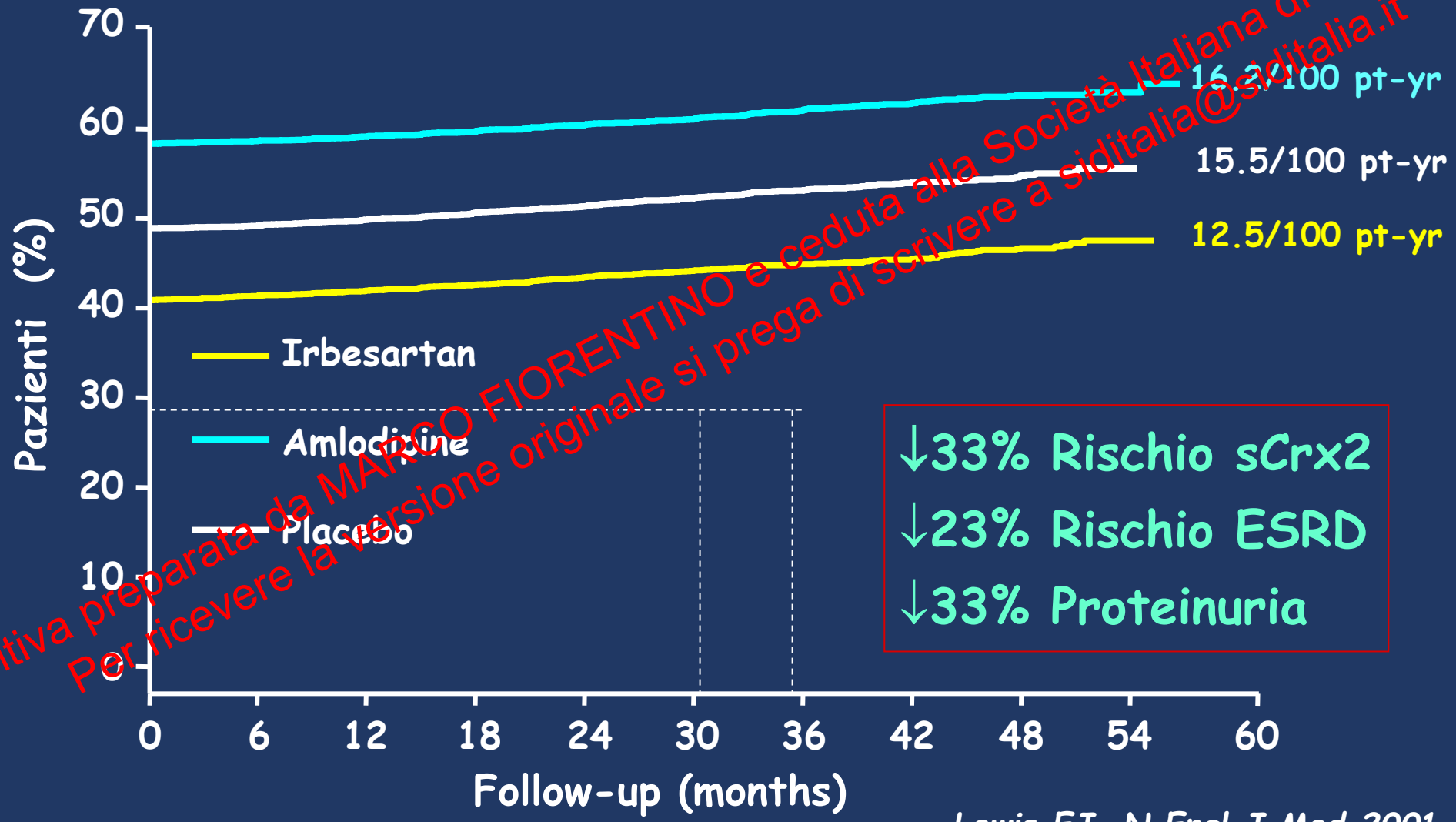
↓25% Rischio sCrx2
↓28% Rischio ESRD
↓ 35% Proteinuria

Brenner et al., N Engl J Med 2001

Sartani: Prevenzione Terziaria nel DM Tipo 2

STUDIO IDNT

- DM Tipo 2. N=1715

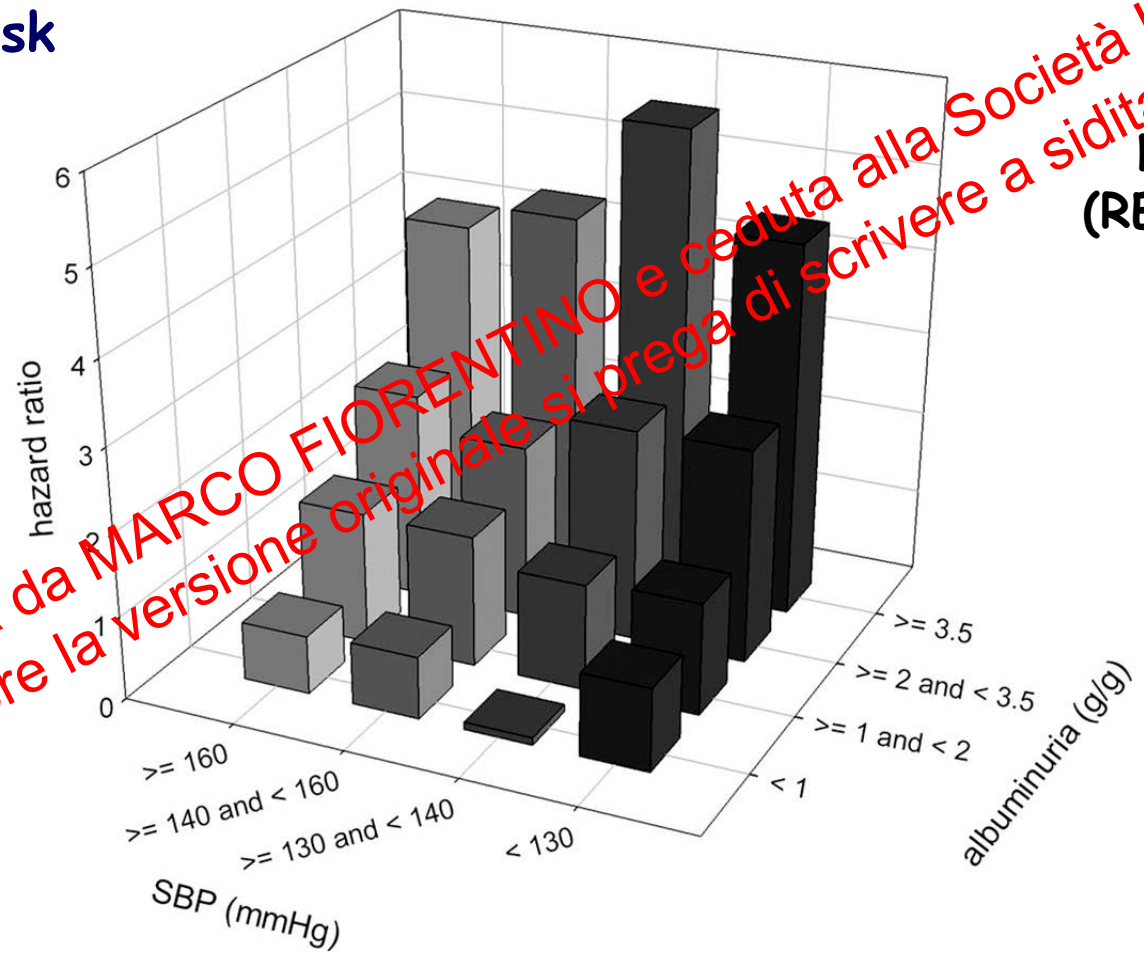


↓33% Rischio sCrx2
↓23% Rischio ESRD
↓33% Proteinuria

Lewis EJ, N Engl J Med 2001

L'Albuminuria è un obiettivo della reno-protezione independente dal controllo pressorio nei diabetici Tipo 2 con nefropatia

ESRD Risk



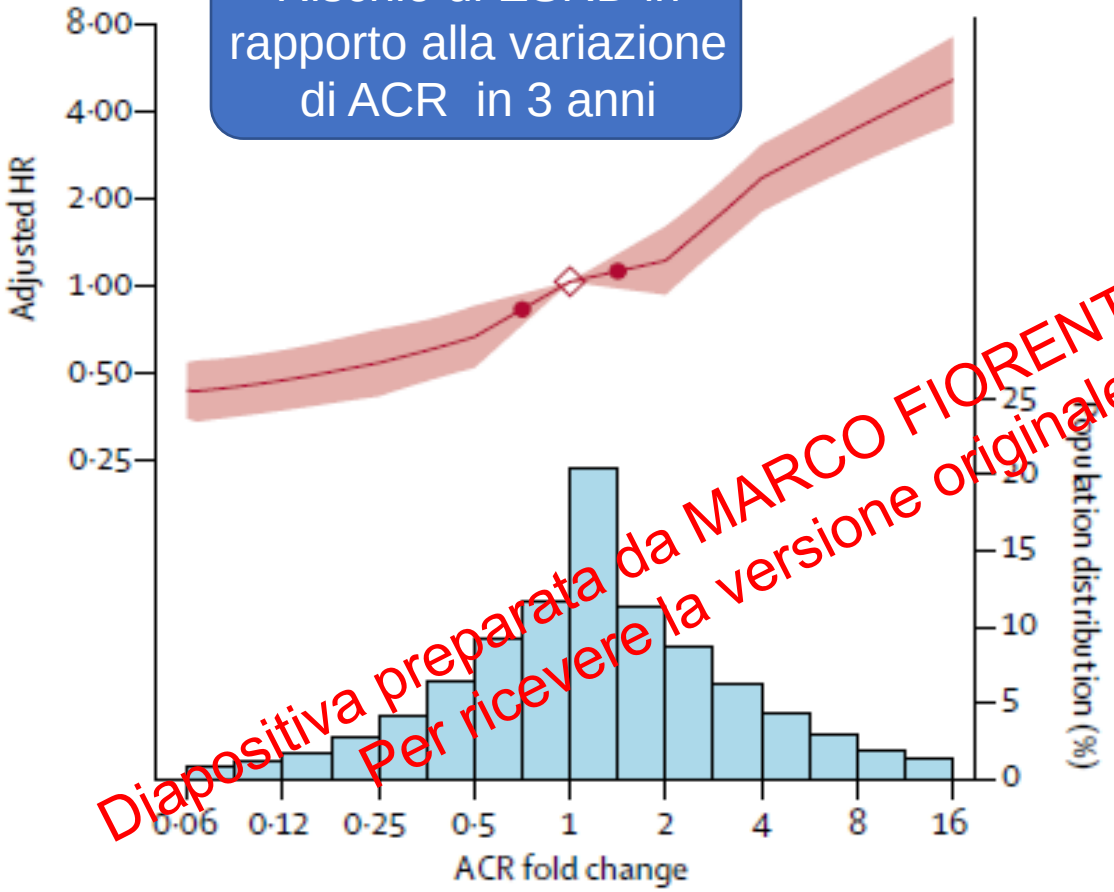
N=1428 Pts
(RENAAL Study)

Eijkelkamp WBA, J Am Soc Nephrol 2007

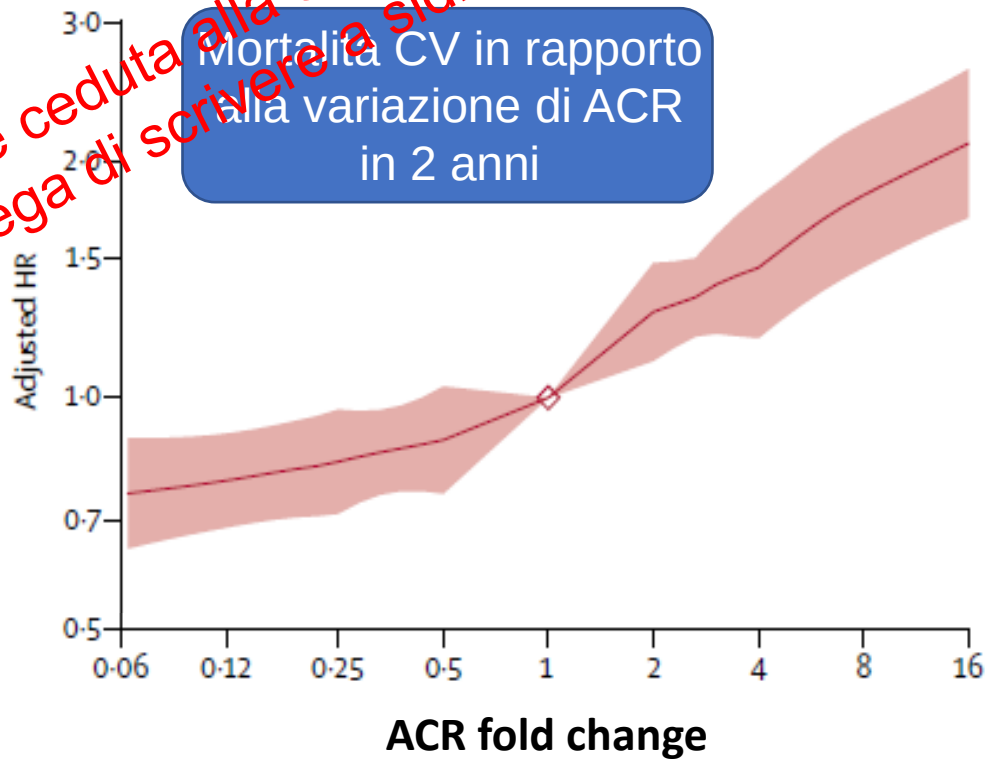
Change in albuminuria and subsequent risk of end-stage kidney disease: an individual participant-level consortium meta-analysis of observational studies

675.094 pazienti (80% diabetici)

Rischio di ESRD in rapporto alla variazione di ACR in 3 anni



Mortalità CV in rapporto alla variazione di ACR in 2 anni

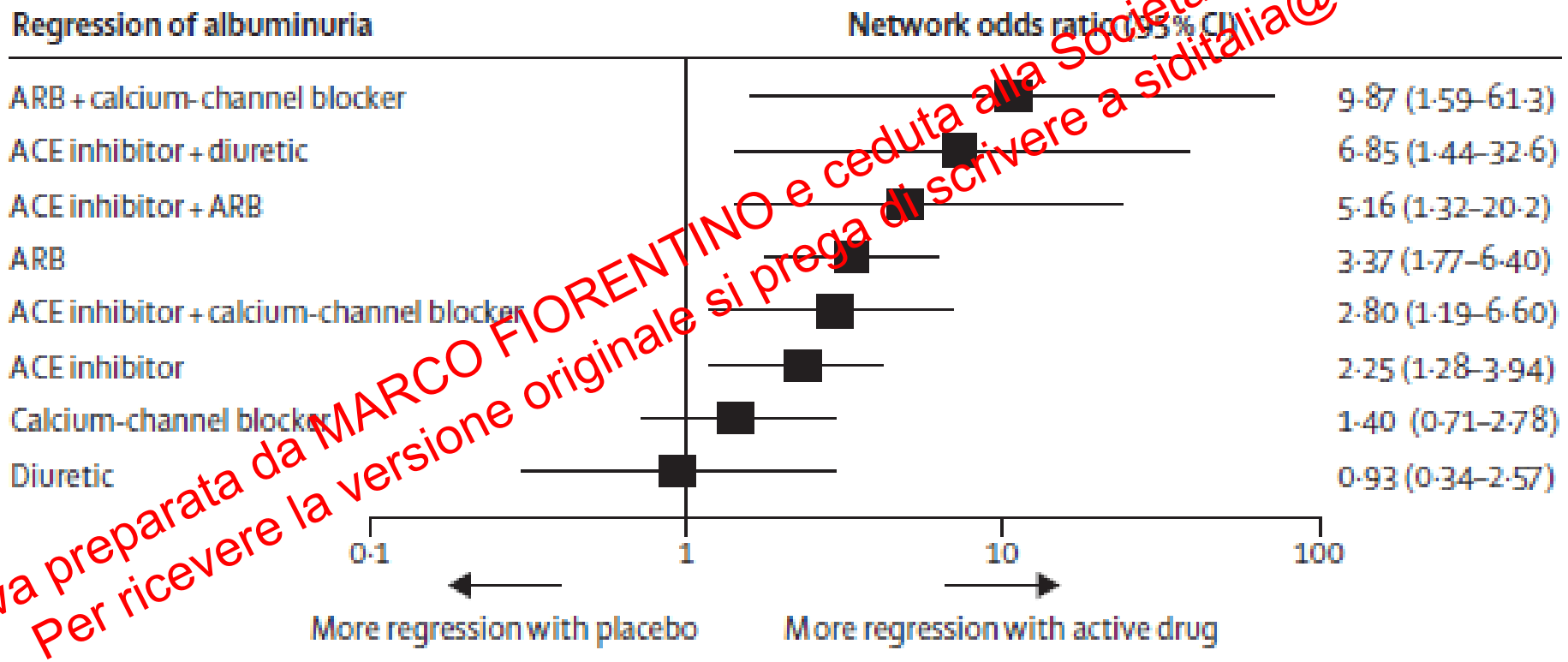


Josef Coresh, Lancet Diabetes Endocrinol 2019

Comparative efficacy and safety of blood pressure-lowering agents in adults with diabetes and kidney disease: a network meta-analysis

Lancet 2015; 385: 2047–56

Suetonia C Palmer, Dimitris Mavridis, Eliano Navarese, Jonathan C Craig, Marcello Tonelli, Georgia Salanti, Natasha Wiebe, Mariella Ruospo, David C Wheeler, Giovanni F M Strippoli



Palmer SC, Lancet 2015

Telmisartan, Ramipril, or Both in Patients at High Risk for Vascular Events

The ONTARGET Investigators*

Lo studio ONTARGET ha evidenziato che l'associazione ACEI + sartani

a) si associa ad un minor declino del GFR rispetto ai pazienti trattati con telmisartan

b) si associa a maggior incidenza di effetti negativi sulla funzione renale

c) presenta significativi benefici clinici (outcome primario) rispetto alla monoterapia

d) è consigliata nei pazienti ad alto rischio cardiovascolare

Telmisartan, Ramipril, or Both in Patients at High Risk for Vascular Events

The ONTARGET Investigators*

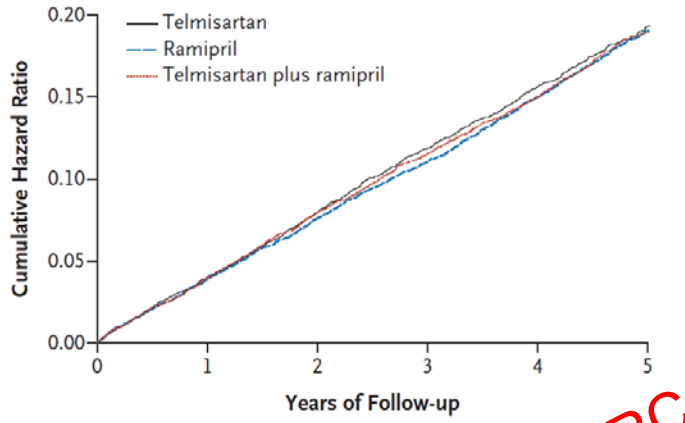


Figure 1. Kaplan–Meier Curves for the Primary Outcome in the Three Study Groups.

The composite primary outcome was death from cardiovascular causes, myocardial infarction, stroke, or hospitalization for heart failure.

Table 4. Secondary and Other Outcomes.

Outcome	Ramipril (N=8576)	Telmisartan (N=8542)	Combination Therapy (N=8502)	Telmisartan vs. Ramipril	Combination Therapy vs. Ramipril
	number (percent)			*relative risk (95% CI)*	
Revascularization	1269 (14.8)	1290 (15.1)	1303 (15.3)	1.03 (0.95–1.11)	1.04 (0.97–1.13)
Hospitalization for angina	925 (10.8)	954 (11.2)	952 (11.2)	1.04 (0.95–1.14)	1.04 (0.95–1.14)
Worsening of new angina	567 (6.6)	536 (6.3)	538 (6.3)	0.95 (0.84–1.07)	0.96 (0.85–1.08)
New diagnosis of diabetes*	366 (6.7)	399 (7.5)	323 (6.1)	1.12 (0.97–1.29)	0.91 (0.78–1.06)
Any heart failure	514 (6.0)	537 (6.3)	478 (5.6)	1.05 (0.93–1.19)	0.94 (0.83–1.07)
New atrial fibrillation†	570 (6.9)	550 (6.7)	537 (6.5)	0.97 (0.86–1.09)	0.96 (0.85–1.07)
Renal impairment‡	871 (10.2)	906 (10.6)	1148 (13.5)	1.04 (0.96–1.14)	1.33 (1.22–1.44)§
Renal failure requiring dialysis	48 (0.6)	52 (0.6)	65 (0.8)	1.09 (0.74–1.61)	1.37 (0.94–1.98)

Telmisartan was equivalent to ramipril in patients with vascular disease or high-risk diabetes and was associated with less angioedema. The combination of the two drugs was associated with more adverse events without an increase in benefit.

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ORIGINAL ARTICLE

Cardiorenal End Points in a Trial of Aliskiren for Type 2 Diabetes

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Table 3. Most Commonly Reported Adverse Events and Study-Drug Discontinuation.*

Event	Any Event Reported		P Value	Event Leading to Permanent Study-Drug Discontinuation		P Value
	Aliskiren (N=4272)	Placebo (N=4285)		Aliskiren (N=4272)	Placebo (N=4285)	
	no. of patients (%)			*no. of patients (%)*		
Hyperkalemia	1670 (39.1)	1244 (29.0)	<0.001	285 (6.8)	111 (2.6)	<0.001
Peripheral edema	686 (16.1)	706 (16.5)	0.6	11 (0.3)	7 (0.2)	0.34
Hypotension	519 (12.1)	357 (8.3)	<0.001	28 (0.7)	13 (0.3)	0.02
Diarrhea	417 (9.8)	312 (7.3)	<0.001	11 (0.3)	7 (0.2)	0.34
Hypertension	429 (10.0)	469 (10.9)	0.17	3 (0.1)	9 (0.2)	0.15
Renal impairment	419 (9.8)	371 (8.7)	0.07	65 (1.5)	54 (1.3)	0.30
Nasopharyngitis	405 (9.5)	381 (8.9)	0.39	1 (<0.1)	0	NA
Hypoglycemia	393 (9.2)	341 (8.0)	0.04	1 (<0.1)	3 (0.1)	NA
Back pain	368 (8.6)	353 (8.2)	0.67	1 (<0.1)	2 (<0.1)	NA
Dizziness	327 (7.7)	314 (7.3)	0.57	4 (0.1)	4 (0.1)	NA
Urinary tract infection	326 (7.6)	288 (6.7)	0.10	4 (0.1)	2 (<0.1)	NA
Anemia	316 (7.4)	307 (7.2)	0.68	0	0	—
Pain in extremity	302 (7.1)	317 (7.4)	0.56	1 (<0.1)	2 (<0.1)	NA
Arthralgia	302 (7.1)	313 (7.3)	0.67	0	1 (<0.1)	NA
Cough	265 (6.2)	283 (6.6)	0.45	1 (<0.1)	1 (<0.1)	NA
Bronchitis	242 (5.7)	239 (5.6)	0.86	0	0	—
Dyspnea	223 (5.2)	213 (5.0)	0.60	6 (0.1)	5 (0.1)	0.76
Upper respiratory tract infection	223 (5.2)	229 (5.3)	0.80	1 (<0.1)	0	NA
Cataract	229 (5.4)	223 (5.2)	0.75	0	0	—
Constipation	203 (4.8)	241 (5.6)	0.07	0	1 (<0.1)	NA
Headache	200 (4.7)	220 (5.1)	0.33	2 (<0.1)	4 (0.1)	NA

BACKGROUND

This study was undertaken to determine whether use of the direct renin inhibitor aliskiren would reduce cardiovascular and renal events in patients with type 2 diabetes and chronic kidney disease, cardiovascular disease, or both.

METHODS

In a double-blind fashion, we randomly assigned 8561 patients to aliskiren (300 mg daily) or placebo as an adjunct to an angiotensin-converting–enzyme inhibitor or an angiotensin-receptor blocker. The primary end point was a composite of the time to cardiovascular death or a first occurrence of cardiac arrest with resuscitation; nonfatal myocardial infarction; nonfatal stroke; unplanned hospitalization for heart failure; end-stage renal disease, death attributable to kidney failure, or the need for renal-replacement therapy with no dialysis or transplantation available or initiated; or doubling of the baseline serum creatinine level.

RESULTS

The trial was stopped prematurely after the second interim efficacy analysis. After a median follow-up of 32.9 months, the primary end point had occurred in 783 patients (18.3%) assigned to aliskiren as compared with 732 (17.1%) assigned to placebo (hazard ratio, 1.08; 95% confidence interval [CI], 0.98 to 1.20; P=0.12). Effects on secondary renal end points were similar. Systolic and diastolic blood pressures were lower with aliskiren (between-group differences, 1.3 and 0.6 mm Hg, respectively) and the mean reduction in the urinary albumin-to-creatinine ratio was greater (between-group difference, 14 percentage points; 95% CI, 11 to 17). The proportion of patients with hyperkalemia (serum potassium level, ≥6 mmol per liter) was significantly higher in the aliskiren group than in the placebo group (11.2% vs. 7.2%), as was the proportion with reported hypotension (12.1% vs. 8.3%) (P<0.001 for both comparisons).

CONCLUSIONS

The addition of aliskiren to standard therapy with renin–angiotensin system blockade in patients with type 2 diabetes who are at high risk for cardiovascular and renal events is not supported by these data and may even be harmful. (Funded by Novartis; ALTITUDE ClinicalTrials.gov number, NCT00549757.)

Nefropatia Diabetica

Strategie Terapeutiche basate sull'evidenza

Strategia	Stadio
• Controllo Metabolico	Prevenz. primaria e secondaria
• ACE-I o ARB	Prevenz.primaria, second. e terziaria
• BP < 130/80	Prevenzione terziaria (soprattutto)

Prevenzione Primaria=	Prevenzione della Microalbuminuria
Prevenzione Secondaria=	Prevenzione della Macroalbuminuria e IRC
Prevenzione Terziaria=	Prevenzione (rallentamento) dell'Uremia terminale