



The Hearing Aid Podcasts



Episode number Show Notes *Diabetes*

Presented by:

Faculty: Iain Wilkinson, Wendy Grosvenor, Dan Thomas

Broadcast Date:

Learning Outcomes

Knowledge:

- To understand the changes associated with diabetes
- Appraise the screening and diagnostic pathways for diabetes
- Discuss the appropriate pharmacological and non-pharmacological interventions

Skills:

- To understand how diabetes is assessed
- To understand how diabetes is managed

Attitudes:

- To understand the importance of supporting people to manage their diabetes

Definitions:

What is diabetes?

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood sugar.



The Hearing Aid Podcasts

Hyperglycaemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels. (WHO 2013)

Incidence:

- 1 in 11 people have diabetes globally
- 5 million deaths were caused by diabetes in 2015 <http://www.diabetesatlas.org/>
- It is estimated that more than one in 16 people in the UK has diabetes (diagnosed or undiagnosed)
- There are 4 million people living with diabetes in the UK.
- Around 700 people a day are diagnosed with diabetes. That's the equivalent of one person every two minutes

[Diabetes Atlas Document](#)

Key Points from Discussion

Type 1-fast onset

- 10% of people with diabetes. Often diagnosed in childhood/youth. Absolute insulin deficiency
- Treated with daily insulin

Type 2-usually slow onset

- Relative deficiency of insulin and increasing insulin resistance, hepatic involvement-gluconeogenesis



The Hearing Aid Podcasts

- Treated with diet/exercise, oral antihyperglycaemics, injectable therapies including insulin

<https://www.diabetes.org.uk/Diabetes-the-basics>

Who is at Risk?

An individual's predisposition to T2 Diabetes - determined by:

- Age,
- Genes / ethnicity (it is around five times more common in South Asian and African-Caribbean people (often developing before the age of 40 in this group) (Diabetes UK, 2015)
- Lifestyle and
- Environmental factors

T2DM is associated with:

- obesity,
- physical inactivity,
- raised blood pressure,
- disturbed blood lipid levels and
- tendency to develop thrombosis

Diagnosis

Now *usually* made on HbA1c level for most patients in older age groups (as they have type 2)



The Hearing Aid Podcasts

- Level $\geq 6.5\%$ (48mmol/ml) but need to beware especially in elderly as may be misleading when there are co-existing conditions, in particularly anaemia and renal disease.
- Can be falsely elevated (in iron, B12 or folate deficiency anaemias) or falsely reduced (with CKD, haemolysis, acute blood loss, chronic alcohol excess and recent blood transfusion).
 - Under such circumstances fasting blood glucose more useful but again may not be reliable in the presence of acute illness which temporarily can cause stress hormone mediated hyperglycaemia or hypoglycaemia.

Targets

A recommended mnemonic for determining an appropriate target is the **ABCDEFGH** approach

- Age,
- Body weight,
- Co-morbidities,
- Disease duration,
- Expectations of treatment,
- Functional Status,
- Ground support and
- Hypoglycaemia

In 2012 (due update this year) the International Diabetes Federation published a very helpful and comprehensive guide for the managing the major risk factors in type 2 diabetes – glycaemic control, blood pressure and lipids in the over 70s – based on functional categories.



The Hearing Aid Podcasts

[International Diabetes Foundation Guide: Managing Older Adults with Type 2 Diabetes](#)

- It contains good tips on DM mx at a number of levels of function and also in specific conditions / life stages
- Key principles:
 - An holistic, individualized care plan is needed for each older person with diabetes.
 - Proactive risk identification and minimization including planning for key transitions in older people such as stopping driving, moving to aged care homes, or supported community care and end of life care.
 - A focus on patient safety, avoiding hospital/emergency department admissions and institutionalization by recognizing the deterioration early and maintaining independence and quality of life to a dignified death.
 - Where possible, all therapeutic decisions should be based on a comprehensive assessment, frailty status, individual risk etc.
 - The principle of quality use of medicines including using nonmedicine options first if possible, pharmacovigilance, and deprescribing.
 - Older people from minority ethnic populations are likely to have specific education and care needs e.g Ramadan.
 - Locally, relevant interdisciplinary diabetes care pathways should be developed within the healthcare system.

NICE and NSF – Care Processes

The MDTea Podcast provides Education on Ageing for all healthcare professionals working with older adults

Find us on Twitter: [@MDTea_podcast](#), [Facebook.com/MDTeapodcast](#), [Stitcher](#) and [iTunes](#)

Visit www.thehearingaidpodcasts.org.uk/mdtea for more information, to listen on the web and to sign up to our mailing list.





The Hearing Aid Podcasts



[Taken from NAD 2015/16](#)

Monitoring and Control

Self-monitoring:

- Good in general

The MDTea Podcast provides Education on Ageing for all healthcare professionals working with older adults

Find us on Twitter: [@MDTea_podcast](#), Facebook.com/MDTeapodcast, Stitcher and iTunes

Visit www.thehearingaidpodcasts.org.uk/mdtea for more information, to listen on the web and to sign up to our mailing list.





The Hearing Aid Podcasts

- To think about: declining manual dexterity, visual capacity or cognitive ability, especially if the person lives alone.
 - particularly those on sulphonylureas and/or insulin who need to check CBGs

HbA1c monitoring: The same points apply as in the section of diagnosis about reliability in the presence of certain conditions which not uncommonly coexist. Of particular importance is remembering that conditions are never static and therefore it is never enough taking an isolated blood test for HbA1c and a contemporaneous FBC and U&E needs to be checked. Measure ever 3-6 months until stable then 6 monthly.

[NICE Guidance NG28](#)

Monitoring “red flags”: It is important to be alert to a couple of situations in elderly diabetics which may indicate serious issues:

- Weight loss with worsening control/rising HbA1c may indicate an underlying pancreatic malignancy > Investigate or refer
- Persistently low HbA1c. This indicates over-control and probably asymptomatic or even symptomatic hypoglycaemia.
 - review treatment
 - In frail patients It may represent “Burnt out Diabetes” in which the metabolism reverts to normoglycaemia, presumably due to a combination of reduced appetite and food intake, protein energy malnutrition, weight loss with loss of body fat and muscle bulk.

The effect of frailty should be considered in the management plan of older people with Type 2 diabetes. [Abdelhafiz et. al Future Science OA 2016](#)

Management for older people:

The MDTea Podcast provides Education on Ageing for all healthcare professionals working with older adults
Find us on Twitter: [@MDTea_podcast](#), [Facebook.com/MDTeapodcast](#), [Stitcher](#) and [iTunes](#)
Visit www.thehearingaidpodcasts.org.uk/mdtea for more information, to listen on the web and to sign up to our mailing list.





The Hearing Aid Podcasts

- We will talk through a number of studies here, and use these to review the main classes or drugs
- There is accumulating evidence that glycaemic target controls need to be relaxed in older diabetics with type 2 diabetes who have had a longer duration of the condition or who have established vascular disease.

- ACCORD trial (10,000 pts, intensive rx vs normal)
 - stopped early! because of an excess mortality among intensively treated patients.
 - The rate of death from CV causes was higher in the intensive therapy group than in the standard therapy group (2.6 vs. 1.8%; HR 1.35; 95% CI 1.04–1.76; $P = 0.02$).
 - The rate of death from any cause was also significantly higher in the intensive therapy group than in the standard therapy group (5.0 vs. 4.0%; HR 1.22; 95% CI 1.01–1.46; $P = 0.04$).
 - ?due to the physiological changes induced by hypoglycaemia on a compromised cardiovascular system with increased sympathetic tone and stress hormones increasing the work of the heart, electrical changes in the myocardium (increased risk of dysrhythmias), endothelial dysfunction in arteries, increased coagulability and viscosity of the blood, and release of mediators of inflammation.

[Hypoglycaemia and Cardiovascular Risk, Friar et al, Diabetes and Cardiovascular Disease](#)

[2011](#)



The Hearing Aid Podcasts

- An article in the BMJ stated that by 75 the harms of most treatments are likely to exceed any potential benefit. Recommended HbA1c targets for such people are now set at 7.5 – 8.5% and should not be below 7.0%.
- When possible medications should be reduced or stopped, prioritizing those which cause hypoglycaemia where possible

[Treating Type 2 Diabetes in elderly people does more harm than good. Torjesen BMJ 2014](#)

- Counter to this is evidence that less good control of blood sugars increases the risk for infection - Increased infection risk should be considered when relaxing glycaemic targets in elderly people.

[Infection risk in the elderly with reduced glycaemic control. McGoven et. al, The Lancet 2016](#)

Recent headline:

“Diabetic patients who take the most commonly prescribed diabetes drug, metformin, are the least likely to follow medical advice regarding their medication due its side effects”

[Comparison of medication adherence and persistence in type 2 diabetes: A systematic review and meta-analysis. Diabetes Obes Metab. 2017 Nov 14.](#)

- Researchers from the University of Surrey examined in detail how likely 1.6 million people with Type 2 diabetes were to take their medication.
- The study combined data from clinical trials and observational studies looking at adherence rates for both tablet and injectable medicines.

Going through the different drugs:

- Metformin (Biguanide)
 - Biguanides (Metformin) Not to be used if eGFR <30 and maximum dose of 500mg bd between 30-45. Avoid in liver and cardiac failure.

The MDTea Podcast provides Education on Ageing for all healthcare professionals working with older adults

Find us on Twitter: [@MDTea_podcast](#), [Facebook.com/MDTeapodcast](#), [Stitcher](#) and [iTunes](#)

Visit www.thehearingaidpodcasts.org.uk/mdtea for more information, to listen on the web and to sign up to our mailing list.





The Hearing Aid Podcasts

- Do Not cause hypoglycaemia - a good first choice (but NICE have an algorithm to follow.
 - [NICE algorithm for type 2 DM in adults](#)
- It was discovered that **30 percent** of metformin doses prescribed to patients are not taken compared to **23 percent** of sulphonylureas (such as gliclazide) and **20 percent** for pioglitazone.
- **Sulphonylureas:**
 - The frequency of hypos with sulphonylureas is similar to that with insulin treatment; they are usually prolonged and more severe especially when there is coexisting renal impairment.
 - Numerous drug interactions exist therefore the risk increased with polypharmacy. It is therefore especially risky for people living alone and it is recommended that where possible alternatives are considered.
 - Weight gain
- **Thiazolidinediones (Pioglitazone):**
 - Actually a good drug in spite of its somewhat up and down reputation.
 - Well-tolerated, reasonably potent but does not cause hypoglycaemia,
 - can be used in the presence of renal impairment (with dose adjustment) and possibly cardioprotective.
 - Not to be used though with a history of heart failure, unexplained haematuria, macular oedema or osteopaenia.
- **DPP4 inhibitors (Gliptins):**
 - Less potent but useful if not striving for tight glycaemic control.
 - Again well-tolerated safe as does not cause hypoglycaemia, can be used in renal impairment usually with dose adjustment.
 - Disadvantage: expensive.

The MDTea Podcast provides Education on Ageing for all healthcare professionals working with older adults

Find us on Twitter: [@MDTea_podcast](#), [Facebook.com/MDTeapodcast](#), [Stitcher](#) and [iTunes](#)

Visit www.thehearingaidpodcasts.org.uk/mdtea for more information, to listen on the web and to sign up to our mailing list.





The Hearing Aid Podcasts

- Interestingly, DPP4 inhibitors (**gliptins**), one of the newer medication classes have the highest rates of adherence, with only **10 to 20 percent** of medication doses not taken.
- **GLP1 analogues:**
 - Used in insulin-resistant overweight patients, there is limited literature on its use in elderly patients. What little exists seems to indicate that it is as safe as in other age groups but one has to reduce dosage in renal impairment.
 - Currently only injectable preparations are available but some only need to be administered once weekly and they do not cause hypoglycaemia which potentially means that its use provides a reduced burden for community nurses for treating housebound patients who for any reason cannot self-medicate.
 - When comparing injectable medications, it was found that patients are twice as likely to stop taking GLP1 receptor agonists (such as exenatide) compared with insulin.

[Practical Use of Glucagon-Like Peptide-1 Receptor Agonist Therapy in Primary Care. Reid, Clinical Diabetes 2013](#)

Variance in adherence rates are in part due to side effects of the different drugs. Metformin commonly causes gastrointestinal symptoms such as diarrhoea and flatulence, whereas DPP4 inhibitors are generally better tolerated

Other treatments:

- **SGLT2 inhibitors (Gliflozins):** Currently not recommended in elderly. Requires reasonable renal function to be effective (eGFR of at least 45).
 - Can be use with metformin or alone
- **Insulins:**



The Hearing Aid Podcasts

- There are a number of problems and considerations with insulin management, not least the hypoglycaemia risk especially in patients who live alone and access to items required for treatment or to call for help.
- Additionally there are potential issues with regards to administration if the patient is managing medication independently.
 - Eyesight to dial-up the dosage needed (there are devices such as the Innolet with large dials for certain insulins which are helpful in sight impaired),
 - Good coordination for accurate injection (important that it is administered subcutaneously),
 - Satisfactory cognitive function to remember when, where and how much to use).
 - For those requiring nursing input there is the issue of number of visits to administer and timing of visits especially in relation to meal times. It can be difficult to organize regular visits more than once a day, so even a prescription of bd isophane or biphasic insulin could be problematic and any aging type 1 diabetic on basal-bolus regimens it is near impossible to organize.

Iain's Insulin prescription rules:

- 1) Stop the hypoglycaemias first
- 2) Start the day right
- 3) Make one change at a time
- 4) Only change a maximum of 10% of the total daily insulin dose



The Hearing Aid Podcasts

Cardiovascular risk factors (to include if time)

- *With longer duration of disease and in the elderly blood pressure and lipid control supercede glycaemic control in importance.*
- *Necessary to weigh up the risks and benefits of treatment especially in the frail elderly. One should consider how much benefit a statin will provide in someone whose life expectancy is likely to be less than 5 years for instance,*
- *Anti-hypertensives should be treated similarly*
 - *In conjunction with other drugs and the likelihood of the presence of some degree of autonomic neuropathy due to longstanding disease, there is a significant risk of postural hypotension > falls etc.*

Community screening for complications

Foot care and retinal screening are important parts of the management of diabetics. Although podiatry services have been very effective, services are being cut back and in certain areas availability is only for patients at high risk (i.e. with neurovascular deficits, calluses, deformities or frank ulceration), not taking into account other coexisting morbidities. Retinal screening has also been very effective but consideration has to be given to what happens to those patients for whom it is difficult to attend on account of frailty, poor mobility or other issues.

<http://www.nice.org.uk/guidance/cg127/chapter/guidance#lifestyle-interventions>

Blood Glucose management...

[Algorithm for blood glucose lowering therapy in adults with type 2 diabetes - NICE 2017](#)



The Hearing Aid Podcasts

Driving

Notifying DVLA and insurers

Declare DM to DVLA but not if diet controlled or taking oral medication/non-insulin injections (unless for a bus, coach or lorry licence)

Declare to DVLA if using insulin or having hypoglycaemia requiring intervention from another person (also- loss of peripheral sensation/retinopathy)

Checking blood glucose every 2 hours pre and during driving required

[Diabetes and driving - GOV.UK](https://www.gov.uk/guidance/diabetes-and-driving-requirements)

Frailty and Diabetes

[An International Position Statement on the management of frailty in diabetes mellitus: Summary of recommendations 2017. Journal of Frailty and Ageing.](#)

END OF LIFE...

References:

Delli AJ, Larsson HE, Ivarsson S-A et al (2010). Type 1 diabetes, in Holt RIG, Cockram CS, Flyvbjerg A et al (ed.) Textbook of diabetes, 4th edition. Oxford: Wiley-Blackwell

The MDTea Podcast provides Education on Ageing for all healthcare professionals working with older adults
Find us on Twitter: [@MDTea_podcast](https://twitter.com/MDTea_podcast), [Facebook.com/MDTeapodcast](https://www.facebook.com/MDTeapodcast), [Stitcher](#) and [iTunes](#)
Visit www.thehearingaidpodcasts.org.uk/mdtea for more information, to listen on the web and to sign up to our mailing list.





The Hearing Aid Podcasts

Holder, T., Giannini, C. et al (2014) A low disposition index in adolescent offspring of mothers with gestational diabetes: a risk marker for the development of impaired glucose tolerance in youth. Diabetologia <http://www.diabetologia-journal.org/files/Holder.pdf>

Mehmet, S. Fincher, S. & Ibrahim, S. (2010) NICE challenge on postnatal reclassification of glucose tolerance in women previously diagnosed with gestational diabetes mellitus. Practical Diabetes International 27. No 8 p. 346-348

Moody, A. (2011) Diabetes and Hyperglycaemia, The Health and Social Care Centre, 4. Vol 1, pp 2-28 URL:
<https://catalogue.ic.nhs.uk/publications/public-health/surveys/heal-surv-eng-2011/HSE-2011-Ch4-Diabetes.pdf>

Phillips, A. (2016) Improving self-management of type 1 and type 2 diabetes. Nursing Standard 30 (19) pp. 52-58. <http://journals.rcni.com/doi/pdfplus/10.7748/ns.30.19.52.s44>

Royal College of Paediatrics and Child Health (2009) Growing up with diabetes: children and young people with diabetes in England URL: <http://www.rcpch.ac.uk>

World Health Organisation/IDF (2006) Definition and Diagnosis of Diabetes Mellitus and intermediate hyperglycaemia.
http://whqlibdoc.who.int/publications/2006/9241594934_eng.pdf

World Health Organisation (2013) Diabetes fact sheet no.312
<http://www.who.int/mediacentre/factsheets/fs312/en/>



The Hearing Aid Podcasts

Curriculum Mapping:

This episode covers the following areas (n.b not all areas are covered in detail in this single episode):

Curriculum	Area						
NHS Knowledge Skills Framework	Suitable to support staff at the following levels: <ul style="list-style-type: none">• Personal and People Development: Levels 1-3• Service Improvement: Level 1 - 2						
Foundation curriculum	<table border="1"><thead><tr><th>Section</th><th>Title</th></tr></thead><tbody><tr><td>2.1</td><td>Patient as centre of care</td></tr><tr><td>2.2</td><td>Communication with patients</td></tr></tbody></table>	Section	Title	2.1	Patient as centre of care	2.2	Communication with patients
Section	Title						
2.1	Patient as centre of care						
2.2	Communication with patients						
Core Medical Training	The patient as central focus of care Relationships with patients and communication within a consultation						
GPVTS program	Section 2.03 The GP in the Wider Professional Environment <ul style="list-style-type: none">• Core Competence: Managing medical complexity						

The MDTea Podcast provides Education on Ageing for all healthcare professionals working with older adults

Find us on Twitter: [@MDTea_podcast](https://twitter.com/MDTea_podcast), [Facebook.com/MDTeapodcast](https://www.facebook.com/MDTeapodcast), [Stitcher](#) and [iTunes](#)

Visit www.thehearingaidpodcasts.org.uk/mdtea for more information, to listen on the web and to sign up to our mailing list.





The Hearing Aid Podcasts

- | | |
|----------------------|---|
| | Section 3.05 - Managing older adults <ul style="list-style-type: none">• Core Competence: Managing medical complexity• Core Competence: Working with colleagues and in teams• Core Competence: Practising holistically and promoting health |
| ANP (Draws from KSF) | Section |

Feedback

We will add feedback to this as we receive it! The website will have the most up to date version always available: www.thehearingaidpodcasts.org.uk/mdtea

Find Us!

To listen to this episode head to our [website](#), [itunes](#) or [stitcher](#).

Give us feedback by [emailing us](#), via [twitter](#) or [facebook](#).

Check out our cool infographic *A sip of...* summarising 5 key points on *topic*. It's made for sharing!