Post Transplant Diabetes
PTDM

Jo Reed : DSN/Renal jo.reed2@nhs.net

Lets talk about:

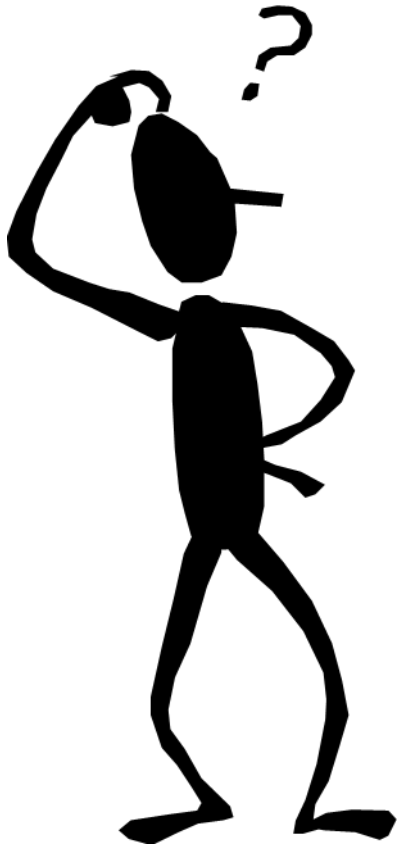
- What is PTDM
- Incidence
- Importance
- Challenges
- Treatment
- Case History

Introduction to PTDM

- Development of post transplant hyperglycemia in people who don't have diabetes
- PTDM is common 15-30%
- Potential increased mortality and morbidity
- Paucity of literature/evidence
- Guidance

Detection

- Hyperglycaemia!
- Avoid diagnosis in first 6 weeks post transplant
- Formal testing when stable
- OGTT is gold standard
- Hba1c > 48 + FBG ≥7mmols



Cytomegalvirus

Hep C Infection

Obesity

Family History

Age

Gender

Genetics

Some antihypertensives

Cadaveric Kidney

Metabolic syndrome

Ethnicity

Low Mg levels

HLA mismatch

Immunosuppressants

Pre operative

- Establish risk factors
- Monitor FBG and Hba1c : 6 monthly
- Dietary interventions, lifestyle
- Identify and put on pathway

Immediately post op

- Monitor CBG – afternoon
- 2 occasions of CBG > 11mmols within 24 hrs should be treated
- >11mmols consider therapy
- >14mmols insulin is drug of choice
- NPH insulin AM 10 units and rapidly titrate
- Target 4-12mmols
- Dietetic advice

Follow Up

- Glycaemic control
- Monitoring
- GP to be made aware (other services)

Follow Up : Treatment

- Metformin if stable and GFR>30
- Benefits of treating with insulin early – opposite to T2 diabetes
- Can use all other therapies depending on individual circumstances
- Immediately post transplant *versus* longer term options
- All should be offered statins
- BP target : 130/80
- MDT follow up

Challenges

- Acceptance
- Unexpected
- Lots to take on board/intense
- Trajectory of condition
- Clinician inertia and understanding
- Lots of unknowns

Future

- More attention pre transplantation
- Research
- Flexibility over drug use
- Consistency
- Ideally people awaiting Tx should be screened

Guidance : 2021

REVIEW ARTICLE

Association of British Clinical Diabetologists and Renal Association guidelines on the detection and management of diabetes post solid organ transplantation

Tahseen A. Chowdhury[1] | Mona Wahba[2] | Ritwika Mallik[1] | Javeria Peracha[3] | Dipesh Patel[4] | Parijat De[5] | Damian Fogarty[6] | Andrew Frankel[7] | Janaka Karalliedde[8] | Patrick B. Mark[9] | Rosa M. Montero[10] | Ana Pokrajac[11] | Sagen Zac-Varghese[12] | Stephen C. Bain[13] | Indranil Dasgupta[14,15] | Debasish Banerjee[16] | Peter Winocour[17] | Adnan Sharif[18]

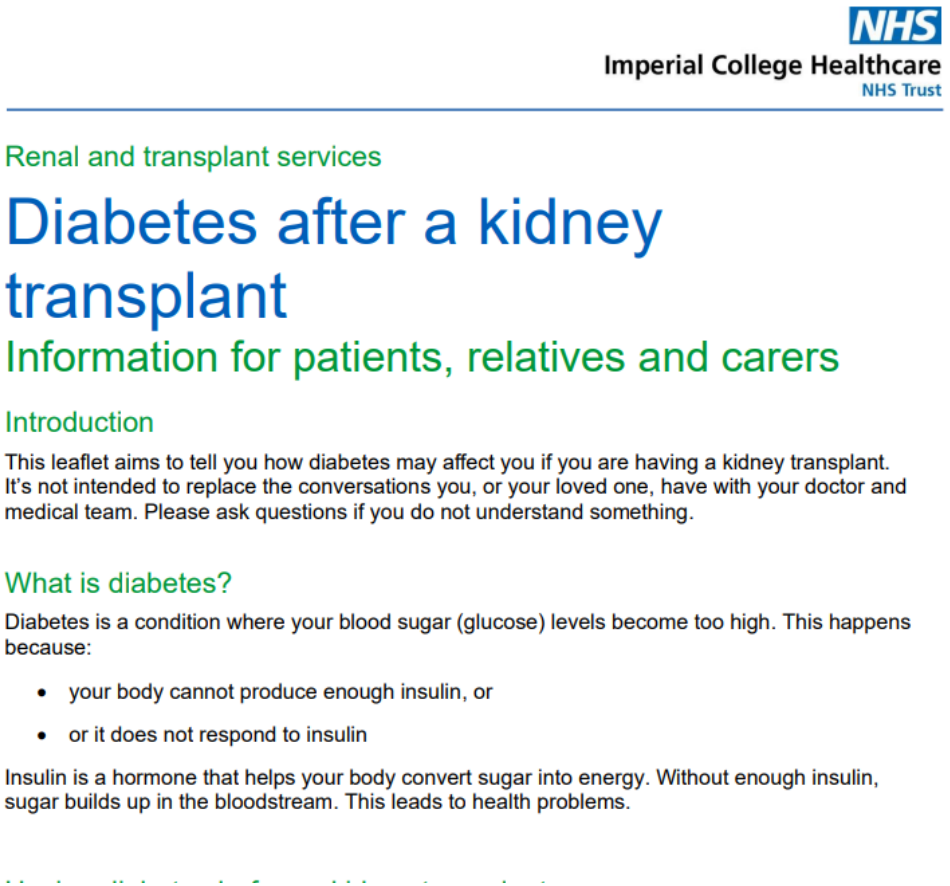
[1]Royal London Hospital, London, UK
[2]St Helier Hospital, London, UK
[3]University Hospitals Birmingham NHS Trust, Birmingham, UK
[4]Diabetes & Endocrinology, Royal Free NHS foundation Trust, UCL, London, UK
[5]City Hospital, Birmingham, UK
[6]Belfast Health and Social Care Trust, Belfast, UK
[7]Imperial College Healthcare NHS Trust, London, UK
[8]Guy's and St Thomas NHS Foundation Trust and King's College London, London, UK
[9]University of Glasgow, Glasgow, UK
[10]King's College London, London, UK
[11]West Hertfordshire Hospitals NHS Trust, Watford, UK
[12]ENHIDE, Lister Hospital, Stevenage, UK
[13]University of Swansea, Swansea, UK
[14]Heartlands Hospital, Birmingham, UK
[15]Warwick Medical School, Warwick, UK
[16]Renal and Transplant Unit, St George's University Hospitals NHS Foundation Trust and MCSRI, St George's University of London, London, UK
[17]ENHIDE, QE2 Hospital, Welwyn Garden City, UK
[18]University Hospitals Birmingham, Birmingham, UK

Correspondence
Tahseen A Chowdhury, Consultant in Diabetes, The Royal London Hospital, Whitechapel, London E1 1BB, UK.
Email: tahseen.chowdhury@nhs.net

Abstract

Post-transplant diabetes mellitus (PTDM) is common after solid organ transplantation (SOT) and associated with increased morbidity and mortality for allograft recipients. Despite the significant burden of disease, there is a paucity of literature with regards to detection, prevention and management. Evidence from the general population with diabetes may not be translatable to the unique context of SOT. In light of emerging clinical evidence and novel anti-diabetic agents, there is an urgent need for updated guidance and recommendations in this high-risk cohort. The Association of British Clinical Diabetologists (ABCD) and Renal Association (RA) Diabetic Kidney Disease Clinical Speciality Group has undertaken a systematic review and critical appraisal

Post Transplant Leaflet



NHS
Imperial College Healthcare
NHS Trust

Renal and transplant services

Diabetes after a kidney transplant

Information for patients, relatives and carers

Introduction

This leaflet aims to tell you how diabetes may affect you if you are having a kidney transplant. It's not intended to replace the conversations you, or your loved one, have with your doctor and medical team. Please ask questions if you do not understand something.

What is diabetes?

Diabetes is a condition where your blood sugar (glucose) levels become too high. This happens because:

- your body cannot produce enough insulin, or
- or it does not respond to insulin

Insulin is a hormone that helps your body convert sugar into energy. Without enough insulin, sugar builds up in the bloodstream. This leads to health problems.

[diabetes-after-a-kidney-transplant.pdf]


THANK YOU

Case History :Fiona

- 38yr old primary school teacher
- Caucasian
- Slim build
- Health conscious
- Non smoker
- Alcohol occasionally

Case History : PMH

- ESRD of unknown cause
- Peritoneal dialysis
- Renal transplant from mother
- No cardiac or respiratory disease
- Not known to have diabetes
- No family history of diabetes
- Hba1c pre transplant 33mmol/mol

Medication at time of admission

- Atorvastatin 20mg OD
- Irbesartan 150mg BD
- Doxazosin 8mg BD
- Alfacalcidol 0.5micrograms OD
- Neorecormen 10000 every fortnight
- Docusate sodium PRN

- NKDA

Steroid protocol

Maintenance immunosuppression

Corticosteroids:

- Day 1: Prednisolone 30mg BD orally

(Hydrocortisone 100mg TDS IV or methylprednisolone 20mg BD IV if unable to take orally)

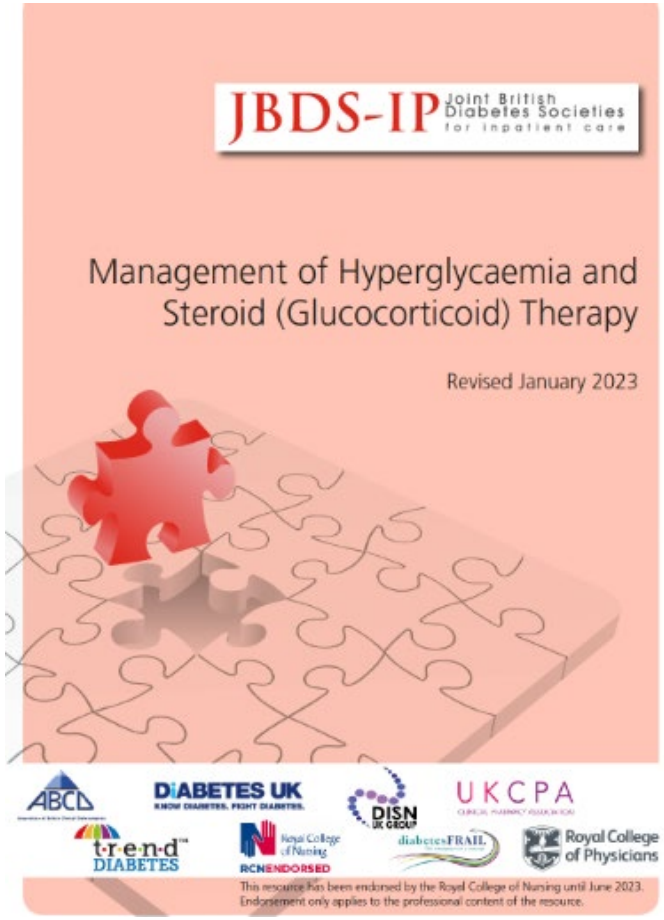
- Day 3: Prednisolone 30mg daily orally
- Day 8: Stop prednisolone* if tacrolimus levels are therapeutic

Steroids – Not known to have diabetes?

- Monitoring should occur at least once daily – preferably prior to lunch or evening meal, or alternatively 1-2 hrs post lunch or evening meal.
- If the capillary blood glucose is found to be consistently greater than 11mmols on 2 two occasions during a 24hr period then treatment should be commenced.
- Unmasking of diabetes

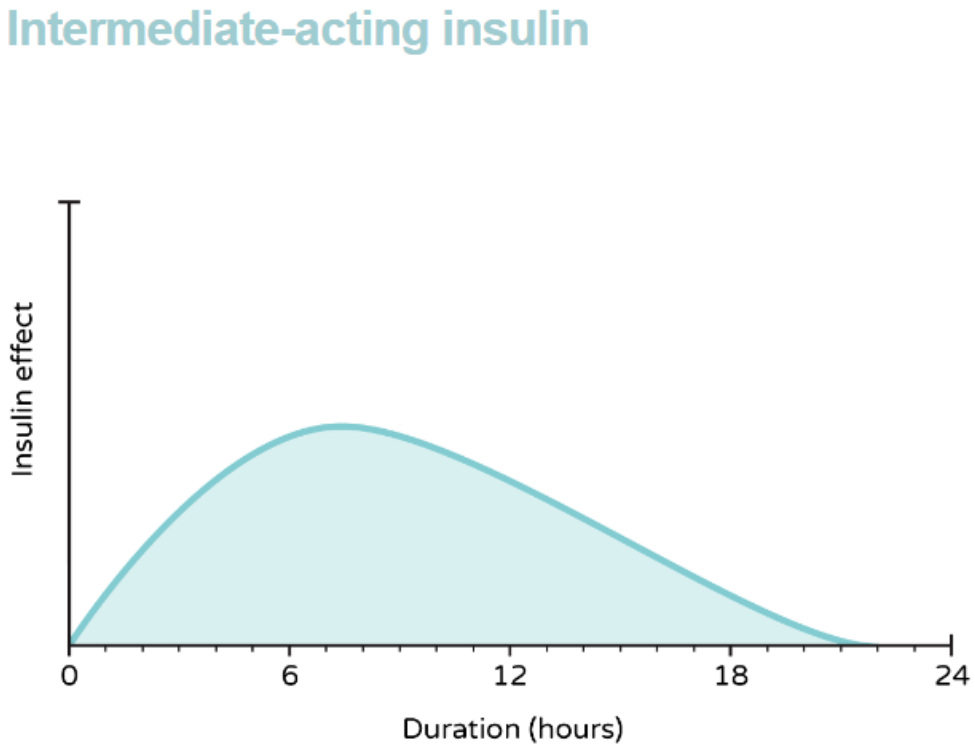
Glucose levels

- FBG in range
- Lunch up to 13mmols
- Eve meal up to 16mmols
- Bed up to 19mmols



What happened next?

- Typical steroid pattern
- Started on insulin to cover this
- Use of Gliclazide
- Seen in clinic
- GP follow up services



3 months later

CBG improved

Insulin stopped

Linagliptin started
(eGFR of 35)

Hba1c of 48 mmol/mol

Final Thoughts and food for thought

- We should take it seriously
- Why did it happen to Fiona?
- What is the optimum management
- Treat early
- Is a low carbohydrate diet useful
- Do micro and macro vascular complications differ in PTDM
- What are the long term outcomes for PTDM across different population cohorts

So much we don’t know – so many questions not answered!