TABLE IV—*Characteristics at the time of 12 year follow up in 1980-1 of women who, during the preceding 12 years or at examination in 1980-1, were diagnosed as having diabetes. (Body weights in parentheses denote that the figures were reported in an interview, by women who did not participate in the study in 1980-1)*

Case No	Age (years)	Duration of diabetics (years)	Family history of diabetes*	Body weight (kg)	Antidiabetic treatment	Fasting blood glucose (mmol/l)
			Taking diuretics			
1	50	3	Yes	(90)	Tablets	
2	58	11	No	66·1	Tablets	8·9
3	58	8	?	119·0	Tablets	18·8
4	58	0	No	123·2	None	7·3
5	62	3	No	60·0	Diet	7·6
6	62	0	No	60·6	None	6·9
7	66	0	No	64·0	None	9·3
8	66	10	Yes	73·1	Tablets	12·3
9	72	6	No	92·5	Diet	4·8
			Taking β blockers			
10	58	2	Yes	65·2	Insulin	13·5
11	58	2	Yes	(45)	Insulin	
12	62	4	Yes	96·8	Tablets	10·9
13	62	5	No	101·8	Tablets	8·0
14	66	8	Yes	65·6	Tablets	5·3
15	66	6	No	61·3	Tablets	6·1
16	66	3	Yes	52·2	Tablets	4·4
17	72	2	No	76·5	Tablets	7·5
			Taking combination of diuretics and β blockers			
18	50	3	Yes	(140)	Tablets	
19	50	2	Yes	(95)	Tablets	
20	62	1	No	81·0	Diet	8·5
21	62	0	Yes	72·0	None	9·7
22	62	0	Yes	114·0	None	9·1
23	62	5	No	72·0	Diet	5·7
24	66	0	No	86·4	None	6·4
25	66	9	No	59·7	Tablets	4·5
			Not taking antihypertensive drugs			
26	50	3	No	(98)	Tablets	
27	58	6	No	(63)	Insulin	
28	58	8	No	(60)	Insulin	
29	58	6	No	80·3	Tablets	9·2
30	58	9	No	62·0	Tablets	17·0
31	58	7	Yes	68·3	Tablets	16·9
32	62	6	No	52·1	Insulin	16·8
33	Died in 1976		No			
34	62	0	No	84·0	None	6·5
35	62	5	No	70·5	Tablets	3·8
36	62	0	No	58·5	None	6·3
37	62	0	No	59·0	None	7·8
38	62	4	Yes	80·1	Tablets	5·7
39	62	1	Yes	67·1	Diet	6·0
40	62	0	Yes	67·0	None	8·8
41	62	0	Yes	100·1	None	8·6
42	Died in 1976		Yes			
43	72	4	Yes	62·2	Diet	6·9

*Diabetes among parents or brothers or sisters.
Conversion: SI to traditional units—Glucose: 1 mmol/l ≈ 18 mg/100 ml.

clusions concerning the incidence of diabetes could be drawn for only diuretics and β blockers.

There are few recent data on the incidence of diabetes in subjects with untreated arterial hypertension as leaving arterial hypertension untreated is now considered to be ethically unacceptable. Previous studies have indicated an association between untreated hypertension and diabetes, as reviewed, for example, by Barrett-Connor *et al*[10] and Drury,[11] but the association was never as strong as that observed in the present study of hypertensive subjects taking antihypertensive drugs. We therefore feel justified in believing that an association exists between treatment with antihypertensive drugs and diabetes, at least as far as diuretics and β blockers are concerned; final proof, however, is still lacking. It is also worth noting that in this respect our findings showed no difference between diuretics and β blockers.

Ever since diuretics were introduced as antihypertensive drugs their possible association with diabetes has been discussed, and many papers have been published on the possible relation between diuretics and impaired glucose tolerance or clinical diabetes. Such studies have been reviewed, for example, by our group[12] and by Furman[13]; interest has not, however, been focused on β blockers in the same way.

One main drawback of our study is that the subjects were not randomised to one or other drug. The drugs were given according to the individual doctor's clinical judgment. This necessitates caution when interpreting the results. With respect, however, to the appreciable differences observed in comparison with women not taking antihypertensive drugs and, in addition, the similarities before treatment between subjects who started different antihypertensive drugs, the results cannot be disregarded.

The main advantages of this study are that the women were representative of women in the general population, they were carefully followed up, a long follow up period was used, and the number of subjects disappearing from the study over the 12 years was small.

Our findings raise the important question of whether the results should be taken as an indication for avoiding diuretics and β blockers in the treatment of arterial hypertension. Very limited information exists concerning the risk of diabetes when using other types of antihypertensive treatment, and we therefore think that other drugs must be shown to be different in this respect before they can be recommended, as being less diabetogenic, as drugs of choice in the treatment of arterial hypertension.

Despite the increased risk of clinical diabetes that we observed, we found that diuretics and β blockers caused few side effects during the long term follow up described in this paper. In addition, mortality was, if anything, lower among women who were referred for antihypertensive treatment at the time of the initial study than in other women of the same age in the general population.[14] We therefore think that diuretics and β blockers are still the drugs of choice in the treatment of arterial hypertension.

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