Letters to the Editor

Microalbuminuria, cardiovascular risk factors, and secondary prevention of non-insulin-dependent diabetes

Sir,
We have read with interest the recent leading article by Drs Dornhorst and Merrin[1] about the primary, secondary and tertiary prevention of non-insulin-dependent diabetes (NIDDM). Among the possible modes of secondary prevention, the clinical significance of microalbuminuria was emphasized by the authors. Indeed, microalbuminuria has a great clinical importance in predicting both overt nephropathy and cardiovascular mortality in NIDDM as well as in insulin-dependent-diabetes (IDDM).[2,3] Nevertheless, former studies documented a difference between NIDDM and IDDM regarding the leading cause of death (cardiovascular diseases in NIDDM and renal failure in IDDM).[4,5] We have designed a clinical investigation to compare NIDDM to IDDM patients with microalbuminuria in order to assess the differences between the associated cardiovascular risk factors.

A cross-sectional study in 136 diabetic patients with micro- and normo-albuminuria was performed. Using serum C-peptide measurements 71 patients were classified as having NIDDM and 65 patients with IDDM. Albuminuria was repeatedly detected during a three-month period by radioimmunoassay in 24-hour urine samples and patients were divided into groups with microalbuminuria (20–200 µg/min) or normoalbuminuria (<20 µg/min). Cardiovascular risk factors were registered and results of micro- *vs* normo-albuminuric patients as well as those of NIDDM *vs* IDDM patients were compared by using Student's unpaired *t*-test and chi-square test (table).

According to our results, preconditions for cardiovascular diseases proved to be more pronounced in NIDDM than in IDDM patients, especially in the presence of microalbuminuria. Although the causal relationship between albuminuria and cardiovascular risk factors could not be evaluated in a cross-sectional study, our findings could be of importance in explaining the difference between NIDDM and IDDM patients regarding the prevalence of cardiovascular diseases.

There is no doubt that successful secondary prevention will depend on identifying and treating cardiovascular risk factors in diabetic patients as early as possible. For this reason, NIDDM patients with microalbuminuria should be screened first.

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The dangers of unopposed beta-adrenergic blockade in phaeochromocytoma

Sir,
Phaeochromocytomas are rare, difficult to diagnose and can be fatal: five of the 11 cases of phaeochromocytoma occurring in the population of Rochester, Minnesota, were diagnosed at autopsy.[1] However, while advances in diagnostic techniques and pre-operative medical and anaesthetic care have made phaeochromocytomas entirely curable,

we present two cases which demonstrate how dangerous β-adrenergic blocking drugs can be in patients harbouring a phaeochromocytoma if they are administered without prior, and adequate, α-adrenoreceptor blockade.

A 66-year-old woman had drenching night sweats for one month: there was no record of palpitations, pallor or chest pain. The blood pressure was 160/100 mmHg; mildly abnormal liver enzymes were found on investigation. An ultrasound scan of the abdomen unexpectedly showed a left adrenal mass: a left adrenal phaeochromocytoma was confirmed by CT scanning and 24-hour urinary catecholamines levels. She was referred for surgery, but was also prescribed a delayed-release formulation of propranolol for hypertension as an out-patient. Severe night sweats, vomiting and abdominal pain developed within 24 hours of taking propranolol. After 48 hours the patient had collapsed: according to her daughter the skin 'felt just like a wet frog, cold and wet', and the family continued to administer propranolol. After 72 hours the patient was delirious and was admitted to the local hospital. She was cold, clammy and confused. The blood pressure varied between 150/90 and 230/140 mmHg. The electrocardiogram showed a pattern compatible with myocardial infarction. The patient was immediately treated for a phaeochromocytoma crisis with intravenous α-adrenoceptor blocking agents, but she continued to deteriorate, developing acute left ventricular failure, paralytic ileus and then a sudden loss of consciousness within 48 hours of admission associated with a dense right hemiplegia. She was ventilated, sedated and transferred to our hospital. However, she never fully regained consciousness and eventually died of a nosocomial infection.

The second patient was a 37-year-old man who presented to his local casualty department after developing central chest pain: the pain lasted two hours and resolved spontaneously. The electrocardiogram was normal, a diagnosis of unstable angina was made and the patient was admitted to the coronary care unit. Hypertension had been noted by the general practitioner for 14 years and antihypertensive treatment had been prescribed for the last six years, most recently

Table Cardiovascular risk factors and renal parameters (mean ± SEM) in diabetic patients

	NIDDM patients			IDDM patients		
	with micro-albuminuria (n = 29)	with normo-albuminuria (n = 42)	significance	with micro-albuminuria (n = 20)	with normo-albuminuria (n = 45)	significance
Women/men	11/18	23/19	NS	5/15	17/28	NS
Age (years)	55.4 ± 2.4‡	54.4 ± 1.5#	NS	42.1 ± 3.2	39.6 ± 1.6	NS
Duration of diabetes (years)	10.8 ± 1.2†	9.4 ± 1.3#	NS	18.4 ± 2.9	18.1 ± 1.2	NS
Body mass index (kg/m²)	29.1 ± 0.9‡	28.3 ± 0.7#	NS	23.9 ± 0.7	23.4 ± 0.4	NS
Glycated haemoglobin (%)	8.8 ± 0.3	8.3 ± 0.3	NS	8.6 ± 0.4	7.9 ± 0.2	NS
Albumin excretion rate (µg/min)	50.3 ± 7.0	8.8 ± 0.7	<0.001	57.2 ± 10.9	7.8 ± 0.6	<0.001
β₂-microglobulin in urine (ng/min)	392 ± 170	117 ± 12	NS	118 ± 11	115 ± 9	NS
Serum creatinine (µmol/l)	106 ± 5	81 ± 2	<0.01	95 ± 3	89 ± 2	NS
Serum uric acid (µmol/l)	264 ± 19*	216 ± 9#	<0.05	205 ± 16	170 ± 7	<0.05
Serum cholesterol (mmol/l)	5.68 ± 0.25	4.93 ± 0.14	<0.01	5.23 ± 0.22	4.72 ± 0.13	<0.05
Serum triglycerides (mmol/l)	4.85 ± 0.75†	2.51 ± 0.22#	<0.001	1.80 ± 0.32	1.40 ± 0.09	NS
Systolic blood pressure (mmHg)	155 ± 3*	151 ± 3#	NS	143 ± 5	131 ± 2	<0.05
Diastolic blood pressure (mmHg)	90 ± 2*	88 ± 1#	NS	84 ± 2	82 ± 1	NS
Number of smokers	7	8	NS	11	16	NS

NS: non significant; NIDDM: non-insulin-dependent diabetes; IDDM: insulin-dependent diabetes
Significance designated as *: p<0.05; †: p<0.01; ‡: p<0.001; NIDDM microalbuminuric patients *vs* IDDM microalbuminuric patients; #: p<0.01; NIDDM normoalbuminuric patients *vs* IDDM normoalbuminuric patients.