# Peripheral Arterial Occlusive Disease- The Challenge in patients with diabetes

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# Introduction

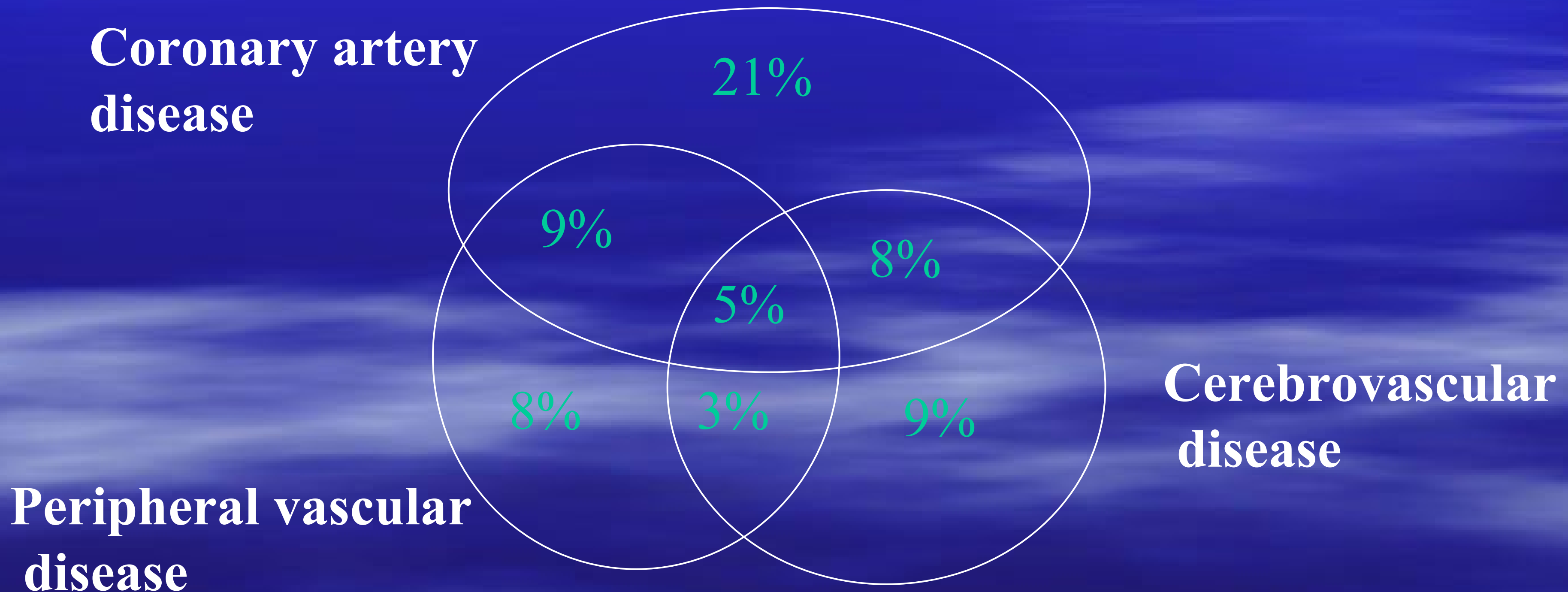
- Vascular disease is a major cause of mortality in the West
- Accounts for >40% of deaths in the UK
- Atherosclerosis is the underlying cause

# Background

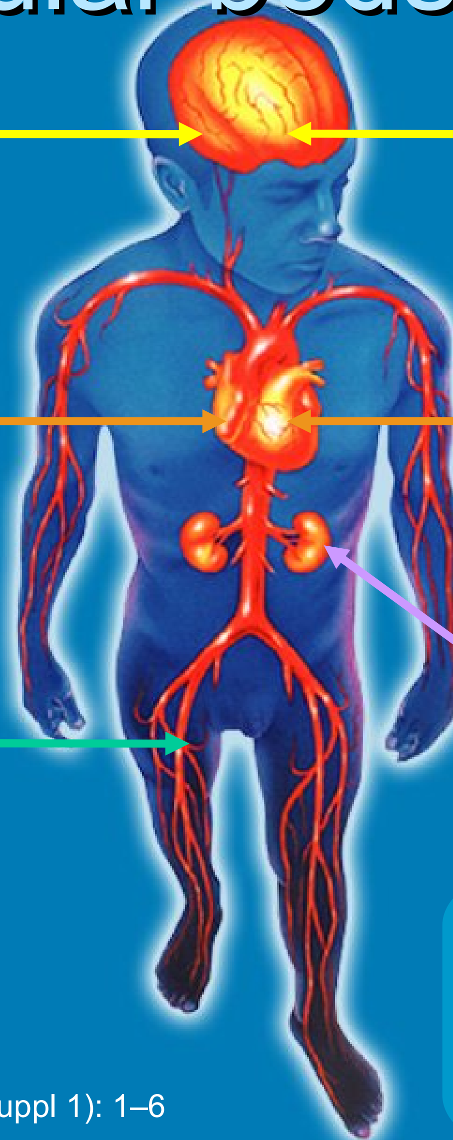
- Common
- 4.5% 55-74 yrs symptomatic claudication
- 20% elderly men

# Co-existence of Coronary, Cerebral and Peripheral Vascular Disease

Prevalence of vascular disease in a population 62 years of age and over



# Athero-thrombosis affects many vascular beds



**Ischaemic stroke**

**Transient ischaemic attack**

**Myocardial infarction**

**Angina:**
Stable
Unstable

**Renovascular disease**

**Peripheral arterial disease:**
Intermittent claudication
Rest pain
Gangrene
Necrosis

**Diabetes (type 2)**
Often considered vascular equivalent to a non-diabetic patient with previous MI[2]


- Adapted from: Drouet L. *Cerebrovasc Dis* 2002; 13(Suppl 1): 1–6
- Adapted from Haffner SM et al. *N Engl J Med* 1998;339:229-234

# Clinical Presentation

- Acutely with threatened limb (6 P's)
- Chronically with IC, rest pain, ulceration or gangrene
- Associated coronary artery disease
- Associated cerebral arterial disease

# The six P's

- Pain
- Pallor
- Paralysis
- Parasthesia
- Pulseless
- Perishing cold

# Clinical Assessment

- History of presenting complaint
- Risk factors
- Coronary symptoms
- Cerebral symptoms

# Risk Factors

- Tobacco Smoking
- Hypertension
- Hypercholesterolaem
ia
- Diabetes Mellitus
- Family History

# Implication for patients

- Degree of Handicap?
- Extent of Disability?
- Quality of Life
- Lifestyle Limitation

# Investigation

- Laboratory
- ECG
- ABPI
- Lifestyle limitation

# Objective Assessment

- Treadmill
- Corridor Walking Test
- 6 Minute Walking Test
- Quality of Life assessment
- Activity restriction list!!

# Further Investigation

- Depends of impact to patient
- Duplex scan
- Angiography
- CT angiography
- MRA
- Cardiac assessment

# Outcome

| | Dormandy 1991 | Leng 1996 |
| --- | --- | --- |
| Patients | 1,966 | 116 |
| Follow up | 1 year | 5 years |
| Reconstruction | 5 % | 10% |
| Amputation | 1.6% | 5% |

# One event leads to another

**Original Event = Stroke**
**MI Risk**
- 2-3 x greater risk[2*]

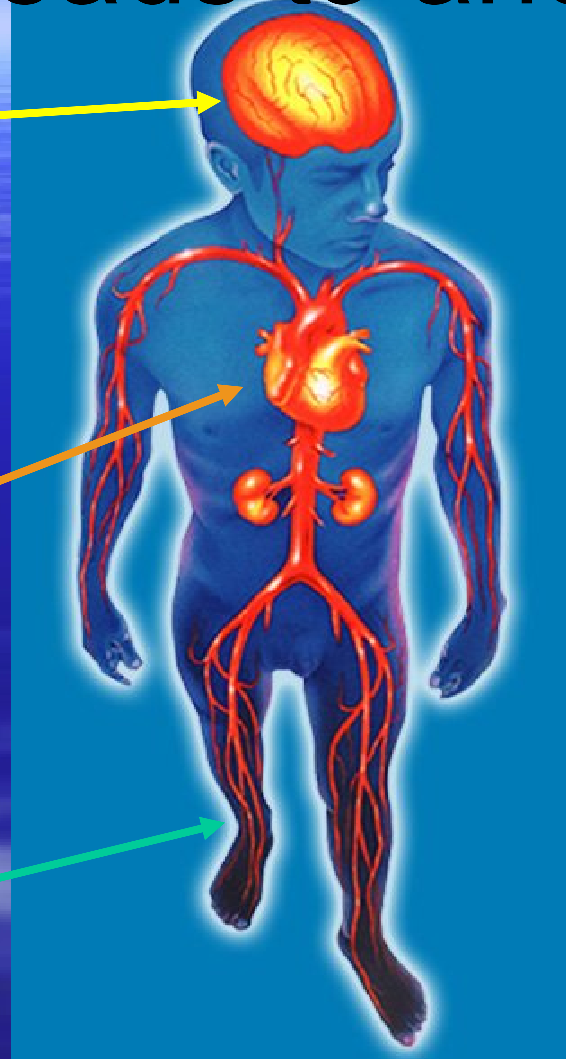
**Stroke Risk**
- 9 x greater risk[3]

**Original Event = MI**
**MI Risk**
- 5-7 x greater risk[1+]

**Stroke Risk**
- 3-4 x greater risk[2++]

**Original Condition = PAD**
**MI Risk**
- 4 x greater risk[4**]

**Stroke Risk**
- 2-3 x greater risk[3++]



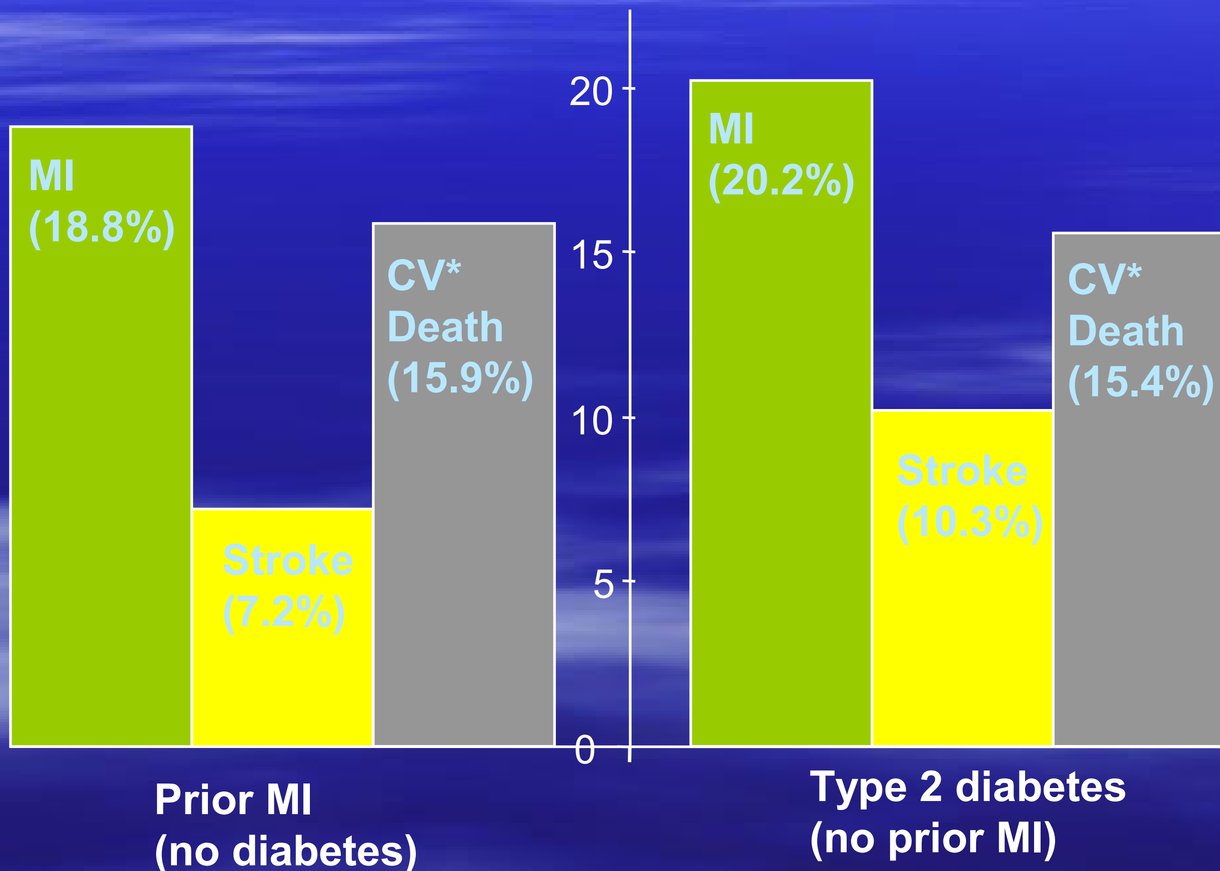
**Diabetes**
**(type 2)**
**Because of the increased risk associated with diabetes, it should be considered a cardiovascular risk equivalent to a non-diabetic patient with previous MI**

Data is increased risk vs general population (%)

*Includes angina and sudden death. Sudden death defined as death documented within 1 hour and attributed to coronary heart disease (CHD)
**Includes only fatal heart attack and other CHD death; does not include non-fatal heart attack,
+ Includes death
++Includes TIA


**1.** Adult Treatment Panel II. *Circulation* 1994; 89:1333–63.
**2.** Kannel WB. *J Cardiovasc Risk* 1994; 1: 333–9.
**3.** Wilterdink JI, Easton JD. *Arch Neurol* 1992; 49: 857–63.
**4.** Criqui MH *et al. N Engl J Med* 1992; 326: 381–6.

# Patients with Type 2 diabetes are a high cardiovascular risk group

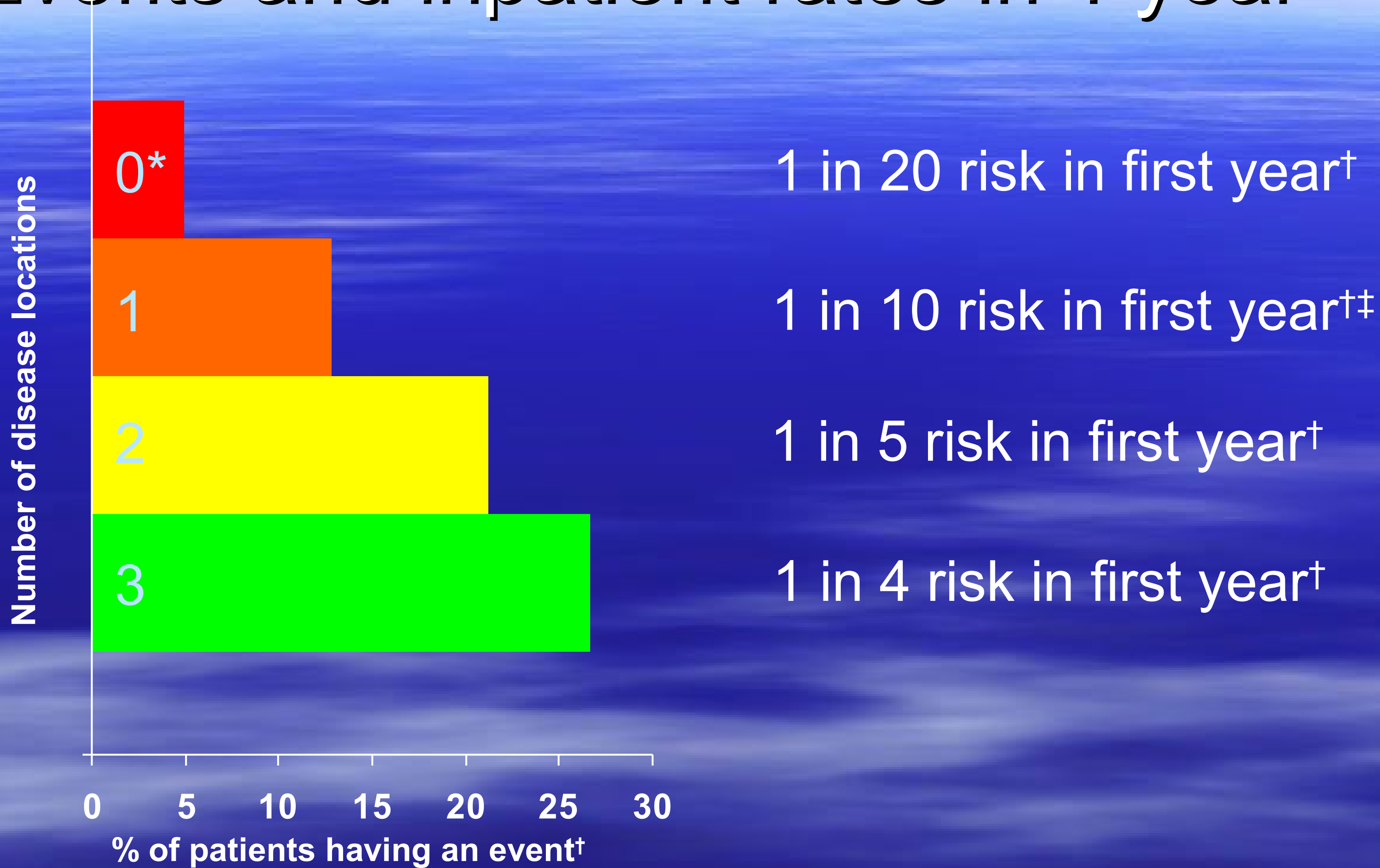



*CV = cardiovascular

1. Adapted from Haffner SM et al. *N Engl J Med* 1998;339:229-234

# Events and inpatient rates in 1 year






**PAOD doubles risk**

*

1. Adapted from Steg PG *et al*. *JAMA* 2007; 297: 1197-1206

# Typical UK General Practice with Disease in Two Vascular Beds

Approximately **1.3 million** patients with MVD in UK[2*]

**87%** of MVD patients have disease in **2 beds**[2]

87% of 1.3 million = **1.1m patients** approximately

36,016 UK Full Time Equivalent GPs [1]

**31** patients with disease in 2 beds per GP

**Patients with 2 vascular locations have a risk of CV death/MI/stroke or hospitalisation within 12 months[3]**
**CAD+CVD = 20%**
**CAD+PAD = 23%**
**CVD+PAD = 22%**

*


- Derived from Key demographic statistics RCGP Information sheet. Available at http://www.rcgp.org.uk/pdf/ISS_FACT_06_KeyStats.pdf Last accessed 30 January 2008
- Din Link data on file 3. Steg GL et al. *JAMA* 2007;297(11):1197-1206

# Mortality

Survival

| | | |
|---|---|---|
| 5 yrs | 70% | (90% controls) |
| 10 yrs | 50% | |
| 15 yrs | 30% | |

# Risk factors for progression of IC

| | Odds Ratio |
|---|---|
| Smoking | 3 |
| Diabetes | 2 |
| Hypertension | 1.4 |
| Age | 1.2 |
| Male gender | 1.7 |
| Hypercholesterolaemia | no studies |

# Treatment Options

- Risk Factor Modification
- Exercise
- Angioplasty (PTA)
- PTA plus Stent
- Endarterectomy
- Bypass Surgery

# Risk factor Modification

- Smoking cessation
- BP control
- Lipid lowering
- Glycaemic control
- Antiplatelet agent
- Weight reduction
- Exercise programme

# Managing Diabetes

| Guideline: | JBS2[1] | SIGN (2001)[2] |
|---|---|---|
| $HbA_{1c}$ | < 6.5–7.5% | ~7% |
| Blood pressure | < 130/80 mmHg | < 140/80 mmHg |
| Total cholesterol | < 4 mmol/l | <5 mmol/l |
| LDL cholesterol | < 2 mmol/l | NONE |
| Use low-dose aspirin | ✓ | ✓ |

| QOF targets (41 pts)[3]: | | QOF threshold: |
|---|---|---|
| $HbA_{1c}$ | < 7.5% | 40-50% |
| Blood Pressure | < 145/85 mmHg | 40-60% |
| Total cholesterol | < 5 mmol/l | 40-70% |
| Records of: | | |
| - BP | | 40-90% |
| - BMI | | 40-90% |
| - Total cholesterol | | 40-90% |
| - $HbA_{1c}$ | | 40-90% |
| - Neuropathy testing, micro-albuminuria testing | | 40-90% |

1. Joint British Societies Guidelines on prevention of cardiovascular disease in clinical practice. Heart. 2005; 91 (Suppl V)
2. SIGN 55. Management of diabetes, 2001 3. http://www.bma.org.uk/ap.nsf/Content/qof06~summclinical (last accessed 28/02/07)

# Presentations in patients with diabetes

- Incidental on screening
- Co-existing disease in other beds
- Claudication
- Atrophic changes in feet
- Ulceration
- Foot infections
- Rest Pain

# Assessments in patients with diabetes

- History
- Examination
- Look between toes
- Look at heels
- Check for sensation
- Palpate pulses
- ABPI with caution

# Special needs in patients with diabetes

- Aggressive risk factor modification
- Good footcare and regular self examination
- Access to podiatry
- Early referral for vascular review
- Beware Infections – rapid deterioration potential

Any questions?

Or maybe clear as mud?