



Pre Diabetes

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Pre- Diabetes



What is it?

Why do we have this term?

Is it just another pre-condition?
eg pre-hypertension?

Are we over-medicalizing?

Should we screen for it?

What should we do about it?



WHAT IS IT?

- Term introduced by the American Diabetes Association (ADA)
- Relates to Type 2 Diabetes
- Not recognised by WHO
- Little support from IDF (International Diabetes Federation) & NICE
- Many different terms being used:
 - borderline diabetes
 - impaired fasting glucose (IFG)
 - impaired glucose tolerance (IGT)
 - impaired glucose regulation (IGR)

Pre-Diabetes term brought in to simplify these terms

Borderline diabetes might be best way to describe it to a patient?



DEFINITION

“A condition in which blood glucose levels are higher than normal but not high enough to be diagnosed as diabetes”



DIAGNOSIS

Where are the boundaries set?

UK

FBG 6.0 – 6.9 mmol/l

HbA1c 42 – 47 mmol/mol

USA

FBG 5.7 – 6.9 mmol/l

HbA1c 39 – 47 mmol/mol

Two samples at least 1 month apart, combination of FBG & HbA1c. We do not recommend HbA1c for screening however.



AETIOLOGY

Same as Type 2 DM:

- 1) Insufficient insulin produced, and/or
 - 2) Increased insulin resistance
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SYMPTOMS



Usually none

RISK FACTORS



- Obesity/overweight
 - Metabolic syndrome
 - Insulin Resistance
 - Ethnicity – South Asian, Afro-Caribbean, Native American
 - Family History of Type 2 DM
 - Age > 40 - some children now developing Type 2
 - History of Gestational Diabetes
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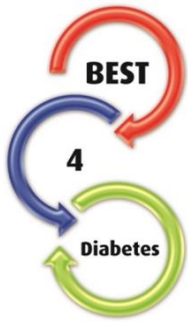
WHY DO WE HAVE THE TERM?

- Implies an impending risk to be acted upon
 - Type 2 diabetes can be prevented
 - 2-3 x increased cardiovascular risk (Coutinho et al, 1999)
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PROGRESSION TO DIABETES

- 5-10% Pre-Diabetics develop Type 2 Diabetes annually
 - Approximately 60% over 5 - 10 years
 - In England, estimated prevalence 4 million Pre-Diabetics (UK 7 million – 10.75%)
 - In England, current prevalence of Type 2 is 2.7 million – 0.5 million undiagnosed
 - By 2030, current estimate is > 4 million Type 2's
 - Current cost of Diabetes to the NHS in UK is £10 Billion/year (12% of entire NHS budget)
 - Public Health intervention is needed
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EVIDENCE

5 large international studies - USA, Finland, China

Strong evidence that medical intervention can delay or prevent the progression of Pre-Diabetes to Type 2 in up to 60% by adjustment of diet & exercise, ie lifestyle change

- Finnish Diabetes Prevention Study (Tuomelehto et al, 2001)
- US Diabetes Prevention Programme (Knowler et al, 2002)

6 year follow-up study of the USDPP showed that small changes in behaviour can bring about big changes in health (Perreault et al, 2012). Those Pre-DM patients who had a transient reduction in FBG to normal levels during the study reduced their incidence of developing T2DM by 56%.



MANAGEMENT

- 1) Dietary change - aim for 5-10% weight reduction
 - referral to Eat4Health

 - 2) Exercise - burns up more calories (glucose)
 - increases muscle bulk & thus metabolic rate
 - NICE recommends 150 mins moderate intensity aerobic activity/week
 - Eat4Health
 - “Exercise on Prescription”

 - 3) ?Metformin - aids weight loss
 - reduces CV risk
 - off-licence
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PRE-DIABETES CES

- Started July 2014
 - Long-term - renewed Oct 2015 for a further 3 years
 - Create a register (code C11y5)
 - Invite (code 9M90) – letter, phone, face to face (£3)
 - Attends review - (code 6AC) (£23)
 - Annually
 - Flexibility
 - Care Planning – goal setting
 - NICE recommends measuring FBG annually as a minimum
 - WAKEUP tool - 33/100 will develop T2DM over 6 years
 - 13/100 with lifestyle change
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NHS DIABETES PREVENTION PROGRAMME

- Public Health Berkshire bid submitted (10/2015)
 - Accepted as one of 8 Pilot Sites nationally (1/2016)
 - Joint venture Berkshire CCGs/Public Health
 - Funded by NHS England
 - We are currently in the process of choosing a Provider
 - Start date 1/4/16
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OVER-DIAGNOSIS?

- Criticism of the term Pre-Diabetes
 - Professors John Yudkin & Victor Montori article in BMJ July 2014, part of the “Too Much Medicine” series
 - Diagnostic criteria are too broad (IGT, IFG, HbA1c)
 - Creation of a large & poorly characterised, heterogeneous category of glucose intolerant patients, ie too broad to be useful
 - If ADA criteria applied to China, 50% of the population would be Pre-Diabetic (600 million)!
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OVER-DIAGNOSIS?

- Lack of support from some expert groups eg WHO, IDF (International Diabetes Federation), NICE
 - Pre-DM interventions should be applied to the whole population
 - Many Pre-DM patients do not progress to Type 2
 - Risks of over-diagnosis:
 - (i) self image problems
 - (ii) anxiety
 - (iii) insurance
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(iv) employment

(v) unnecessary medical care &
treatment

(vi) increased healthcare costs

(vii) medication side-effects



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- www.berkshwestdiabetes.org.uk
 - “If Diabetes doesn’t get sorted out, that’s the end of the NHS”

David Haslam 2015, Chair National Obesity Forum
