



Современные уровни артериального давления

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**ДО КАКОГО УРОВНЯ НУЖНО СНИЖАТЬ АД
ИЛИ РЕНЕСАНС J-CURVE WAVE**

**НУЖНО ЛИ ПРОВОДИТЬ
АНТИГИПЕРТЕНЗИВНОЕ
ЛЕЧЕНИЕ И ВТОРИЧНУЮ ПРОФИЛАКТИКУ
ЛИЦАМ БЕЗ АГ?**

Целевой уровень АД при СД и ХЗП

Целевой уровень АД у пожилых

Как достигнуть целевого уровня АД?

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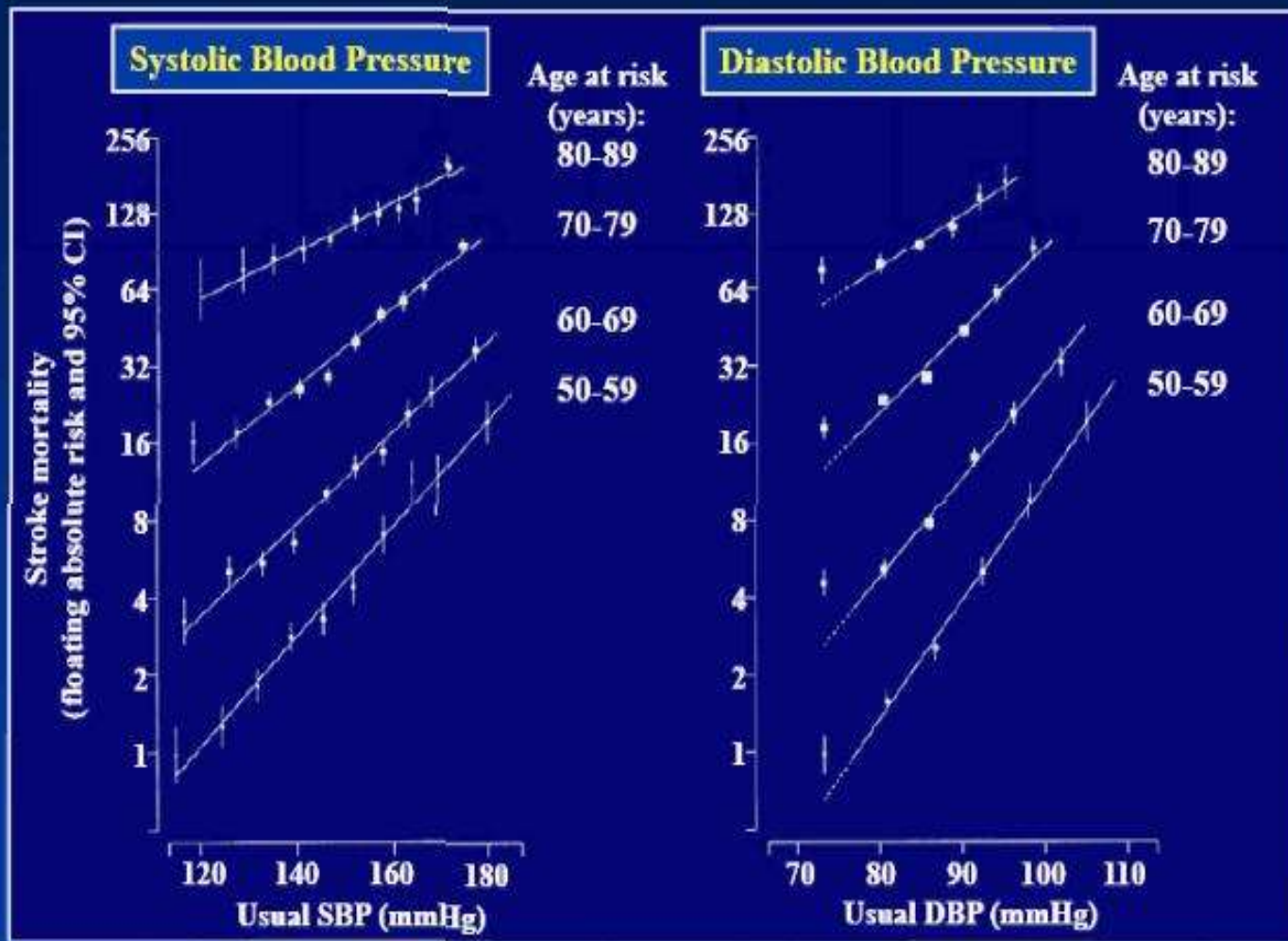
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Целевой уровень АД при сахарном диабете

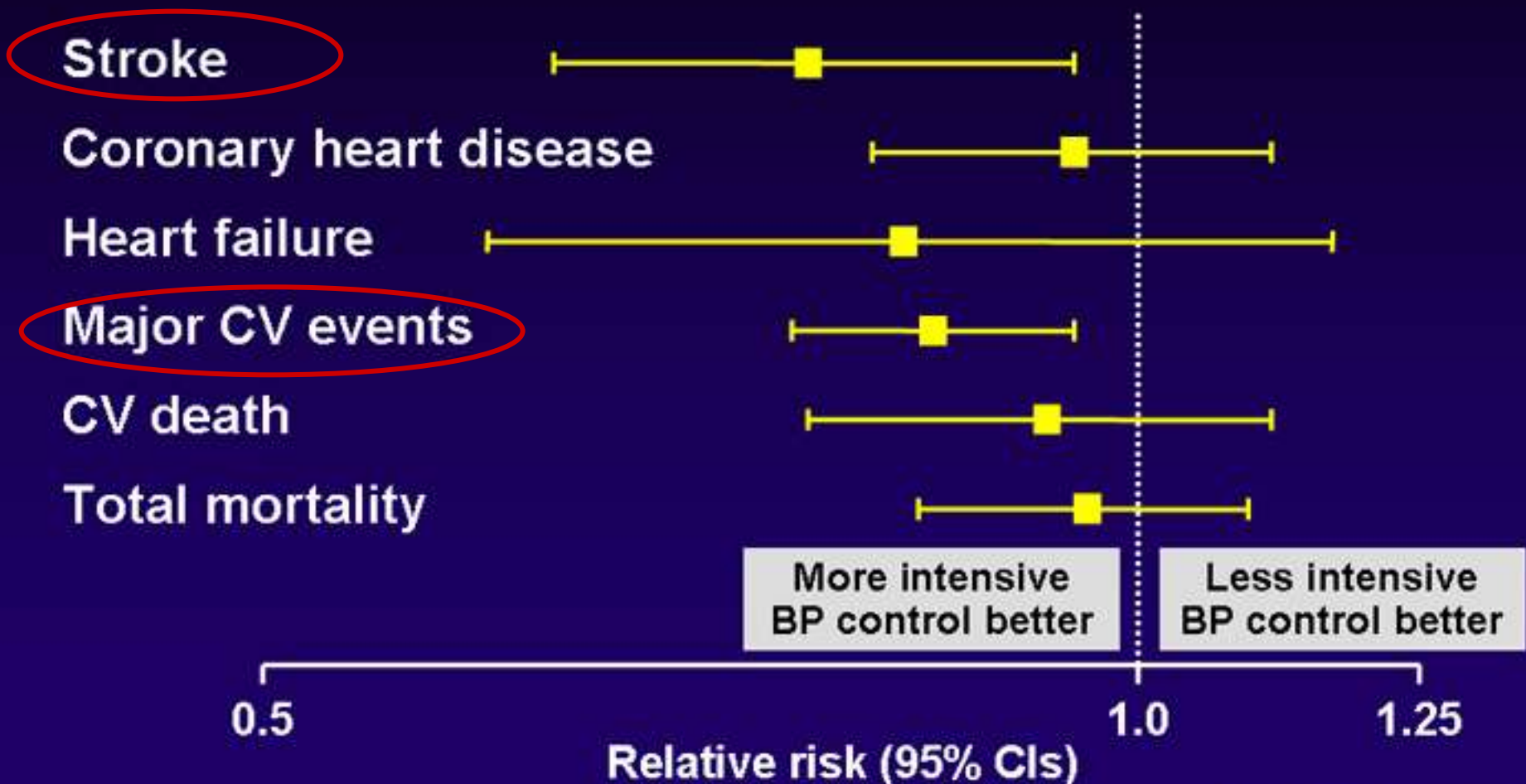
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Смертность от инсульта в зависимости от возраста и уровня АД



Эффекты антигипертензивной терапии на кардиоваскулярные события: Чем ниже тем лучше?



Zanchetti A, Amery A, Berglund G, et al.: How much should blood pressure be lowered? The problem of the J-shaped curve. *J Hypertens Suppl* 1989, 7:S338–S348.

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ESC Councils

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Highlight On

 ESC Congress 2011
scientific resources

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The renaissance of the “J-shaped curve” for on-treatment low blood pressure values

An article from the e-journal of the ESC Council for Cardiology Practice

Topics: Hypertension

Authors: Grassi G.



Grassi G.

The so-called “J curve” paradox refers to the finding described in studies performed about 30 years ago suggesting that treatment-induced systolic blood pressure values below 120 or 125 mm Hg and diastolic blood pressure values below 75 mm Hg may be harmful for the heart. New evidence in favour of the existence of the “J curve” have been published in the context of some recent clinical trials.

The most recent guidelines for the management of essential hypertension, published jointly in the 2007 by the European Society of Hypertension (ESH) and the European Society of Cardiology (ESC), recommend a blood pressure goal of 140/90 mmHg in the general hypertensive population and a lower goal of 130/80 mmHg or less in patients with type 2 diabetes and in high-risk individuals, such as those with a clinical history of coronary

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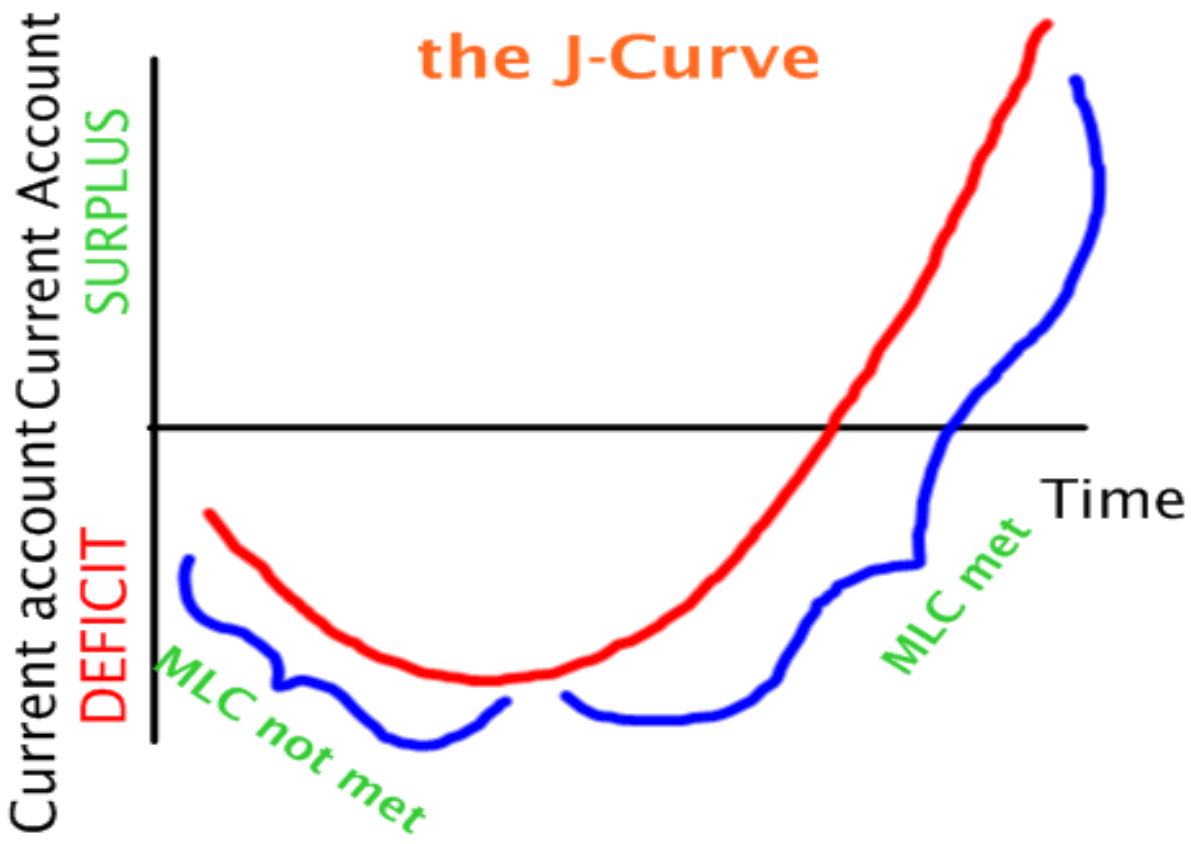
in plain English

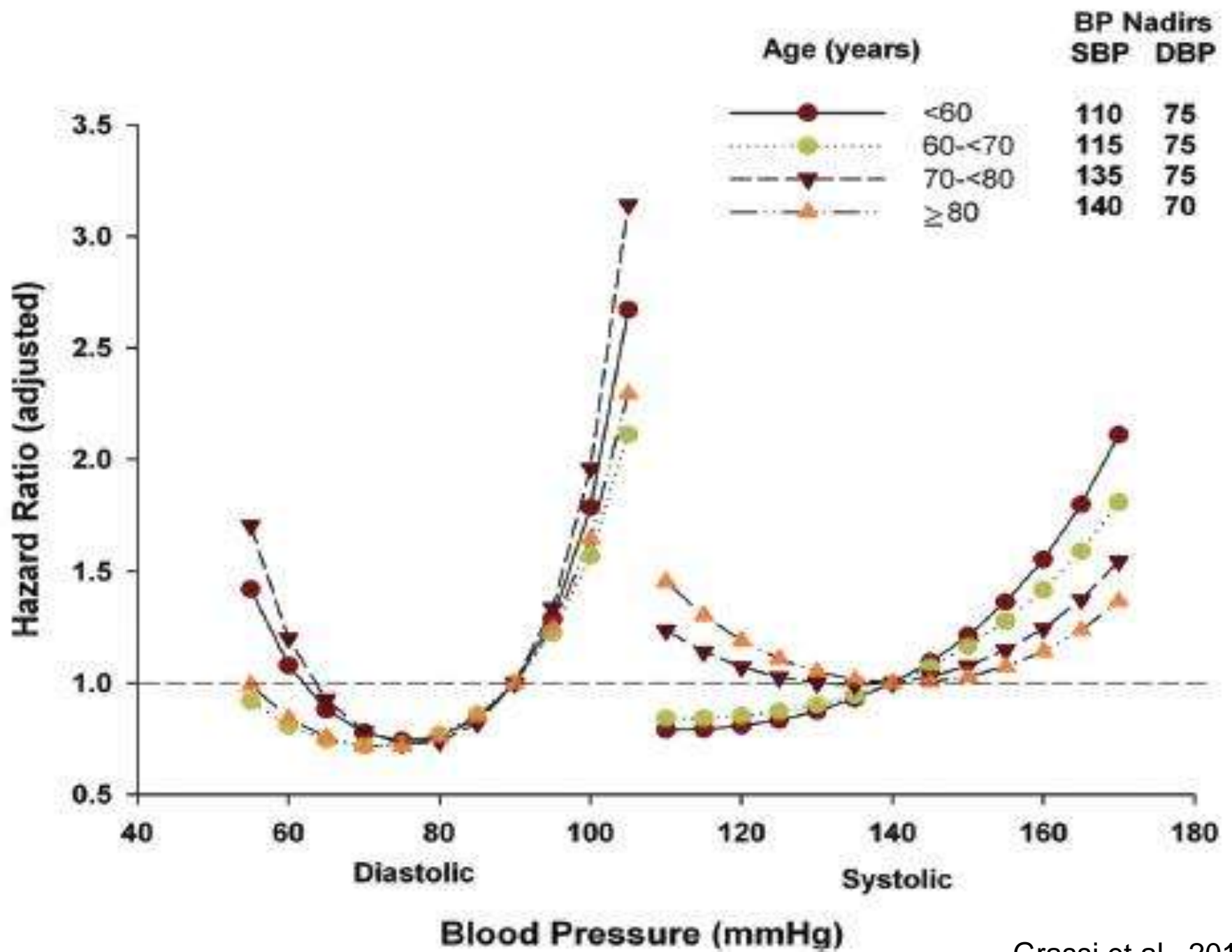


a blog by



Welker's Wikinomics





Reappraisal of European guidelines on hypertension management: a European Society of Hypertension Task Force document

Giuseppe Mancia^a, Stéphane Laurent^b, Enrico Agabiti-Rosei^c,
Ettore Ambrosioni^d, Michel Burnier^e, Mark J. Caulfield^f, Renata Cifkova^g,
Denis Clément^h, Antonio Cocaⁱ, Anna Dominiczak^j, Serap Erdine^k,

Box 4. Blood pressure goals of treatment

- (1) On the whole, there is sufficient evidence to recommend that SBP be lowered below 140mmHg (and DBP below 90 mmHg) in all hypertensive patients, both those at low moderate risk and those at high risk. Evidence is only missing in the elderly hypertensive patients, in whom the benefit of lowering SBP below 140 mmHg has never been tested in randomized trials.
- (2) The recommendation of previous guidelines to aim at a lower goal SBP (<130 mmHg) in diabetic patients and in patients at very high cardiovascular risk (previous cardiovascular events) may be wise, but it is not consistently supported by trial evidence. In no randomized trial in diabetic patients has SBP been brought down to below 130mmHg with proven benefits, and trials in which SBP was lowered to below 130mmHg in patients with previous cardiovascular events have given controversial results.
- (3) Despite their obvious limitations and a lower strength of evidence, *post hoc* analyses of trial data indicate a progressive reduction of cardiovascular events incidence with progressive lowering of SBP down to about 120 mmHg and DBP down to about 75 mmHg, although the additional benefit at low BP values becomes rather small. A J-curve phenomenon is unlikely to occur until lower values are reached, except perhaps in patients with advanced atherosclerotic artery diseases.
- (4) On the basis of current data, it may be prudent to recommend lowering SBP/DBP to values within the range 130–139/80–85 mmHg, and possibly close to lower values in this range, in all hypertensive patients. More critical evidence from specific randomized trials is desirable, however.

ВЫВОДЫ

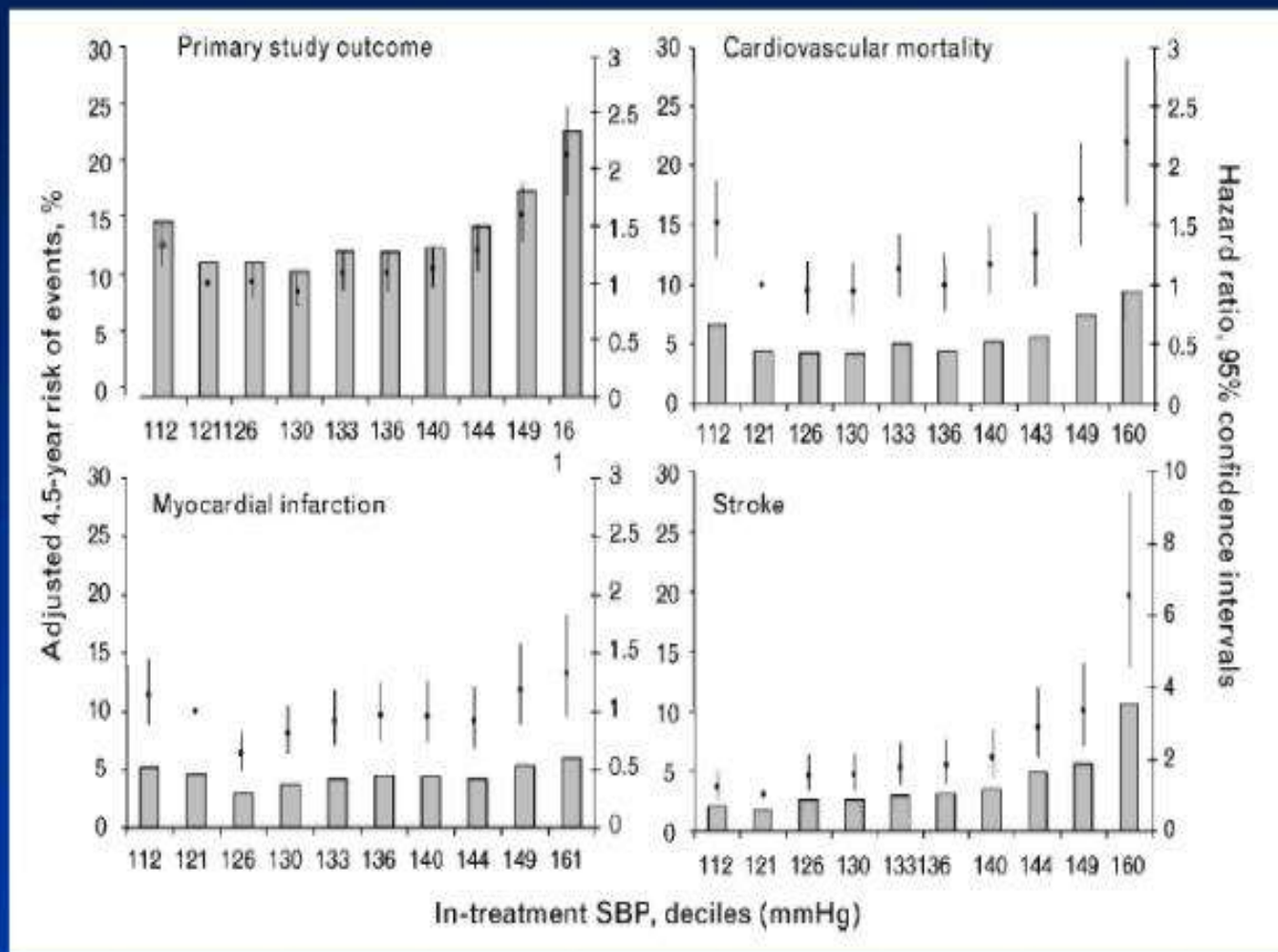
There is enough evidence to recommend that systolic blood pressure should be lowered to 140 mm Hg (and diastolic blood pressure below 90 mm Hg) in all antihypertensive patients, both those at low risk and those at high risk.

Despite their obvious limitations and a lower level of evidence, post hoc analyses of trial data showed a progressive reduction in the incidence of major events with progressive lowering of blood pressure down to about 130/85 mm Hg. Lowering diastolic blood pressure down to 85 mm Hg, although the additional benefit of lower diastolic blood pressure values becomes rather small, is still worthwhile.

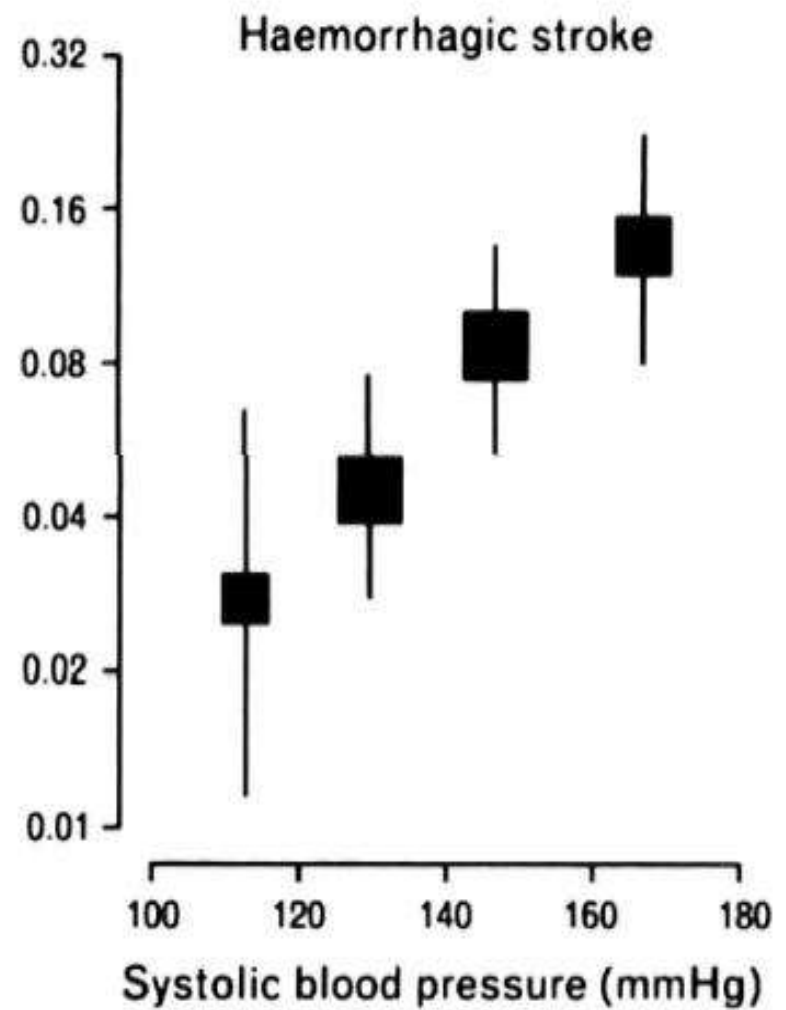
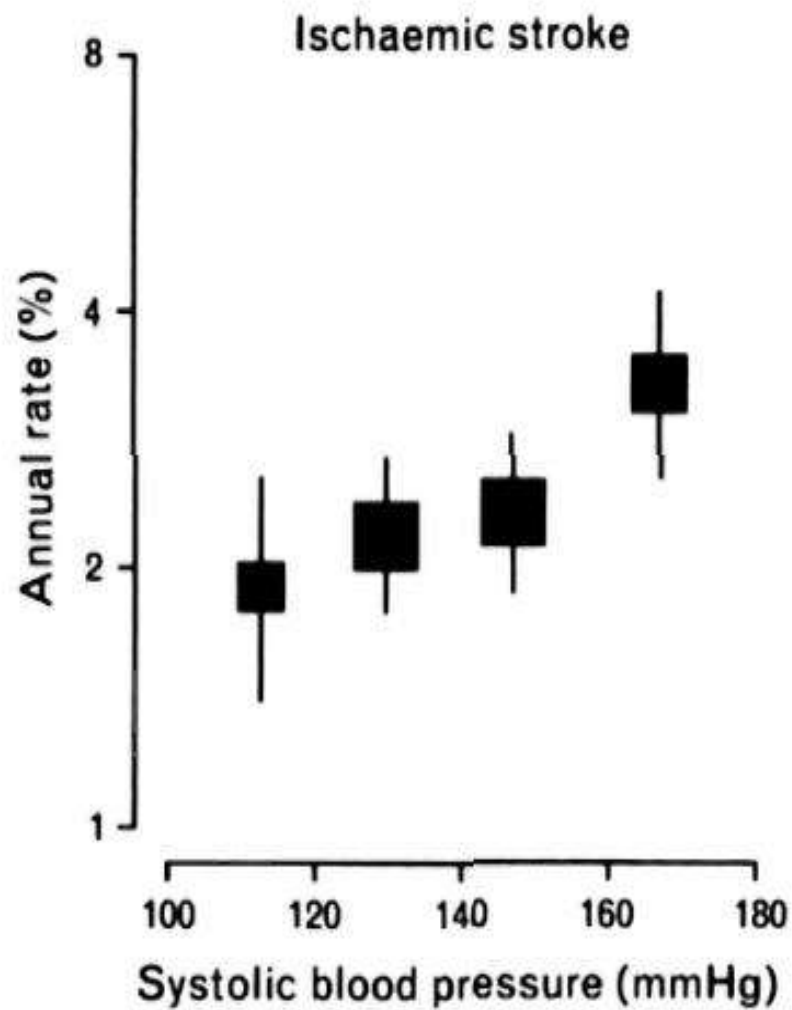
130-139/80-85 мм рт ст

It is recommended to lower systolic and diastolic blood pressure to values within the range of **130-139/80-85 mm Hg** (possibly close to the lower values in this range) in all hypertensive patients.

Взаимосвязь достигнутого АД и СС исходов



PROGRESS Trial



ДИЛЕММА J-кривой

При недостатке доказательств в отношении J-кривой необходимо использовать косвенные подходы: результаты подобных случаев в рандомизированных трайлах наблюдаются при достигнутых уровнях АД независимо от рандомизации групп

J-curve denied: HOT, PROGRESS, UKPDS

J-curve found: IDNT, INVEST, ONTARGET

J-curve found in both actively and placebo treated group: INDANA (7 trials)

J-curve independent of antihypertensive therapy: TNT, PROVE-IT

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**VBWG US Chapter Meeting
at ACC 2011**

**Saturday, April 2, 2011
New Orleans, Louisiana**



Antihypertensive Treatment and Secondary Prevention of Cardiovascular Disease Events Among Persons Without Hypertension

A Meta-analysis

Angela M. Thompson, MSPH; Tian Hu, MS, BM; Carrie L. Eshelbrenner, MD; Kristi Reynolds, PhD; Jiang He, MD, PhD; Lydia A. Bazzano, MD, PhD

Conclusions Among patients with clinical history of CVD but **without** **hypertension**, antihypertensive treatment was associated with decreased risk of stroke, CHF, composite CVD events, and all-cause mortality. Additional randomized trial data are necessary to assess these outcomes in patients without CVD clinical recommendations.

ЗАКЛЮЧЕНИЕ

Outcome	Relative Risk Reduction	Absolute Risk Reduction (per 1000 persons)
Stroke	-23% (RR, 0.77 [95% CI, 0.61-0.98])	-7.7 (95%CI, -15.2 to -0.3)
MI	-20% (RR, 0.80 [95% CI, 0.69-0.93])	-13.3 (95% CI, -28.4 to 1.7)
CHF events	-29% (RR, 0.71 [95% CI, 0.65-0.77])	-43.6 (95% CI, -65.2 to -22.0)
CVD events	-15% (RR, 0.85 [95% CI, 0.80-0.90])	-27.1 (95% CI, -40.3 to -13.9)
CVD Mortality	-17% (RR, 0.83 [95% CI, 0.69-0.99])	-15.4 (95% CI, -32.5 to 1.7)
All-cause Mortality	-13% (RR, 0.87 [95% CI, 0.80-0.95])	-13.7 (95% CI, -24.6 to -2.8)

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2007 ESH/ESC Guidelines - BP Thresholds / Goals (mmHg)

General hypertensive
population

High / very high CV risk
patients
(CAD, cerebrovasc. disease /
DM / Renal disease)

Threshold

$\geq 140/90$

$\geq 130/85$

Goal

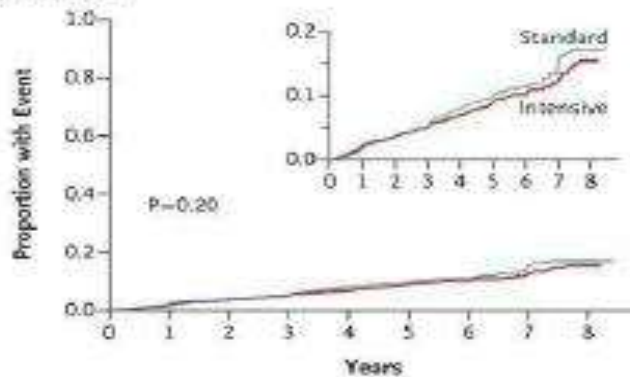
$< 140/90$
(and lower if tolerated)

$< 130/80$

Threshold / Goal identical in the elderly (up to 80 ys of age)

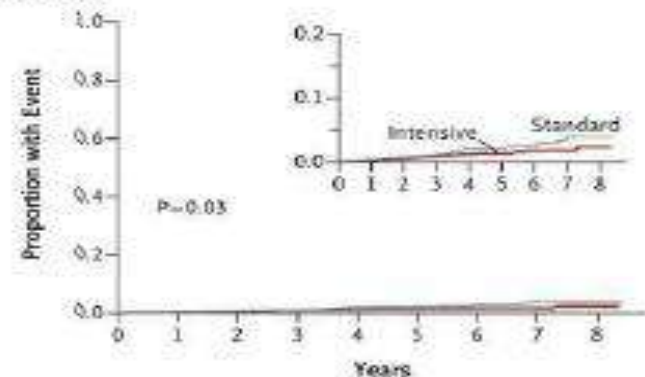
ACCORD BP 2010

A Primary Outcome



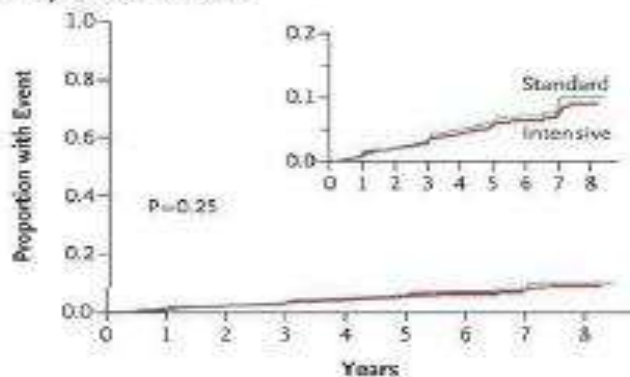
No. at Risk	0	1	2	3	4	5	6	7	8
Intensive	2362	2273	2182	2117	1770	1080	298	175	80
Standard	2371	2274	2196	2120	1793	1127	358	195	108

B Nonfatal Stroke



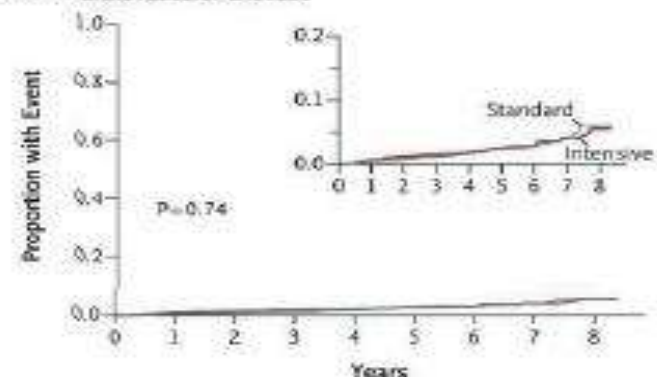
No. at Risk	0	1	2	3	4	5	6	7	8
Intensive	2362	2291	2223	2174	1841	1128	313	186	88
Standard	2371	2287	2235	2186	1879	1196	382	215	114

C Nonfatal Myocardial Infarction



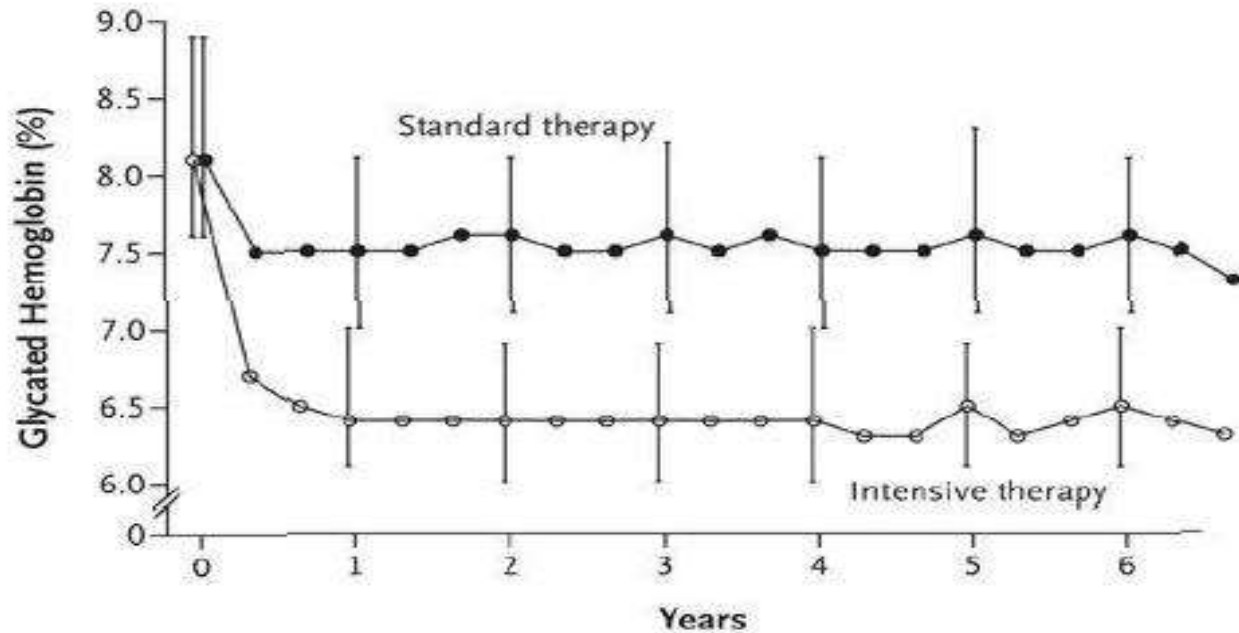
No. at Risk	0	1	2	3	4	5	6	7	8
Intensive	2362	2278	2190	2135	1787	1087	299	177	82
Standard	2371	2278	2208	2141	1818	1145	365	201	112

D Death from Cardiovascular Disease



No. at Risk	0	1	2	3	4	5	6	7	8
Intensive	2362	2304	2252	2201	1870	1143	317	188	91
Standard	2371	2313	2268	2218	1912	1220	393	221	118

ACCORD median HbA1c

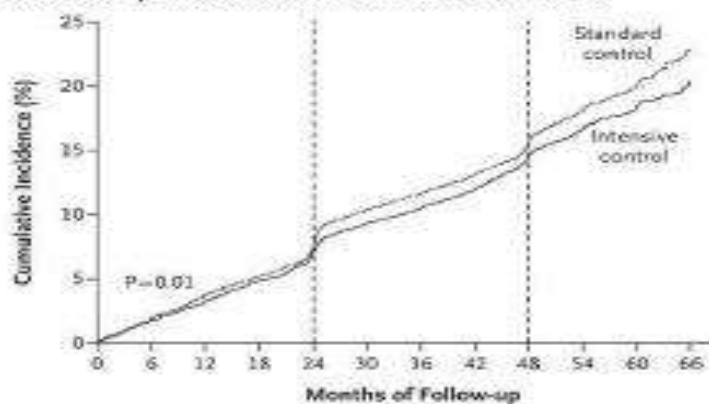


No. at Risk

Standard therapy	5109	4774	4588	3186	1744	455	436
Intensive therapy	5119	4768	4585	3165	1706	476	471

ADVANCE outcomes

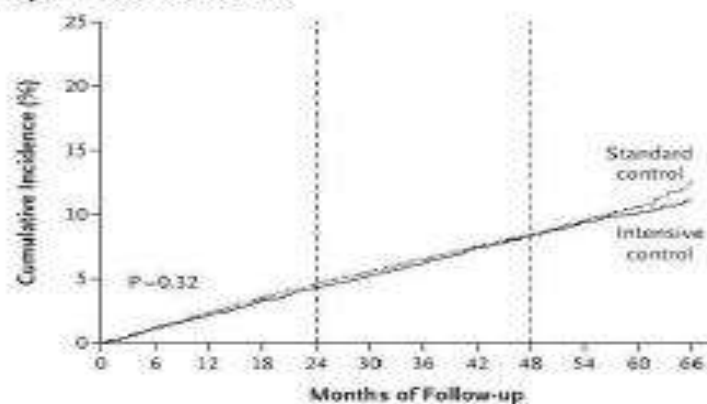
A Combined Major Macrovascular and Microvascular Events



No. at Risk

Intensive	5570	5457	5368	5256	5100	4957	4867	4756	4599	4044	1883	447
Standard	5569	5448	5342	5240	5065	4903	4808	4703	4545	3992	1923	470

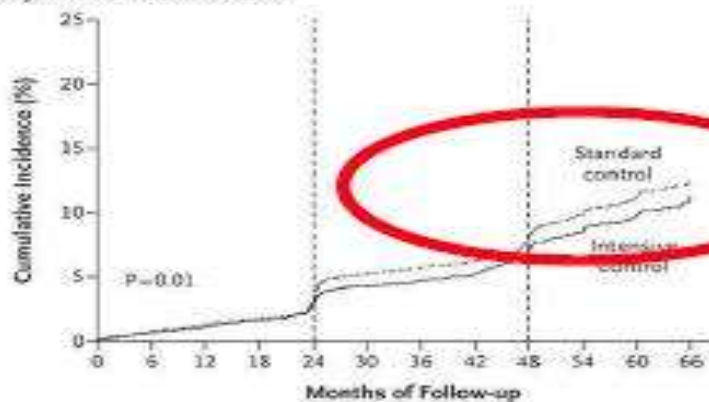
B Major Macrovascular Events



No. at Risk

Intensive	5570	5494	5428	5338	5256	5176	5097	5005	4927	4396	2071	486
Standard	5569	5486	5413	5330	5237	5163	5084	4995	4922	4385	2108	509

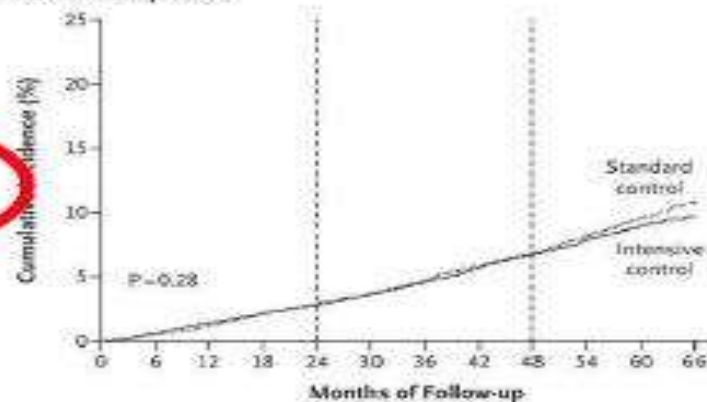
C Major Microvascular Events



No. at Risk

Intensive	5571	5495	5430	5358	5233	5120	5055	4968	4824	4258	1992	473
Standard	5569	5498	5431	5353	5207	5069	4995	4911	4764	4204	2024	494

D Death from Any Cause

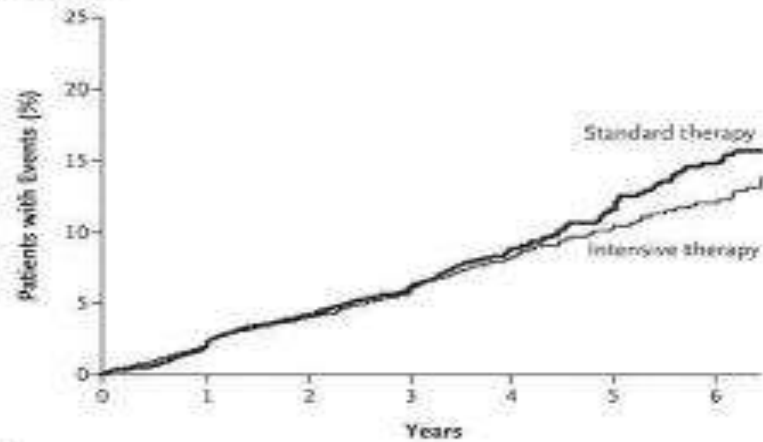


No. at Risk

Intensive	5571	5533	5490	5444	5411	5361	5312	5246	5189	4603	2211	525
Standard	5569	5537	5503	5445	5399	5354	5301	5237	5178	4643	2240	544

ACCORD primary outcome and mortality

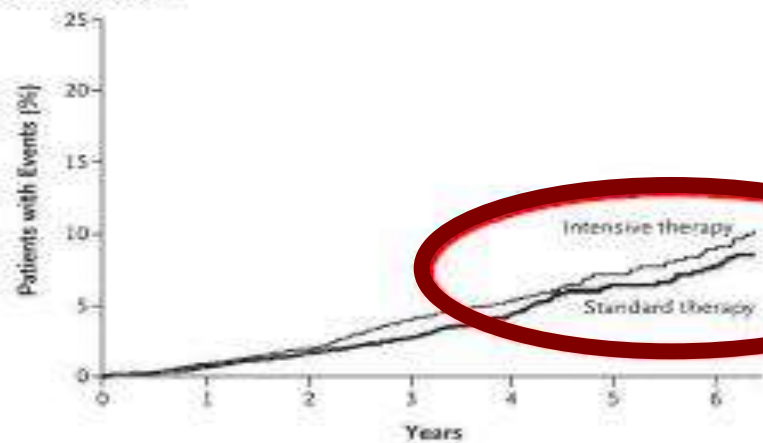
A Primary Outcome



No. at Risk

Intensive therapy	5128	4843	4390	2839	1337	475	448
Standard therapy	5123	4827	4262	2702	1186	440	395

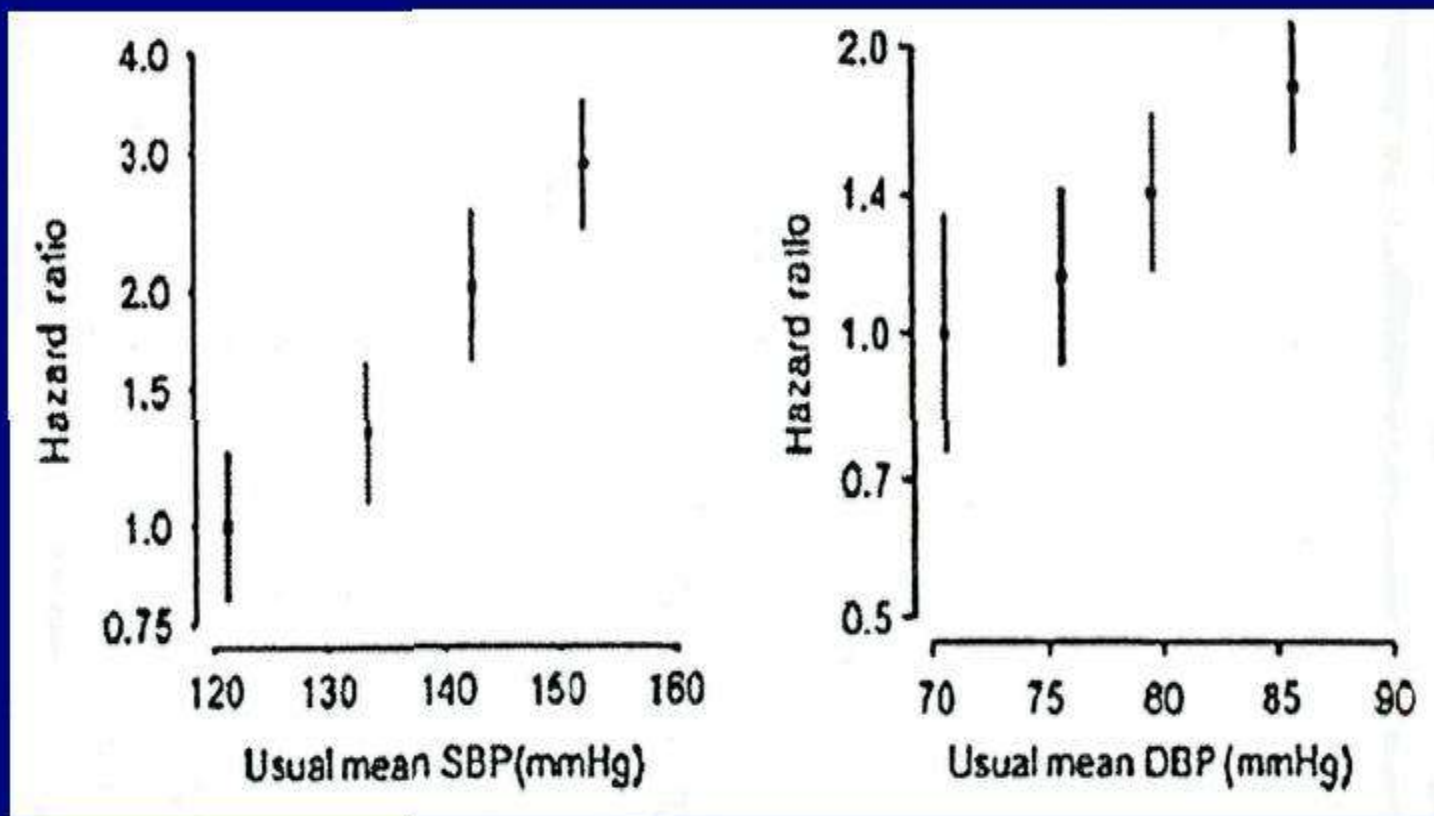
B Death from Any Cause



No. at Risk

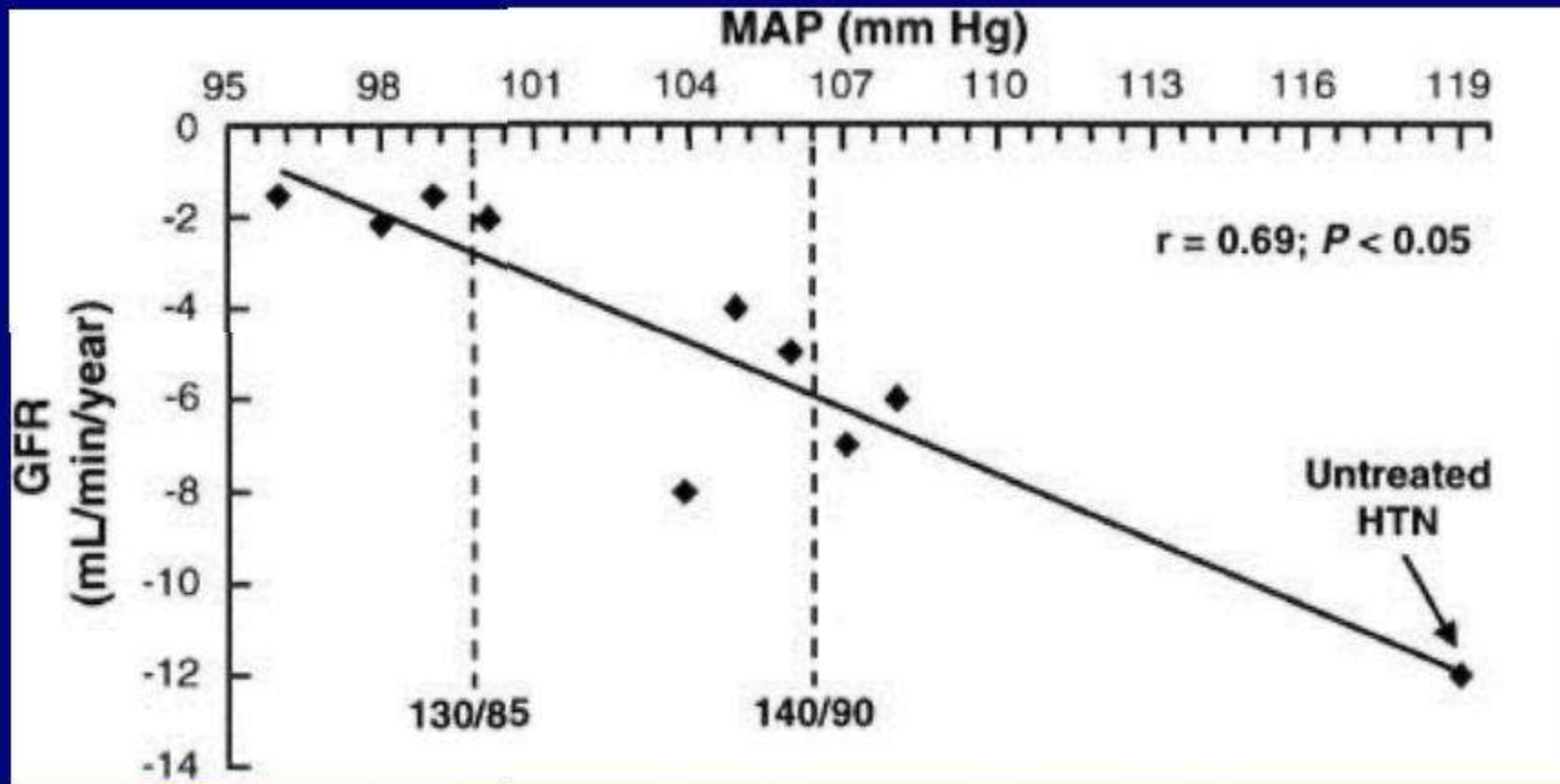
Intensive therapy	5128	4972	4803	3250	1748	523	506
Standard therapy	5123	4971	4700	3180	1642	499	480

РИСК СМЕРТЕЛЬНОГО ИСХОДА ПРИ ЗАБОЛЕВАНИЯХ ПОЧЕК В ЗАВИСИМОСТИ ОТ УРОВНЯ АД

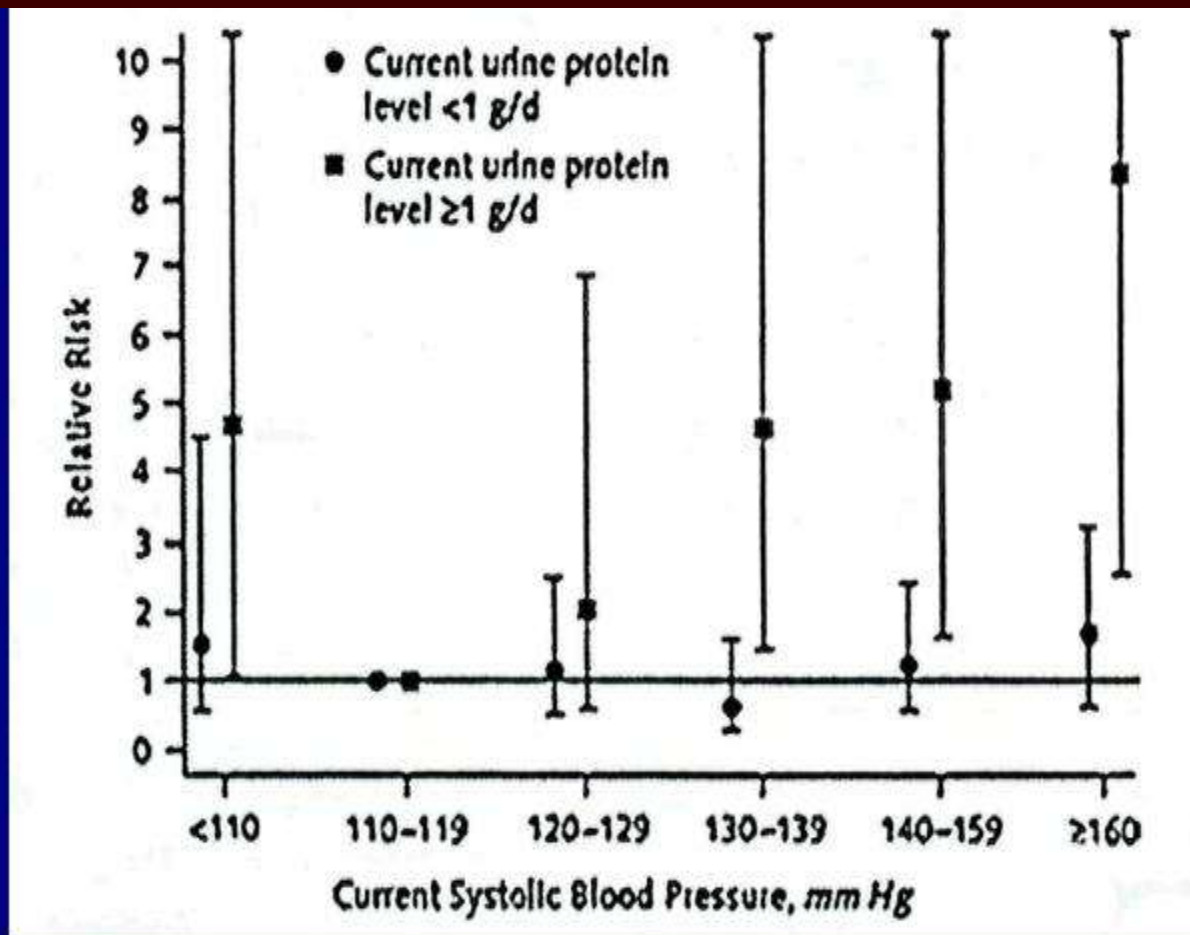


Hypertension 2009;54:509-15

ВЛИЯНИЕ УРОВНЯ АД НА СКОРОСТЬ КЛУБОЧКОВОЙ ФИЛЬТРАЦИИ ПРИ ДИАБЕТИЧЕСКОЙ НЕФРОПАТИИ

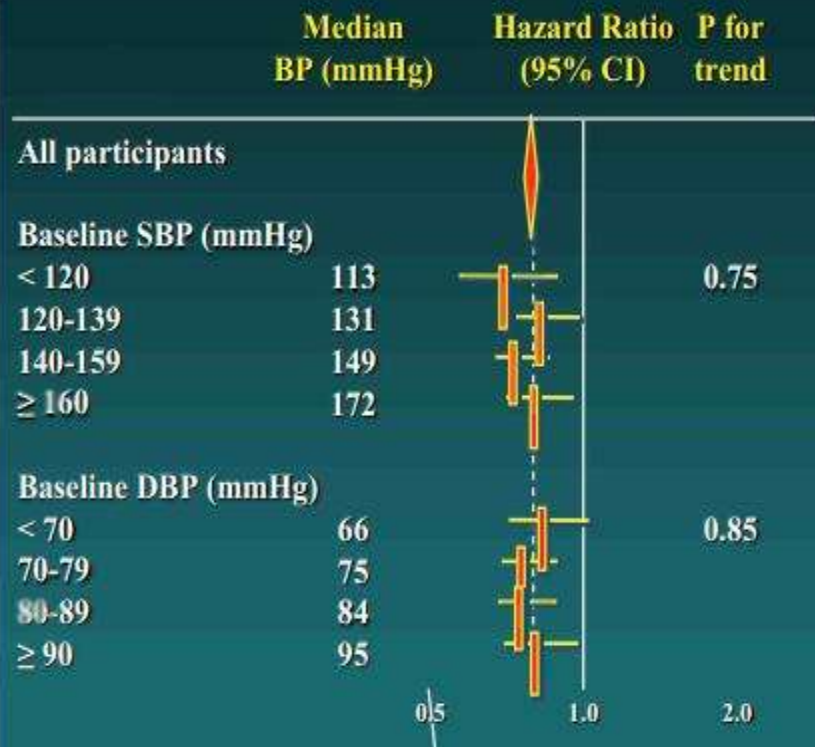


ЗАВИСИМОСТЬ ПРОТЕИНУРИИ ОТ УРОВНЯ СИСТОЛИЧЕСКОГО АД ПРИ ЗАБОЛЕВАНИИ ПОЧЕК



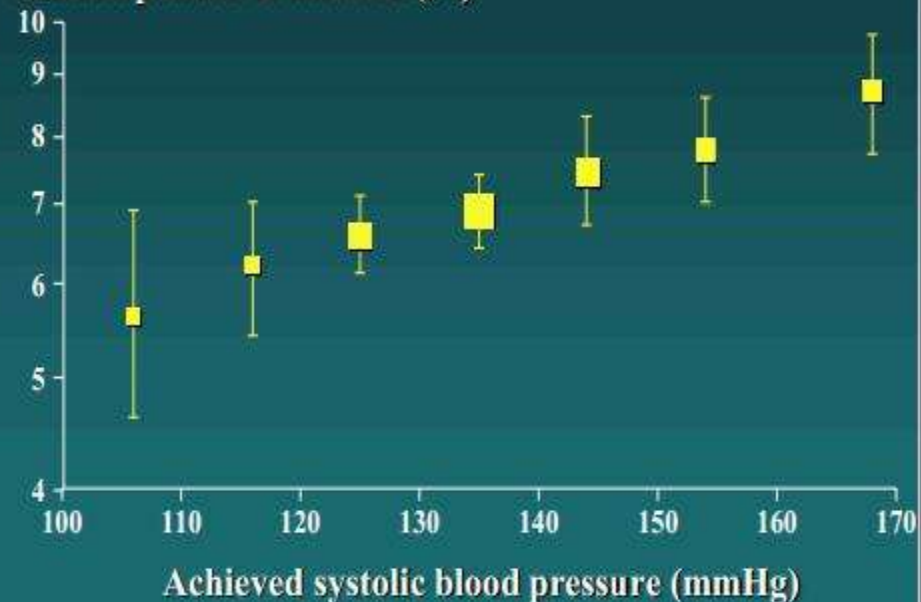
Risk of Renal Events according to Baseline SBP and DBP and Achieved SBP in ADVANCE

All renal events



Renal events (adjusted)

Annual patient event rate (%)



До какого уровня снижать АД при различных патологических состояниях?

Table 2. American Heart Association Recommendations for Prevention and Management of Ischemic Heart Disease: Blood Pressure Targets

Patient Type	Goal BP (mm Hg)
Left ventricular dysfunction	<120/80
Diabetes mellitus	<130/80
Chronic renal disease	<130/80
CAD or CAD risk equivalents*	<130/80
Carotid artery disease	<130/80
Peripheral arterial disease	<130/80
Abdominal aortic aneurysm	<130/80
High-risk (10-y FRS $\geq 10\%$)	<130/80
Uncomplicated hypertension (none of above)	<140/90

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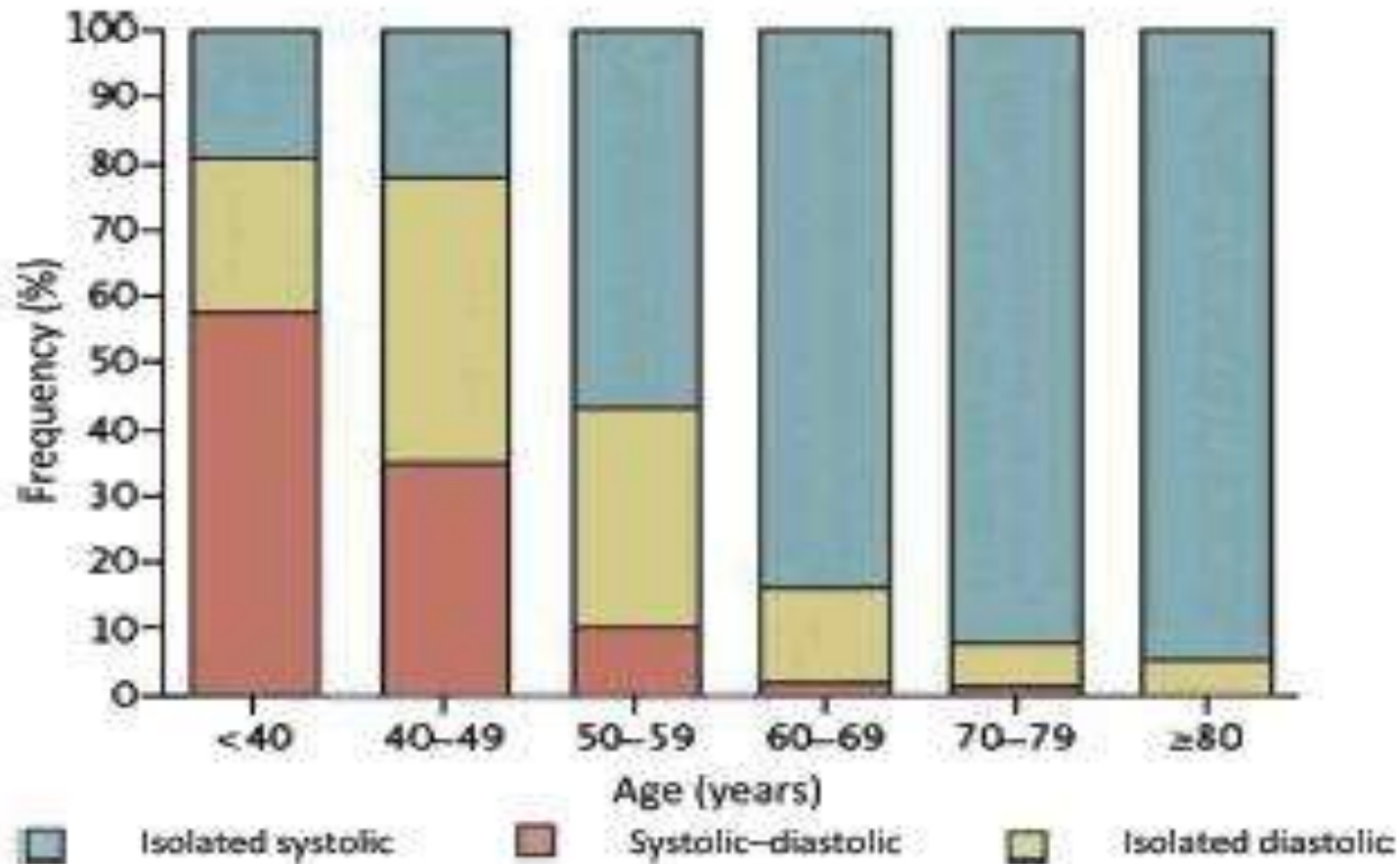
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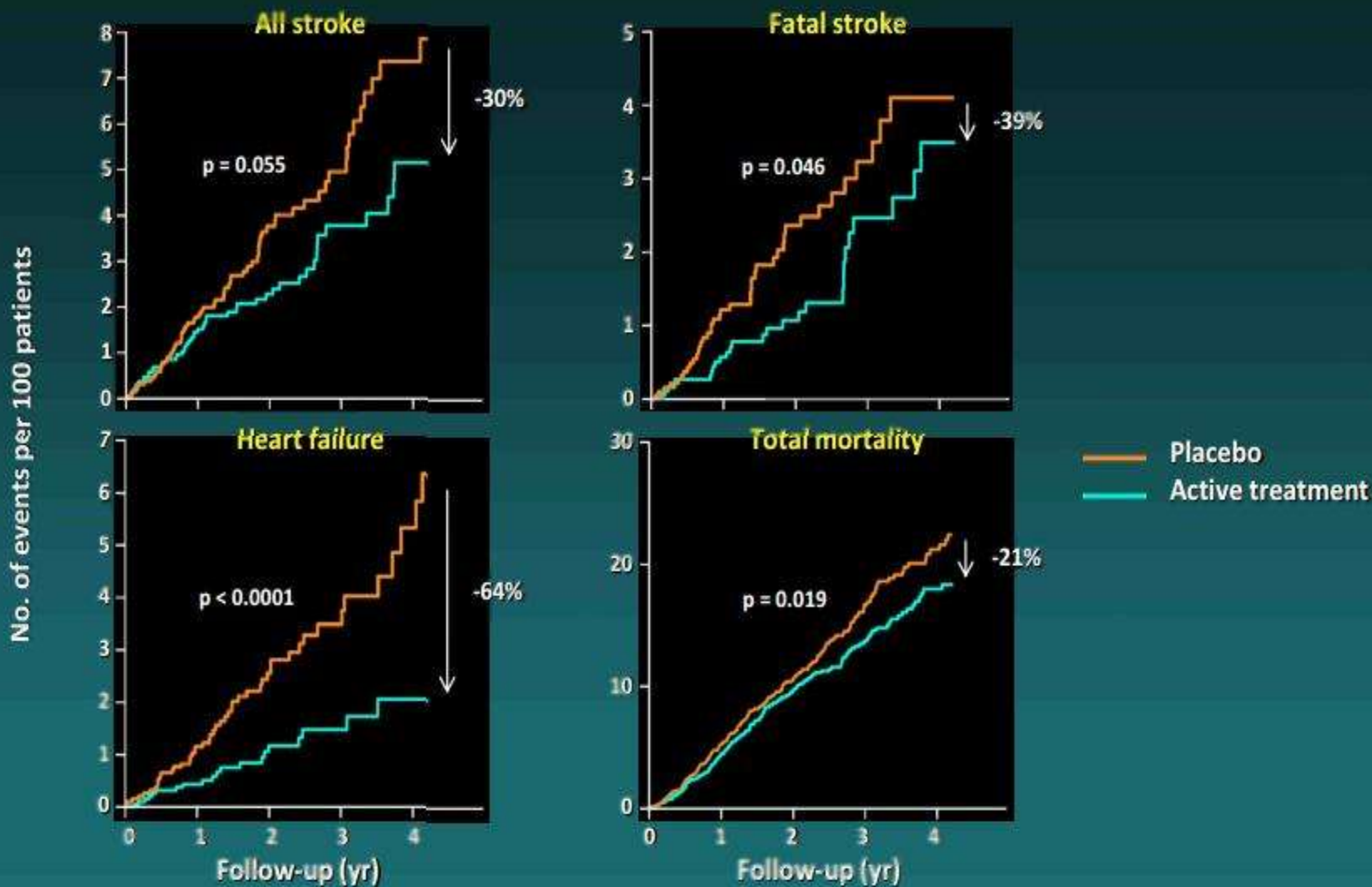
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Развитие изолированной систолической АГ в зависимости от возраста



Incidence of Morbidity / Mortality in HYVET





Алгоритм ведения АГ у пожилых



Principles of Hypertension Treatment

Target systolic blood pressure is ≤ 140 mmHg in patients aged 55 to 79
 Target systolic blood pressure is ≤ 140 mmHg in patients \geq age 80
 Achieved values < 140 mmHg for those aged ≤ 79 are appropriate
 but for those aged ≥ 80 , 140 to 145 mmHg, if tolerated, can be



Тиазидовые
 ИАПФ
 БРА
 Антагонисты
 кальция

Without Compelling Indications

Stage 1 Hypertension
 SBP 140 to 159 mmHg or
 DBP 90 to 99 mmHg

ACEI, ARB, CA, diuretic,
 or combination

Stage 2 Hypertension
 SBP ≥ 160 mmHg or
 DBP ≥ 100 mmHg

Majority will require at least two medications to reach goal if at least 20 mmHg above target. Initial combinations should be considered. The combination of amlodipine with an RAS blocker may be preferred to a diuretic combination, though either is acceptable.

With Compelling Indications

Compelling Indication

- Heart Failure
- Post myocardial infarction
- CAD or High CVD risk
- Angina Pectoris
- Aortopathy/Aortic Aneurysm
- Diabetes
- Chronic kidney disease
- Recurrent stroke prevention
- Early dementia

Initial Therapy Options*

- THIAZ, BB, ACEI, ARB, CA, ALDO ANT
- BB, ACEI, ALDO ANT, ARB
- THIAZ, BB, ACEI, CA
- BB, CA
- BB, ARB, ACEI, THIAZ, CA
- ACEI, ARB, CA, THIAZ, BB
- ACEI, ARB
- THIAZ, ACEI, ARB, CA

*Combination therapy

Not at Target Blood Pressure

Optimize dosages or add additional drugs until goal blood pressure is achieved.
 Refer to a clinical hypertension specialist if unable to achieve control.

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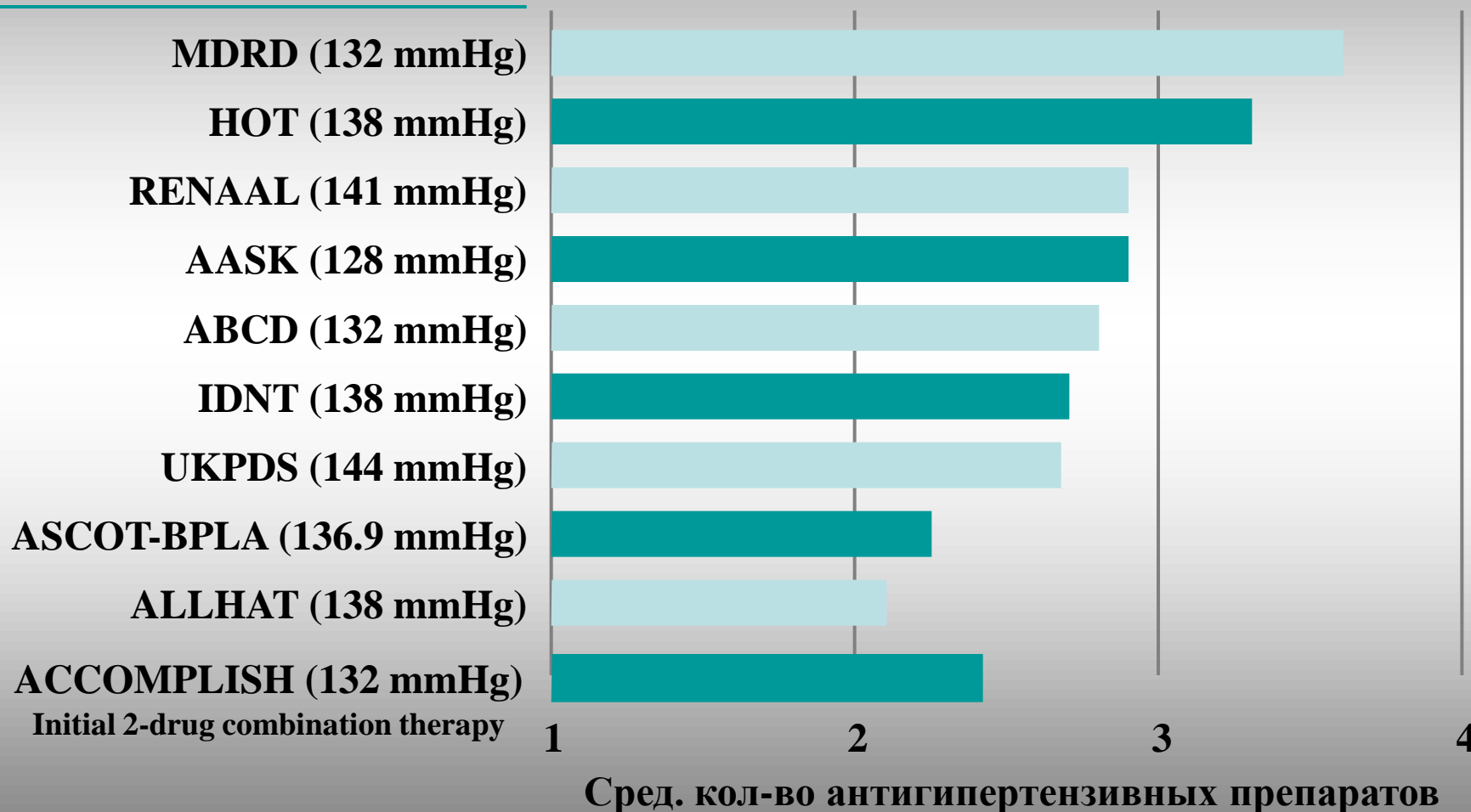
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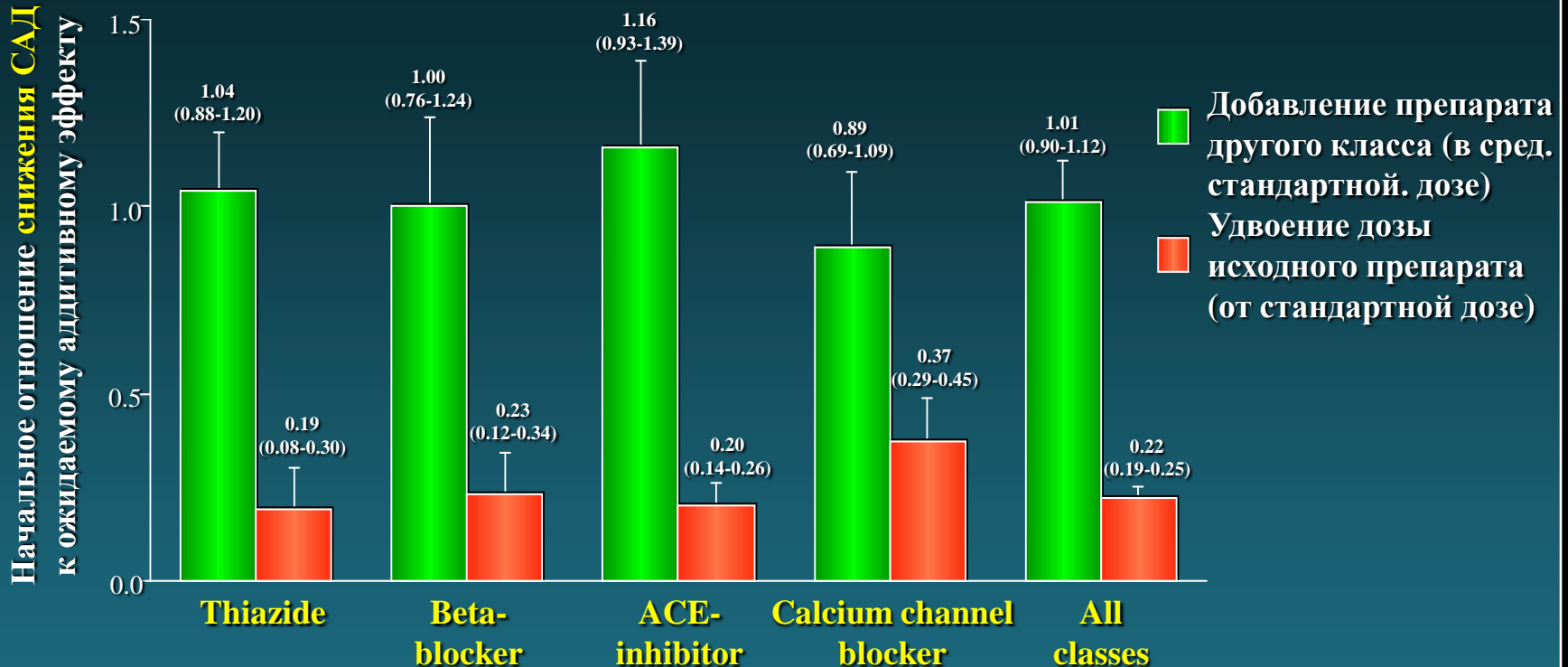
Для достижения целевых уровней АД требуется комбинация нескольких а/г препаратов^{1,2}

Trial (SBP achieved)



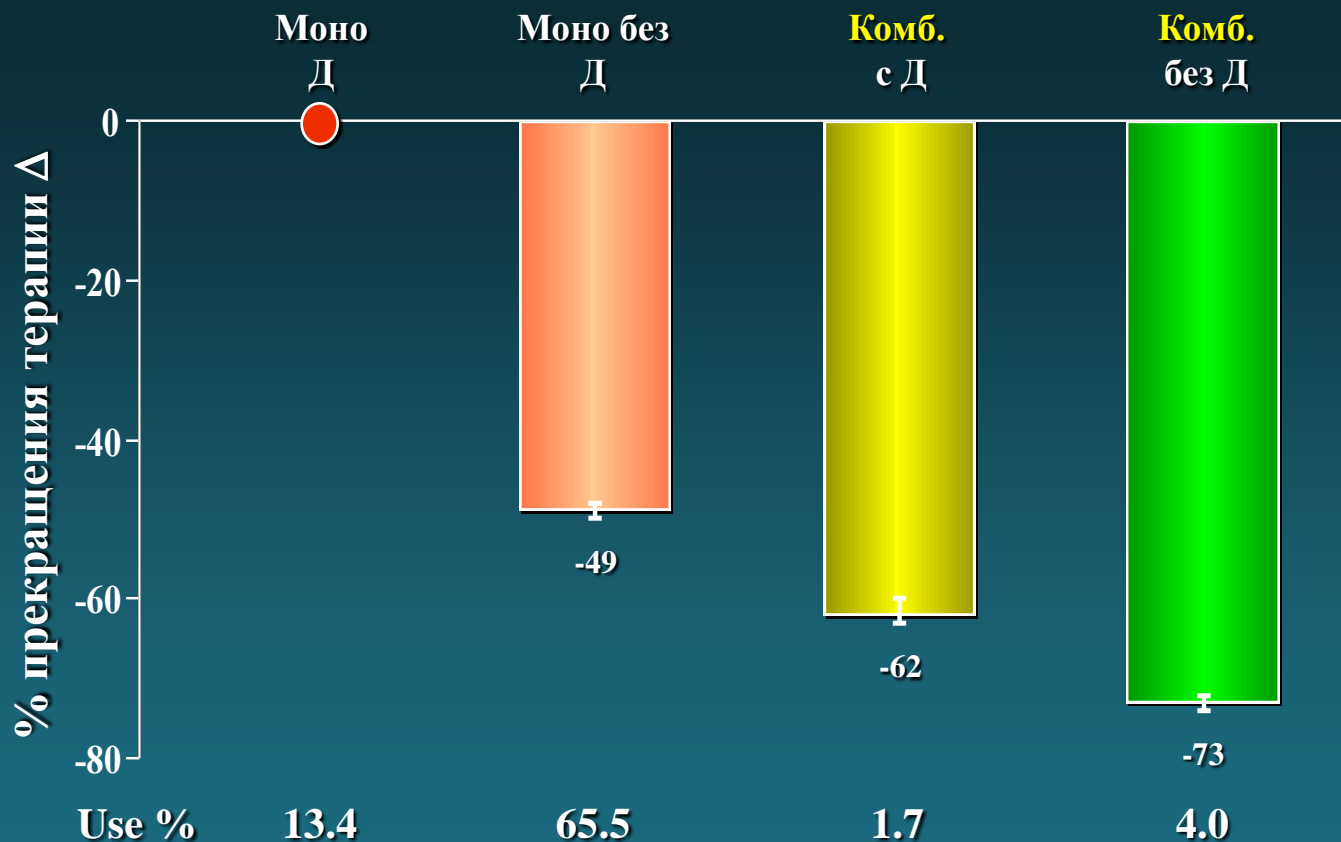
1. Bakris et al. Am J Med 2004;116(5A):30S–8; 2. Dahlöf et al. Lancet 2005;366:895–906
3. Jamerson et al. Blood Press 2007;16:80–6; 4. Jamerson et al. N Engl J Med 2008;359:2417–28

Снижение АД при добавлении препарата или удвоении дозы исходного препарата



* The expected incremental effect is the incremental blood pressure reduction of the added (or doubled drug), assuming an additive effect and allowing for the smaller reduction from 1 drug (or dose of 1 drug) given the lower pretreatment blood pressure because of the other

**Снижение Частоты прерывания терапии за 9 мес.
по сравнению с начальной монотерапией диуретиком
(Д) (n = 433.680) ***



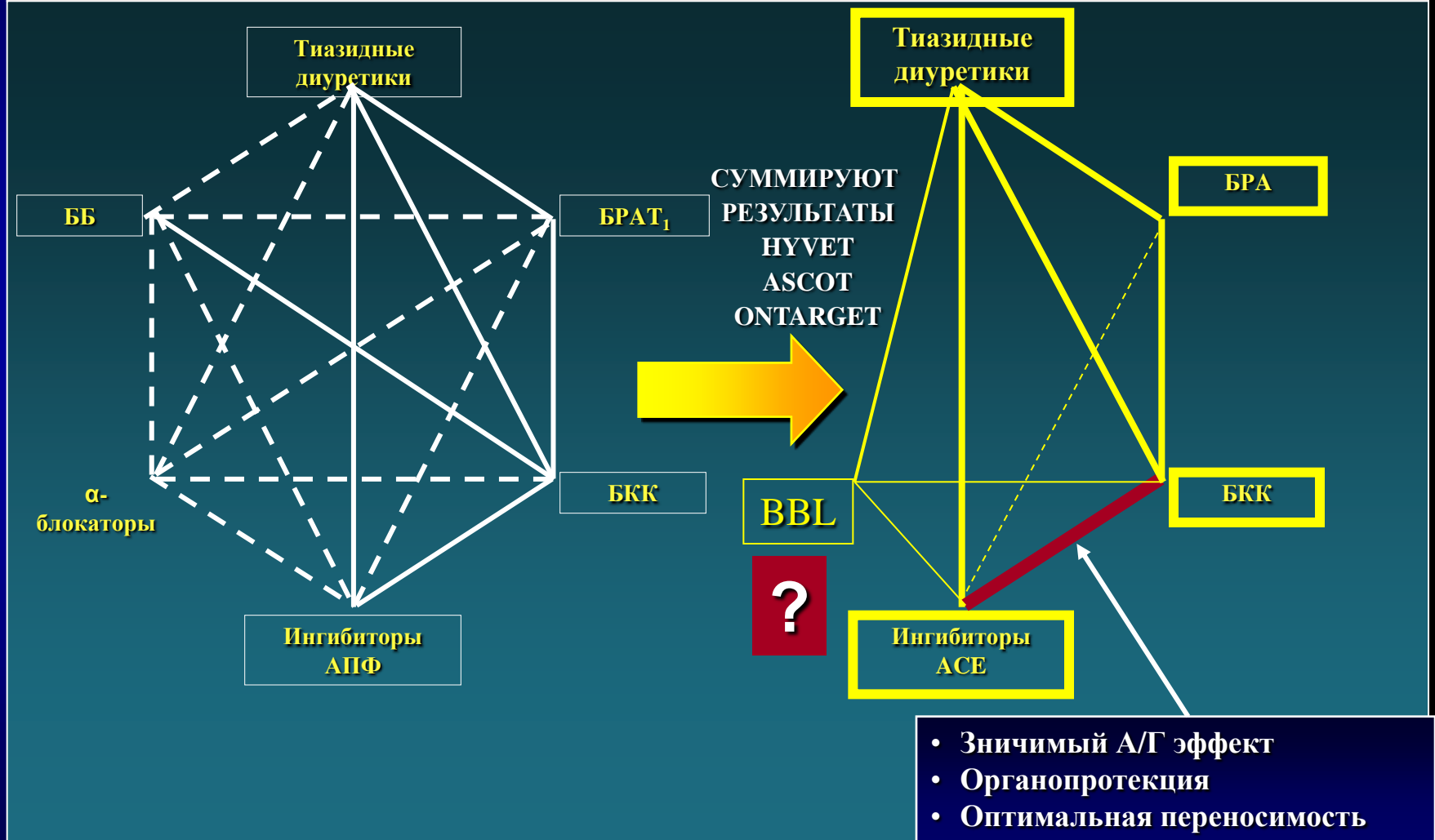
* Скорректировано по возрасту / полу / приему не а/г препаратов

2007 ESH/ESC Guidelines



2009 ESH Обновление

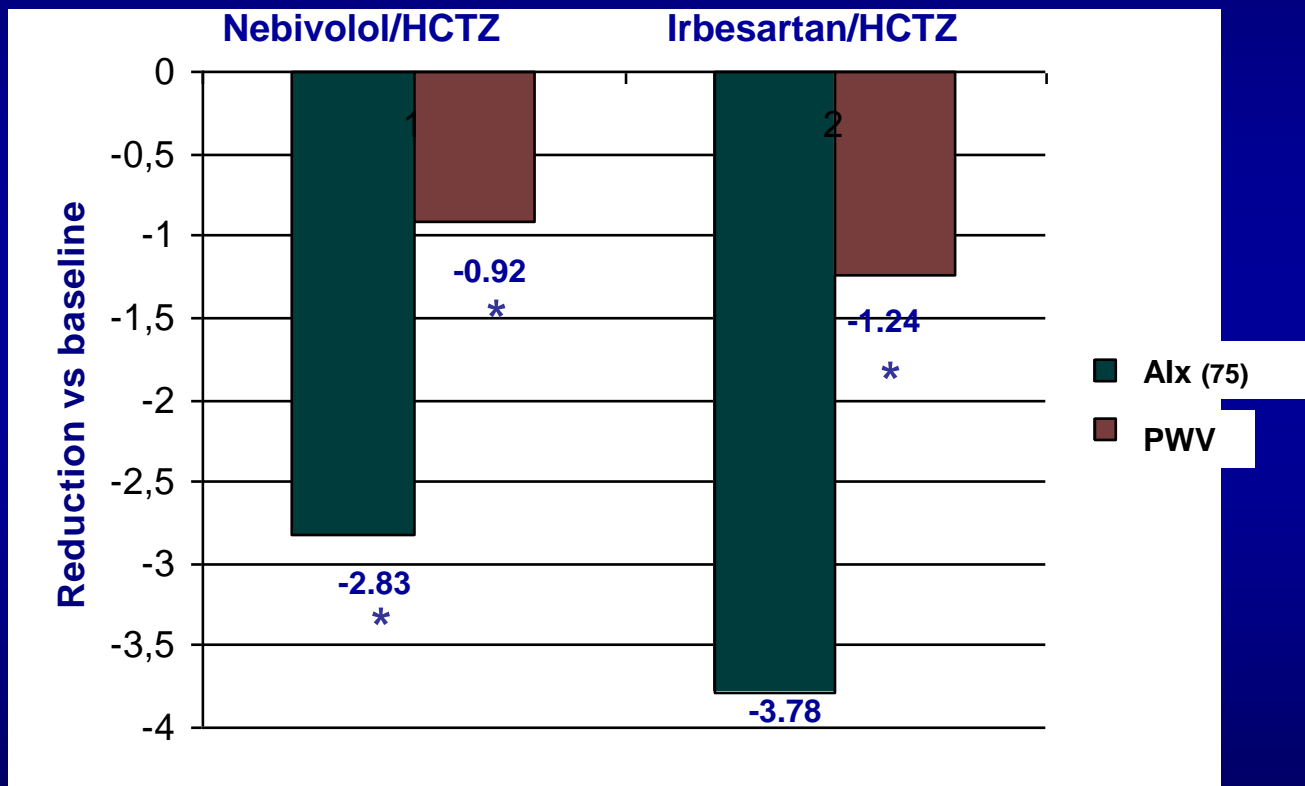
Комбинация некоторых классов А/Г препаратов



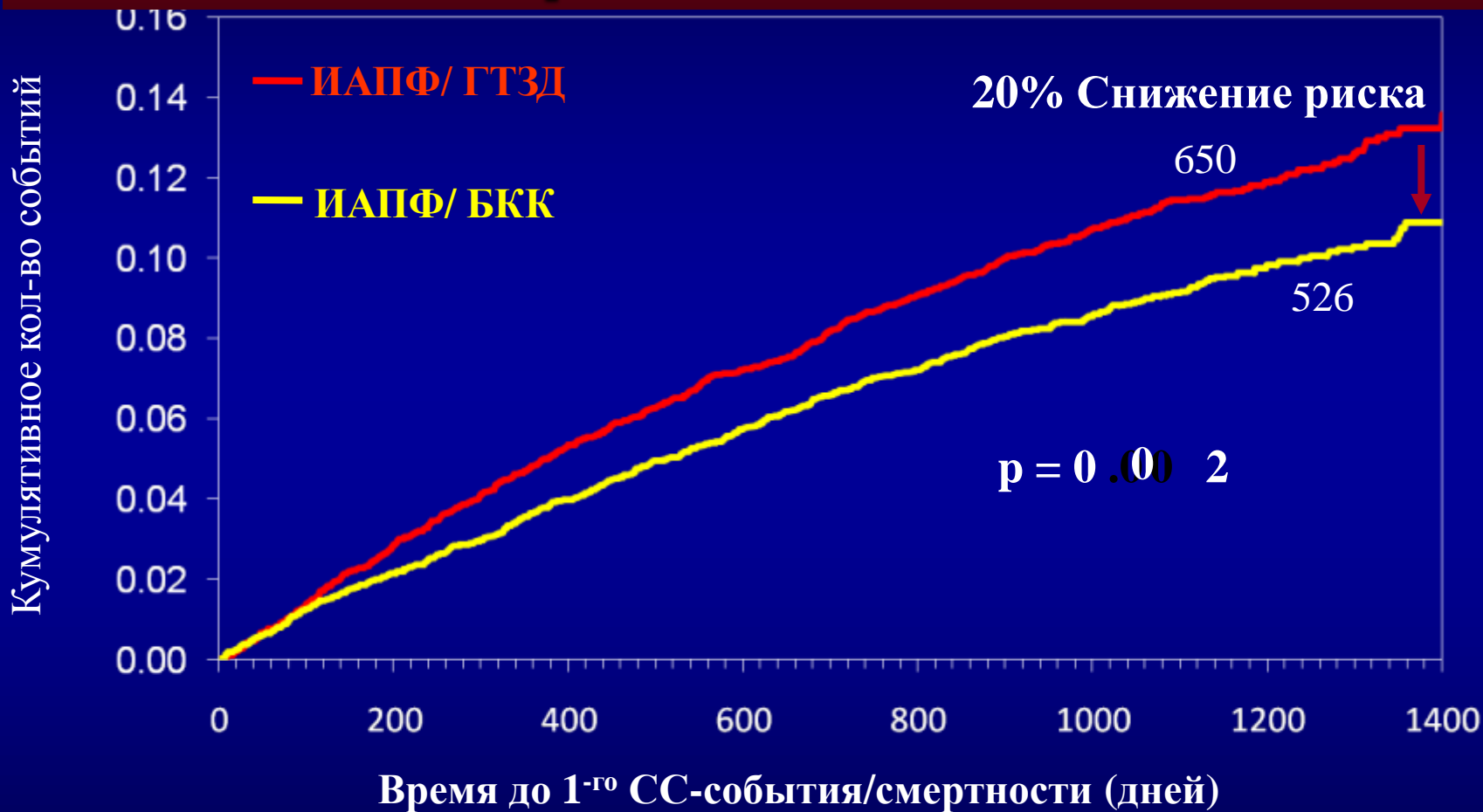
Влияние антигипертензивных средств на показатели центральной гемодинамики

Класс	Центр сист АД	Индекс аугментации	Жесткость аорты
И-АПФ	↓↓	↓↓	↓
АIIА	↓	↓	↓
Классические β-блокаторы	↑	↑	↓
Антагонисты Са	↓	↓	↓
Диуретики	↔	↔↓	↔
Нитраты	↓↓	↓↓	↔

Способность Небилета влиять на скорость пульсовой волны и снизить аугментационный индекс сопоставима с сартанами (2012 год).

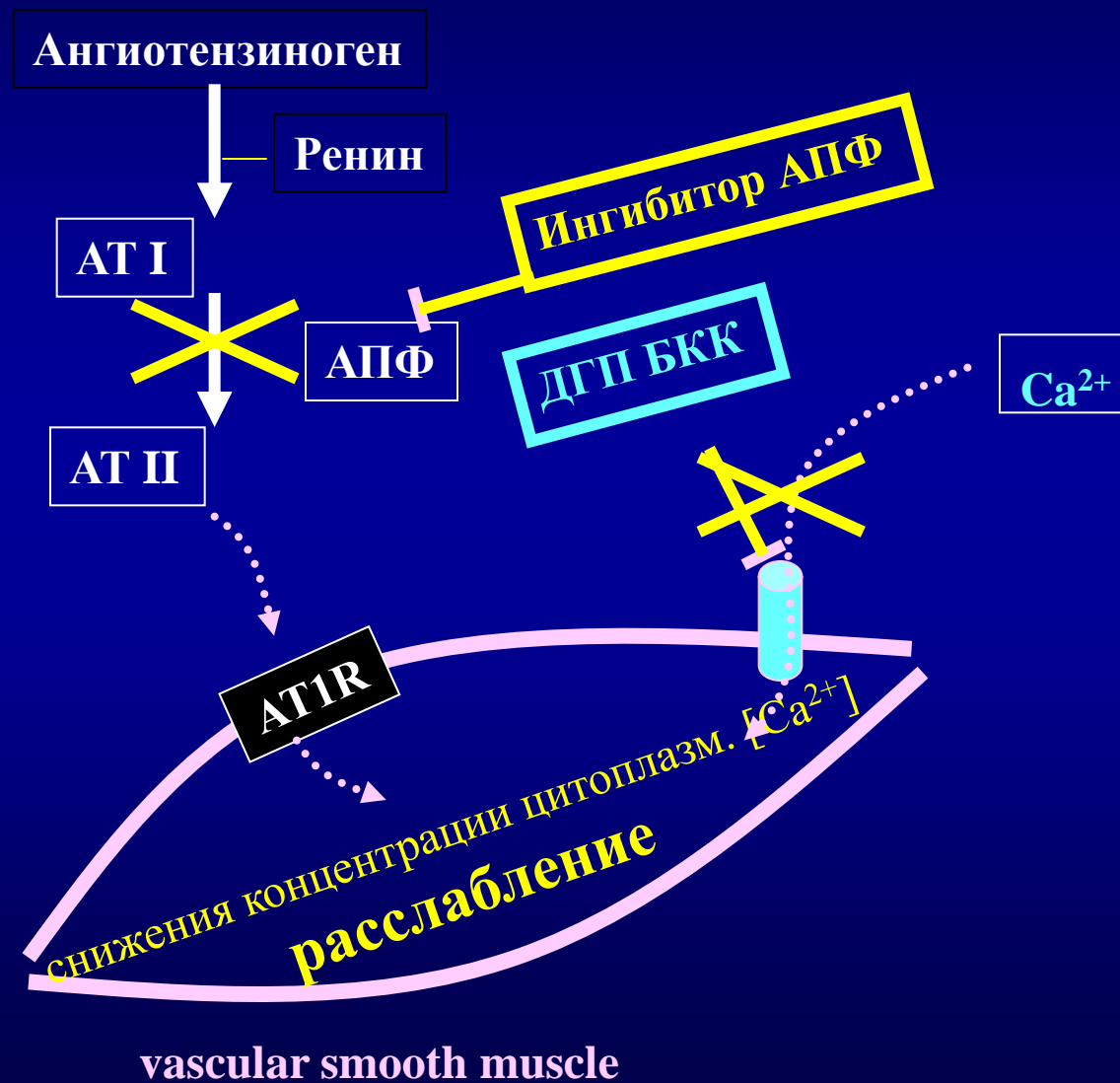


Кривые Каплана-Мейера для первичных КТ



HR (95% CI): 0.80 (0.72, 0.90)

Комбинация ИАПФ с БКК: ЛОГИЧНЫЙ ПОДХОД



Отсутствие необходимости первичной метаболической активации лизиноприла в печени

... По этому критерию лизиноприл находится вне конкуренции с другими иАПФ, являющимися пролекарствами и требующими печеночной активации.

«Независимость» лизиноприла от печеночного метаболизма значительно расширяет возможности его комбинированного применения с другими кардиоваскулярными препаратами, большинство из которых активируются или разрушаются в печени.

Влияние антигипертензивных средств на показатели центральной гемодинамики

Класс	Центр сист АД	Индекс аугментации	Жесткость аорты
Диротон	↓↓	↓↓	↓
АIIА	↓	↓	↓
Небиволол	↑	↑	↓
Экватор	↓	↓	↓
Диуретики	↔	↔↓	↔
Нитраты	↓↓	↓↓	↔

