Risk factors for neuropathy in UKPDS

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Background and Aims: Neuropathy is a major source of morbidity in subjects with Type 2 diabetes. We have sought to quantify this problem and examine risk factors measured at diagnosis for incident and prevalent neuropathy.

Materials and Methods: UK Prospective Diabetes Study recruited 5102 subjects with newly diagnosed type 2 diabetes who were followed for up to 25 years. Data on neuropathic indices were collected at entry to the study and at three year intervals. Incident cases were defined as those with evidence of neuropathy events recorded at two consecutive visits up to 12 years post diagnosis, in those without events initially. Prevalence was analysed using logistic regression and incidence with Cox proportional hazards models. HbA1c was taken at entry for the prevalence analyses and after 3 months dietary intervention for newly incident cases. Other data was collected at entry.

Results: Prevalence and incidence at 12 years of reduced great toe perception threshold (VPT) > 25V, absent ankle jerks(AJ) bilaterally, and self-reported erectile dysfunction (ED) in males are shown in the table. The hazard ratios for age (per 5 years), female sex, HbA1c (per 1%), height (per 5cm), waist circumference (per 5 cm),regular or heavy alcohol consumption, current smoking and weight (per 5 kg) are shown where statistically significant. Risk factors within each index for incidence and prevalence are similar. At 12 years 64% of men and 44% of women free of neuropathy at baseline were found to be positive for at least one of these indices.

Conclusions: Many of those newly diagnosed with Type 2 diabetes, 36% of men and 21% of women, already have evidence of neuropathy. Taller subjects are at greater risk, as are those who are older at diagnosis. Regular alcohol consumption is associated with the risk of incident and prevalent impotence in men. By 12 years from diagnosis 71% of men and 51% of women have clinically significant neuropathy.

Risk factors for neuropathy prevalence at diagnosis and incidence by 12 years

	Proportion	Age	Female	HbA1c	Height	Waist	Alcohol	Current smoker	Weight
VPT >25 - Prevalence	12.8%	1.89(1.73 to 2.07)			1.40(1.32 to 1.50)	1.05(1.01 to 1.10)			
- Incidence	13.3%	1.58(1.44 to 1.73)		1.10(1.02 to 1.17)	1.22(1.14 to 1.31)			1.29(1.00 to 1.67)	1.08(1.04 to 1.13)
AJ absent - Prevalence	14.5%	1.28(1.20 to 1.37)	2.09(1.57 to 2.80)	1.06(1.01 to 1.11)	1.17(1.09 to 1.26)	1.14(1.10 to 1.19)			
- Incidence	22.2%	1.11(1.05 to 1.18)		1.13(1.08 to 1.19)		1.11(1.08 to 1.15)			
ED - Prevalence	20.4%	1.41(1.28 to 1.58)	N/A				2.00(1.59 to 2.52)		
- Incidence	34.3%	1.19(1.12 to 1.26)	N/A		1.11(1.05 to 1.17)		1.27(1.03 to 1.56)		1.05(1.01 to 1.08)