Managing adolescents with Diabetes mellitus

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Outline

- What is known ……
- Scenario……
- How can we apply what we know?

Adolescence

- Adolescence is recognised as a life period, that poses specific challenges for treating disease and promoting health

- The challenge is to maintain an effective clinical relationship while the health responsibilities transfer from the parents to the young person

- A time of Transition: Biological, Social and psychological changes

- Need to differentiate between various stages of adolescence

	Biological	Psychological	Social
Early Adolescence	Early puberty	**Concrete thinking (**Seeing things in a literal way**)** but early moral concepts; e.g explain..people in glass houses should not throw stones……..	Emotional separation from parents; start of strong peer identification; early exploratory behaviours
Mid Adolescence	Mid puberty	**Abstract thinking, (** the ability to use concepts and to make and understand generalizations) but self still seen as "bullet proof	Emotional separation from parents; strong peer identification; increased health risk
Late Adolescence	Completes puberty	**Complex abstract thinking**; identification of difference between law and morality; increased impulse control; further development of personal identify;	Development of social autonomy; intimate relationships; development of vocational capability and financial independence

- Distinction between chronological adolescence and adolescence as a ‘state of mind’ is important

- Chronic illness, emotional trauma, unhealthy parenting etc can lead to developmental arrest

Adolescence and diabetes

Normal social Development

- •Rejection of parental control
- •Strive to build an integrated self-identity

- •More attention to peers
- •Risk taking behaviour

Presence of Diabetes

- •Parents concerned and reluctant to relinquish control

- •Non-diabetic peers can provide influences that, although normal and age-appropriate, may conflict with good diabetes care practices.

Adolescence and diabetes

- Good glycaemic control requires compliance with complex multi component treatment plan which often requires parental involvement……independence

- It is common for teenagers to think only of the ‘here and Now’.
  - Yet diabetes and its potential long-term complications serve as a constant reminder of an uncertain future

- For teenagers, it is typical to feel self-conscious about personal appearance.
  - Yet diabetes demands visible actions…….testing BG, wearing a pump, injecting

The Challenge!!

- DCCT Trial showed that adolescents had worse diabetes controls than adults in both arms of the trial
  - Despite higher insulin dose /kg
  - Despite similar therapeutic approaches

3 main factors leading to deterioration in glycaemic control

- physiological effects of puberty
- decline in self-management behaviours
- changes in parental involvement

Physiological effects of puberty

- Insulin resistance of puberty (IGF-1/GH axis and HPG axis)
  - Reduced insulin mediated glucose utilization rate
  - Increased insulin requirement as insulin action reduce by 30%-50%
- Peripheral hyperinsulinaemia….increased BMI

Adolescence & decline in self-management behaviours

Deterioration of Control → Physiological

Deterioration of Control → Deterioration in adherence to self care skills

Age of Progression of Insulin omission

Pre teen-Early adolescence (9-13 yrs)	**Colton et al, 2004**	**2% regularly omitted**
Mid-teen years Mean age15 yrs	**Rydall et al 1997,**	**14% regularly omitted**
Older teens and young adults	**Rydall et al, 1997**	**34% regularly omitted**

Disordered Eating, diabetes and adolescents

- Although controversial, prevalence rates appear to be doubled:
  - clinical disorders DSM-IV (10% vs. 4%)
  - sub-threshold eating disorders (14% vs. 8%)
- Binge eating and intentional under dosing of insulin common
- **Insulin omission used for weight control**
- Rates of Retinopathy at 4 year follow up significantly higher (86% vs 24%)

Affenito and Adams, 2001; Jones et al, 2000; Rodin et al, 2002, Rydall et al, 1997

Depression, diabetes and adolescence

- Rates of Depression 2-3 times more prevalent in youth with Diabetes

- **Depression is related to**

  worse glycaemic control

  increased attendance to ED

  Reduction SMBG

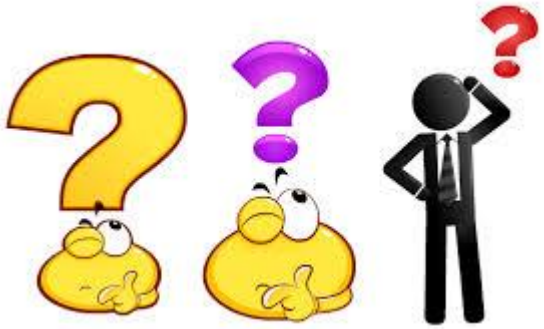
  increased risk of long term complications

Hood, K. (2006) Diabetes Care, Lawrence, J.M. (2006) Pediatrics

Diabetes , adolescence and family

- Family Structure
- Degree of diabetes specific conflict predicts diabetes control
- Parental involvement related to better adherence and diabetes control (Hanson et al 1987, Wysocki et al 1995)
- Parenting style important: authoritative vs authoritarian vs permissive

What can the MDT do?



Case discussion

- 14 year old newly diagnosed with diabetes
  - ***What strategies should the MDT employ to ensure she achieves good diabetes control all the time?***

- Parent involvement with, and patient adherence to, diabetes management tasks are greatest shortly after diagnosis.

- However, within 1 to 2 years after diagnosis, patient and parent behaviors consistent with optimal management often deteriorate, as does glycemic control.

Laffel et al 2003

What can we do?

- Start Right
  - Clear message
- 4-5 blood tests a day
- Keeping a diary (paper or electronic)
- Target 4-7mmol/l
    - Carbohydrate counting
    - Use of correction dose
    - Insulin adjustment skills (3 day rule)
    - Frequent contact
- Ensure adequate dose of insulin
- Annual structured Education

- ‘Target Setting’ and ‘Effective family communication’ are important determinants of good diabetes control
- ‘Be Dogmatic in outcome but flexible in approach’
- Unity in team approach

Hvidoere studies 2005

Communication style

Concrete Thinking

You said if I missed my insulin, I will get ill with DKA.

I forgot them once at school and I did not develop DKA, so I probably do not need them anymore

Abstract Thinking

I missed my injections at lunch time, I did not get ill with DKA but my blood sugar was high.

If I had not had the correction dose I may have become ill with DKA

Style of communication has to be appropriate to developmental age
Adolescent issues need to be covered

What happens 1-2 years later when adherence starts to wane?

what are the common issues that crop up?

Common issues

- No diary (paper or electronic)
- Stops or reduces monitoring of BG
- Starts injecting after meals
- Starts omitting lunch time insulin
- Falsifies diary/manual input into pump download
- Snacking a lot ……..no insulin/Stops Carbohydrate counting
- Poor clinic attendance

- Detect deterioration in self management early and discuss (Even if HbA1c is still be acceptable)
- Encourage, Praise and Promote good behaviour

PSYCHO EDUCATION STRATEGIES

- **What Strategies can we use to help parents?**

Improving Parental Involvement & team work

- **Ambulatory, family-focused teamwork intervention**

RCT, 108 aged 8-17 yrs.

Intervention: focused on the importance of parent-child responsibility-sharing for diabetes tasks and ways to avoid conflict that undermines such teamwork.

- The four modules addressed the following content areas:
  - communication around diabetes,
  - The meaning of HbAlc
  - Response to blood sugars and avoiding the “blame and shame cycle”;
  - Sharing the burden of diabetes tasks with family members and using a logbook to problem-solve out-of-range values.

Results: At 12 months HBA1c 8.2% vs 8.7% ($p<0.5$) .

Laffel et al J of Pediatr 2003

FACTS study

Muliticentre RCT,

- 305 mean age 13.1+/- 1.9 yrs
- 6 (90 minutes)Skills training with increased parent-adolescent team work

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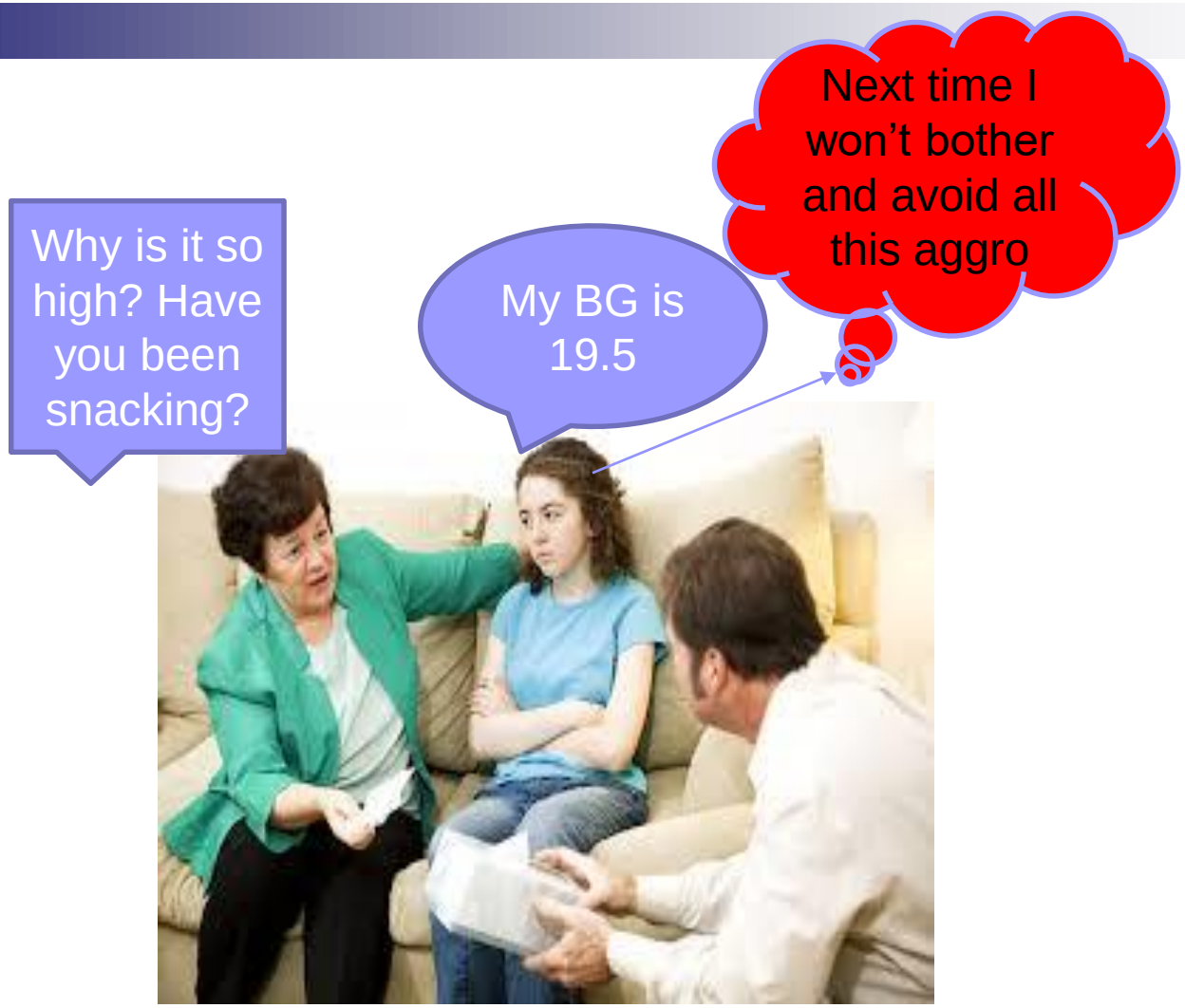
- Poor attendance to monthly group sessions
- At 12 months, No change in HbA1c OR Parental support

Murphy et al 2012


Why is it so high? Have you been snacking?
My BG is 19.5
Next time I won't bother and avoid all this aggro

Parents have to learn to be like ducks

Sharing responsibilities

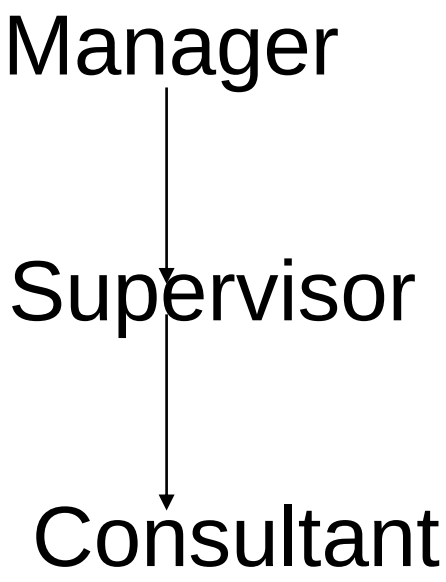
Job	Who is responsible?
Remembering to do blood test	Dad
Doing the blood test	Claire (with diabetes)
Checking the blood test in the meter	Mum
Writing in the book/download	Mum
Injecting insulin downstairs before meals	Claire
Reviewing results and adjusting dosages	Dad and Claire every Sunday evening

What may help Parents reduce conflict

- Problem solving skills: Provide opportunity for youth to make choices and decisions and reduce conflict
- Help child to feel ok about mistakes and failures
- Offer engagement and positive feedback
- Encourage to develop responsibilities and making contribution
- Establish self discipline by creating guidelines and consequences

TRANSITION

- Parents move from:



Parents have to learn when their dog has become a cat!!!

dog owner

- When the kids are young they are ready to play, engage, cuddle,
- Hang on your every word and comes when you call
- You feed it, train it, boss it around
- They put their head on your knee and gazes at you adoringly.

Cat Owner

Tell it to sit, and it jumps on the counter. The more you reach out, the more it moves away. They disappear and only appear for food. Limits communication to what's necessary

Dog owner again!

They now know the drill. They're engaging. A more comfortable relationship surfaces.

Lessons from Laffel's study

- Interventions targeting parent involvement especially non judgemental communication around blood glucose is beneficial
- This intervention needs to be instituted early
- Frequency of BG monitoring significantly predicts HbA1c

Consultation skills?

DEPICTED study

- Intervention based on motivational interviewing, Setting agenda and negotiating change
  - **Setting**: 26 UK secondary and tertiary care paediatric diabetes services
  - **Intervention:** Talking Diabetes programme, which promotes shared agenda setting and guiding communication style, through flexible menu of consultation strategies to support patient led behaviour change
  - **Results**: Training diabetes care teams had no effect on HbA1c levels
  - **Conclusions:** Improving glycaemic control in children attending specialist diabetes clinics may not be possible through brief, team-wide training in consultation skills.

CASCADE Study:

Motivational/solution focussed intervention

Setting: 28 UK secondary and tertiary care paediatric diabetes services

- **Intervention:** Structured Education on set curriculum (4 modules) covering CHO counting, insulin adjustment etc with psychological approaches (motivational interviewing, solution focussed brief therapy)

- **Results**: No significant difference in HBA1c between intervention and control group (10.1 vs 10) . Intervention was not cost effective

Consultation style

- **Motivational Interviewing** (a counselling approach to effect behaviour change)

Multicenter RCT,66 Teenagers (14-17 yrs)

2 Interventionists

Intervention: Motivational interviewing sessions versus support visits

At 12 & 24 months HBA1c significantly better in intervention group (8.7% vs 9.1%) (p=0.003)

Channon et al Diabetes Care 2007

Motivational interviewing undertaken by skilled practitioners e.g psychologists has a positive impact on diabetes control

- Motivational interviewing when practised by experienced psychologist can improve glycemic control

Strategies to improve control

Dealing with Insulin Resistance

- Ensure they have adequate insulin dose

Anticipating deterioration in self care skills

- Start early…….
  - Target setting
  - Effective communication
  - Team approach
- Integrate Psychoeducation as part of routine care

- Detect deterioration early

Anticipate reduction in Parental involvement

- Understand Your families (Psychosocial meetings)
- Encourage Parental involvement/Team work
- Help families make Transition

from parental responsibility

to

joint responsibility

to

Young person taking responsibility

- Use Psycho educational strategies e.g MI by psychologist
- Detect and manage any associated Depression or Eating disorder

Thank you

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