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Beta-blockers were used in several longterm morbidity and mortality trials in the treatment of hypertension, either alone or in comparison with the thiazide diuretics.

Despite their poor showing in these trials, the guidelines committee of the British Hypertension Society and the American JNC VI have taken the view that betablockers, along with thiazides, are the preferred option in the first line treatment of hypertension

A closer look at the available evidence is provided here is sobering and throws some doubt on the efficacy and safety of beta-blockers in hypertension. I strongly believe that various guideline committees should seriously reconsider their endorsement of these agents for first line therapy in uncomplicated hypertension. And British Hypertension Society has recently changed their recommendation based on the current evidence against beta-blockers.

Results of the four clinical trials of the treatment of mild HTN comparing the effects of diuretics and beta-blockers on the development of fatal and non-fatal stroke, coronary heart disease (CHD) and all vascular deaths. All significance values were in favour of the thiazide diuretics

	Thiazide diuretics	*Beta-blockers*	*Significance*
Number of trial participants			
MRC	4297	4403	–
MRC (Elderly)	1081	1102	–
HAPPHY	3272	3297	–
IPPPSH	3172	3185	–
TOTAL	11822	11987	–
Stroke			
MRC	18	42	$P < 0.01$
MRC (Elderly)	16	21	NS
HAPPHY	41	32	NS
IPPPSH	46	45	NS
TOTAL	121	140	NS
Coronary heart disease			
MRC	119	103	NS
MRC (Elderly)	48	80	$P < 0.01$
HAPPHY	116	132	NS
IPPPSH	74	61	NS
TOTAL	354	376	NS
Vascular death			
MRC	69	65	NS
MRC (Elderly)	66	95	$P < 0.05$
HAPPHY	60	57	NS
IPPPSH	56	45	NS
TOTAL	251	262	NS

Medical Research Council (MRC) studies

In both MRC studies beta-blockers failed to significantly reduce cardiovascular morbidity and mortality. In fact the stroke rate was two to four times higher in patients receiving beta blockers than in patients on thiazide diuretics and not different from those receiving placebo

- *Medical Research Council Working Party: MRC trial of treatment of mild hypertension: principal results. Br Med J 1985;291:97–104.*
- *MRC Working Party: Medical Research Council trial of treatment of hypertension in older adults: principal results. Br Med J 1992; 304:405–412.*

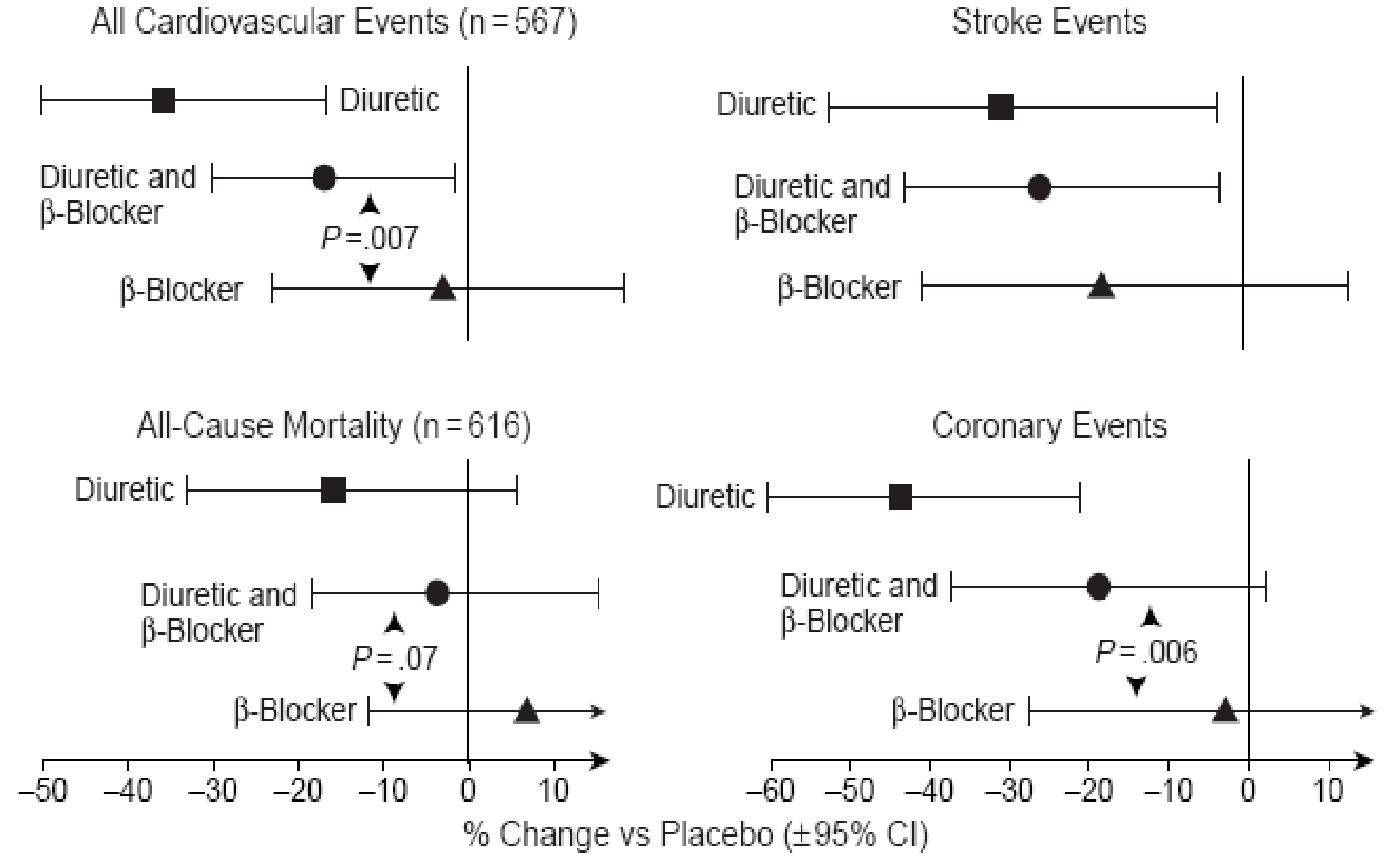
β-Blockers and diuretics in combination

Whenever a β-blocker was added to diuretic therapy in the MRC-2 study, the benefit diminished and vanished completely with β-blocker monotherapy.

This was true for all cardiovascular events, coronary events, all-cause mortality, and to a lesser extent also for strokes.

JAMA 1998;279:1903–1907

MRC II : Comparing Diuretic, Diuretic+betablocker and BB alone



MRC –I, 1985

Intervention	N	CHD	Stroke	Maj. CV events	Total mortality	CV disease mortality
High dose diuretics	4297	119	18	140	128	69
Beta-blocker	4408	103	42	146	120	65
Placebo	8654	234	109	352	253	139

MRC –II, 1992

Intervention	N	CHD	Stroke	Maj. CV events	Total mortality	CV disease mortality
Diuretics	1081	48	45	107	134	66
Beta-blocker	1102	80	56	151	167	95
Placebo	2213	159	134	309	315	180

Coope and Warrender, 1986

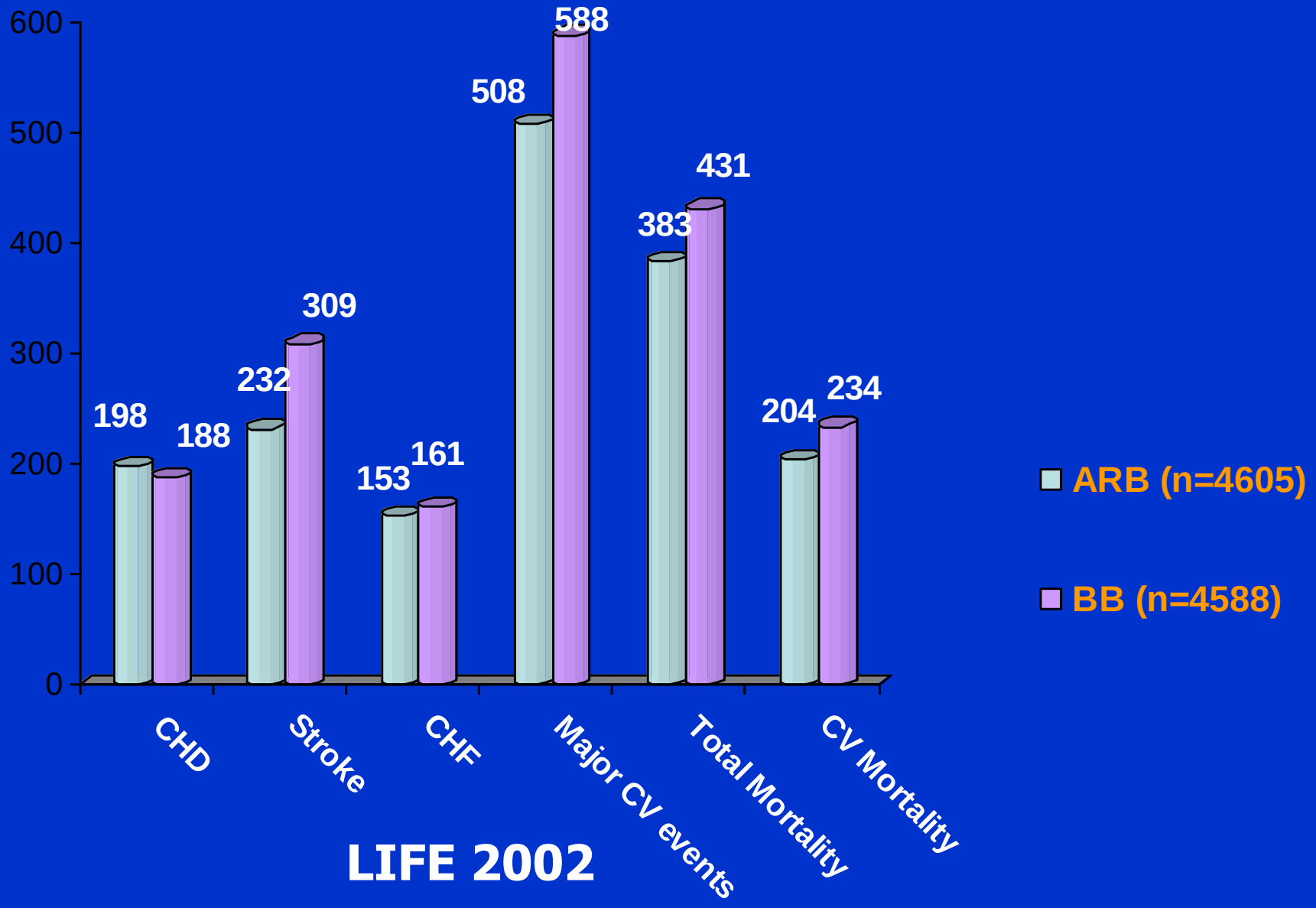
Intervention	N	CHD	Stroke	Maj. CV events	Total mortality	CV disease mortality
Beta-blocker	419	35	20	NA	60	35
Not treated	465	38	39	NA	69	50

The Losartan Intervention for Endpoint Reduction in Hypertension Study (LIFE)

In the LIFE study, atenolol was compared with losartan in patients with left ventricular hypertrophy. With the exception of myocardial infarction, an angiotensin receptor blocker was found to be consistently superior to beta blocker therapy alone or in combination in hypertensives and hypertensive diabetics, with 25% fewer strokes and superior reduction of left ventricular hypertrophy. In patients with isolated systolic hypertension, the stroke risk was reduced by 40% with losartan compared with atenolol

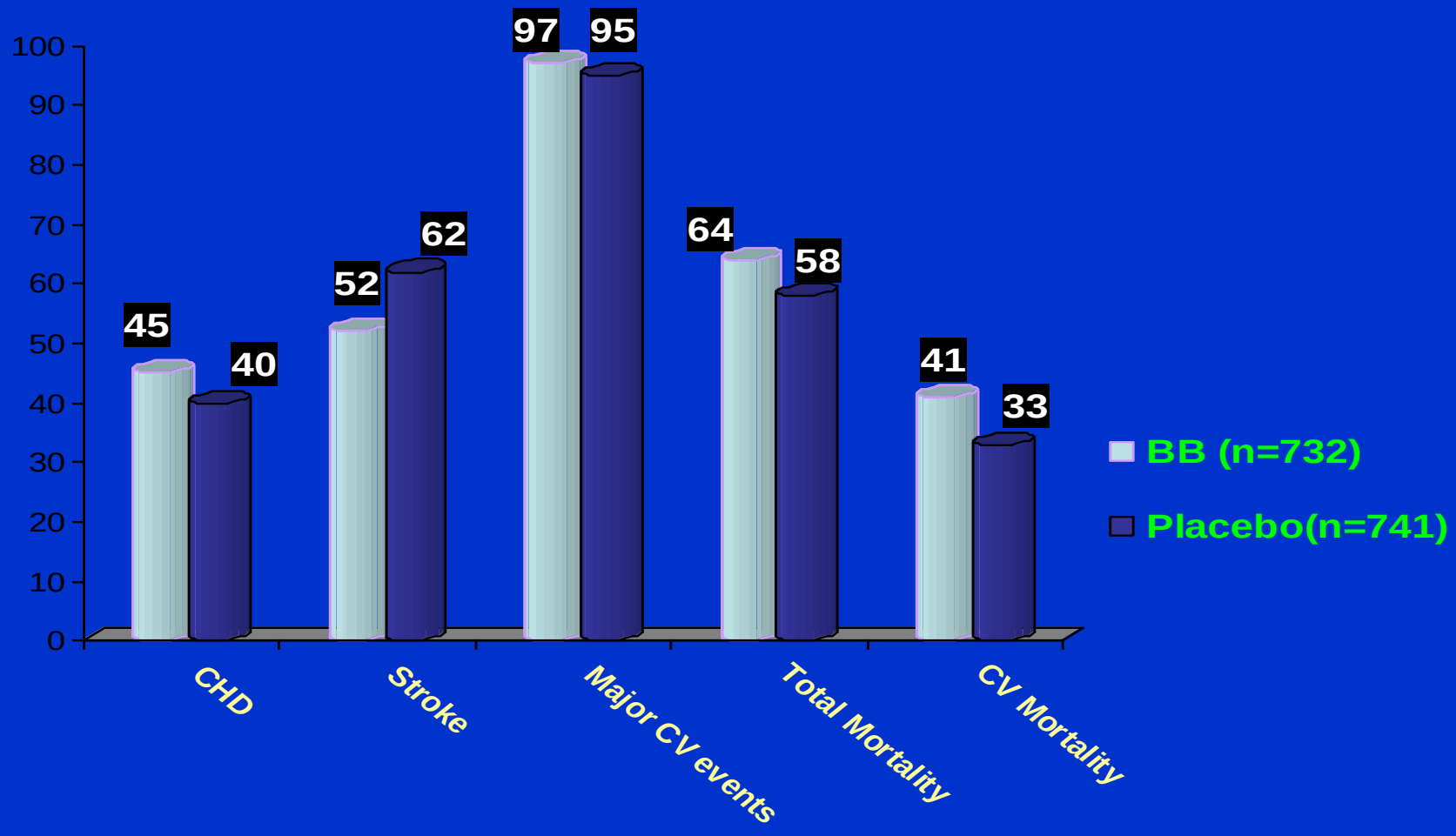
JAMA 2002;288:1491–1498.

Cardiovascular events and outcomes of BB as compared with ARB



LIFE 2002

Cardiovascular events and outcomes of BB as compared with placebo



Dutch TIA 1993

TEST Trial, 1995
(TEnormin after Stroke and TIA)

Intervention	N	CHD	Stroke	Maj. CV events	Total mortality	CV disease mortality
Beta-blocker	372	29	81	97	51	34
Placebo	348	36	75	92	60	39

THANK YOU