Insulin Dependent Diabetes Trust

Parents Bulletin

May 2008

Giving our children independence and confidence

In today's climate giving trying to make children independent and confident is difficult whether they have diabetes or not. We don't feel that they are safe walking to school or the local shop any more and yet we want them to grow up as independent and responsible adults and perhaps especially so if they have diabetes. Somehow we have to empower our children with knowledge to survive in the real world, be able to face sometimes unpleasant situations, make decisions and act on those decisions. We want them to be confident.

IDDT collects press cuttings related to diabetes and there are frequently stories in local newspapers of quite young children 'rescuing' a parent in a hypo by telephoning a grandparent, ringing 999 or by giving mum or dad a sugary drink. While this often brings tears to my eyes, these children have been taught to think for themselves about what needs to be done and they have the confidence to do it. Needless to say, their parents are rightly very proud of them!

It is easy to 'over-parent' our children in today's world, especially when a child in the family has diabetes. We want to protect our children but at the same time we don't want to undermine their self-confidence by thinking, planning and doing everything for them.

The temptation to 'over-parent' is greater when there are difficulties facing children because we want to try to compensate for the problem. Divorce or the death of someone close are typical times when the temptation to over-parent is great. Similarly the diagnosis of diabetes in one of our children is just such a time when we can be tempted to 'over-parent'. Somehow we want to try to make up for them having diabetes and we may also 'over-parent' brothers and sisters - may be because we feel guilty about the amount of time we spend with our child with diabetes. From a parent who has been there, believe me, it's so easy to do!

A further temptation is that we want them to have 'good' blood sugars. It may seem the easy way to do this is to make the decisions ourselves but this takes away responsibility from our child and does not help them to gain the confidence they need to manage their diabetes later. From really quite a young age, it's easy to involve children in decisions about what they eat at meals or before exercise and later this leads on to involving them in decisions about their insulin dose. This gradually builds up their confidence and independence for being in the outside world.

Soon after my daughter was diagnosed, her paediatrician gave me some very good but what seemed hard advice at the time – don't spoil her because she has diabetes, she's facing a tough world and has to be able to cope with it as a teenage and adult. I tried to follow this advice and sometimes I was hard, perhaps too hard. I know that sometimes my friends who had children without diabetes were a bit critical but I tried not to succumb to the peer pressure of other mums. My belief was, and still is, that the real world does not make allowances for people with diabetes and I wanted my daughter to be able to grow up to deal with this and to be able to do all the things that young people do. She has done just that and I am proud of her.
There were mistakes along the way but I tried to be there to help, to guide and when necessary to protect her.

From many different perspectives, living with diabetes is a challenge for our children and they need to be given tips and techniques to cope with the challenge rather than us as parents doing it all for them. The hard part of all this is hitting a balance between your child having independence yet not placing too much responsibility on them as they need to be guided and protected but not spoiled!

Onset of puberty in children with Type 1 diabetes

A study carried out in Germany investigated the effect of Type 1 diabetes on the onset of puberty and development and the factors that may affect it including blood glucose control, duration of diabetes, weight, insulin dose and intensity of insulin therapy.

Information was collected and analysed from 1218-2409 boys and 579-2640 girls from a cohort of 24, 385 paediatric Type 1 diabetic patients.

The results showed that both boys and girls showed significant delay, in years, compared to the general population but sexual maturity was not delayed. Raised HbA1cs and decreased weight [BMI] were associated with significantly delayed onset of puberty but duration of diabetes and insulin dose were not.

Eur J Endocrinology 2007 Nov;157(5):647-53

Probably the most exciting research of our time

Some time ago American researcher, Dr Denise Faustman realised that a drug that killed 'bad' white blood cells could help to reverse Type 1 diabetes. She was looked upon with some skepticism by some other researchers. However, she went on to identify the vaccine BCG as having this effect. BCG is commonly used in the UK to combat TB.

Dr Faustman found that mice with a form of diabetes similar to Type 1 diabetes in humans started to improve within days of being injected with the BCG vaccine and eventually were free of diabetes. The vaccine destroyed the abnormal white blood cells which were obstructing the production of insulin in the cells of the pancreas.

Trials on humans are taking place at Massachusetts General Hospital to see whether this will work on the abnormal autoimmune cells present in Type 1 diabetes in humans.

The influence of dietary intake and meal pattern on blood glucose control in children and adolescents using intensive insulin treatment.

Researchers in Norway studied the dietary factors and their association with blood glucose control in 550 children and adolescents between the ages of 2 and 19 years with Type 1 diabetes using intensive insulin therapy.

34% used pumps, 43% used 4 or more injections a day and 16% used 3 injections a day. The results showed that:

- adolescents with optimal HbA1cs [7.5% or less] had a lower intake of added sugar, a higher intake of fibre and a higher intake of fruit and vegetables than those with less than optimal HbA1cs. Having a regular meal pattern was also associated with blood glucose control.
- In children having regular meals was significantly associated with better HbA1cs.

The researchers recommend that dietary guidance should be increased during adolescence to improve dietary intake and blood glucose control. [Diabetologia 2007 Aug 9]

Eating disorders in girls with Type 1 diabetes

According to Canadian researchers who carried out a 5 year study, there is a high prevalence of eating disturbances in girls with Type 1 diabetes between the ages of 9 and 13. They also found that eating disorders in this group are likely to persist over time with 92% of girls with eating disturbances detected early in the study continued to report eating disturbances later in their teen years.
98 girls took part in the study and 46 reported having disturbed eating behaviour and 13 girls met the criteria for actual eating disorders. The findings were as follows:

- 43 reported active dietary restraint
- 2 reported binge eating episodes
- 3 reported self-induced vomiting
- 3 reported missing insulin doses
- 25 reported excessive exercise for weight control.

HbA1cs were not higher in girls with disturbed eating behaviours but there was a trend for higher HbA1cs in girls with an actual eating disorder. Those with disturbed eating behaviour had a higher BMI [greater weight].
The authors concluded that there is a close relationship between physical health and mental health in those with Type 1 diabetes and that eating disturbances are very common and persistent in girls and women with type 1 diabetes, and can arise in even pre-teen girls. They recommend that screening for eating disturbances in those with Type 1 diabetes should start in pre-teen years so that support and treatment can be given early to prevent full eating disorders developing. Diabetes Care Nov 2007

Advice change: the use of cough medicines in young children

The Medicine and Healthcare products Regulatory Agency [MHRA] has ordered six cough remedies to be permanently removed from sale for children under two years old. The main reason for this is the fear that young children may inadvertently receive an overdose.
Professor Rosalind Smyth, chair of the CHM Paediatric Medicines Expert Advisory Group stated: "Coughs and colds are generally self limiting conditions which will get better themselves usually within a few days. The management of symptoms in the under 2s is best achieved with treatment to control fever (ibuprofen or paracetamol), together with simple cough mixtures."

- Parents and carers are being advised that children suffering from a cough or cold should be treated with paracetamol or ibuprofen to lower the child's temperature and if they have a cough to use a simple cough syrup (such as glycerol, honey or lemon).
- For young babies, who are having difficulty feeding, nasal saline drops are recommended to help thin and clear nasal secretions. Vapour rubs and inhalant decongestants, which can be applied to a child's clothing, can also be used to provide relief from a stuffy nose.

Unintentional overdoses are common in children
In an article published in The Journal of Pediatrics [March 2008] the results of a US survey from 63 hospitals during 2004 -05 showed:

- Unintentional overdoses remains the most common cause of emergency hospital visits for adverse drug reactions in 1 to 4 year olds and children in this age group were more than 10 times more likely to be hospitalised for adverse drug reactions than children in other age groups.
- 89% of the children were treated and sent home and the were no fatalities from the adverse reactions.
- Over a two year period, in emergency departments adverse drug reactions were the third leading cause of non-fatal injuries in infants and the sixth leading cause of non-fatal injuries in 1 to 4 year olds.
- Most of the unintentional overdoses causing the adverse reactions were from pain relief and respiratory medicines but the overdoses were to prescription

and non-prescription drugs, vaccines, vitamins, dietary supplements and complementary therapies.

The advice from the research is as follows:

- Check the active ingredients if all medicines being given to ensure a child is not given two or more medicines with the same active ingredient.
- Use medicines that have child proof packaging and store out of reach of children. Never leave medicines, vitamins or supplements within their reach.
- Do not give children adult medicines.

Any new medicine licensed in Europe must be examined for its potential use in children

At the end of January 2007, new European legislation came into effect which means that drugs that may be used in children will have to undergo full clinical trials. Currently children with a wide range of conditions are just given smaller doses of medicines designed for adults which may or may not have gone through full clinical trials. It means that doctors have had to estimate the dose a child will need so increasing the risks of side effects or of the drug being ineffective.

According to the Association of British Pharmaceutical Industry [ABPI] about 90% of children in neonatal intensive care units are given unlicensed medicines, also unlicensed are 45% of drugs used on general children's wards and up to 20% of drugs prescribed to children by GPs.

Under the new legislation, there will have to be a paediatric investigation plan setting out which age groups will need to be studied before a drug can be made available to children so that the different needs of children of varying ages are addressed - newborns [nought to one month], young children [2 to 12 years and adolescents [12 to 18 years].

The changes apply to both new and existing medicines. Pharmaceutical companies will be rewarded for their extra work in researching children's medicines by being given a 6month patent extension on new medicines.

Parents should NEVER punish a child for bedwetting

Bedwetting itself does not mean that a child has diabetes but children with diabetes commonly wet the bed when their blood glucose levels are erratic or just plain high.

Fortunately most children grow out of this problem but some children to develop psychological and behavioural problems related to embarrassment, low self-esteem and anger arising from this problem.

Some children may have nervous systems that are not sufficiently developed to get the right signal between the bladder and the brain. However, it appears that some children who wet the bed have relatively small bladders that cannot hold much urine. If this is the reason for a child's bed wetting, the bed wetting should reduce or go away as the bladder increases in size.

Sometimes bed wetting can be a response to stress, emotional conflict or anxiety. Psychologists report that children can begin bed wetting during times of conflict at home or at school. Parents and siblings often feel frustration, anger and embarrassment over their attempts to stop children bed wetting.

The experts say that punishment almost never works and may increase the bed wetting because the child becomes more upset, nervous or ashamed. Their advice to parents is to discuss bed wetting with your child’s paediatrician who will be able to offer advice.

Recent research into the causes of Type 1 diabetes

Vitamin D supplements may ward off the development of diabetes in later life

Researchers in Manchester searched for published studies on the effects of giving Vitamin D supplements to children. They found 5 studies which showed that children given additional Vitamin D were about 30% less likely to develop Type 1 diabetes than those not given the supplement. In addition, the higher the dose and the more regularly it was given the lower was the likelihood of developing the condition. Separate studies have also implicated low levels of Vitamin D risks of developing other autoimmune diseases such as muscular sclerosis and rheumatoid arthritis.

Sunlight is required for the body to make Vitamin D and there is a marked difference between the incidence of Type 1 diabetes in children in different countries according to the levels of exposure to sunlight. The authors of the study point out that a child in Finland, where there is less daylight, is 400 times more likely to develop Type diabetes than a child in Venezuela. It is thought that Vitamin D helps to keep the immune system healthy and may protect cells from damage.

Government experts recommend Vitamin D supplements at least for the first two years of a child's life although the Chief Medical Officer for England has suggested that supplements for the first five years is a good idea. This is something to be discussed with your doctor. [Archives of disease in Childhood, March 2008]

Long-Life milk and baby formula

At the recent International Diabetes Federation conference in New Zealand, Professor Bob Elliott reported on his belief that the increasing rates of Type 1 diabetes could be due to Long-life milk products and baby formula.

Professor Alliott said that the incidence of Type 1 diabetes has shot up over the last 20 to 30 years and he linked this to the uptake of long-life ultra heat milk and infant formula made with A1 milk. This is milk containing A1 beta-casein protein and the heating process produces high levels of glycotoxins which are associated with Type 1 diabetes. The process involves heating the milk four times. Apparently about half of New Zealand's dairy heard produce A1 milk.

Blood pressure in children

Research in Germany has shown that people with Type 1 diabetes who had higher blood pressure as children had higher levels as young adults. The researchers followed 868 children at 95 diabetes centres across Germany and Austria from the age of 6 to 20. Blood pressure readings were taken at less than 10 years old, throughout puberty and after puberty. High blood pressure was seen in 4% of the children during pre-puberty and puberty and in 14% of them post-puberty.

Focusing on raised blood pressure during childhood is necessary so that treatments for early in life can be developed because adults with diabetes have a 10-fold higher risk than normal for developing cardiovascular disease. [Diabetes Care, April 2008]

Caesarian section is associated with an increased risk of childhood Type 1 diabetes

A study carried out at Queen's University, Belfast searched the literature to investigate whether there is evidence that there is an increased risk of childhood Type 1 diabetes in children born by Caesarian Section. Twenty studies were found and overall there was a significant increase in the risk of Type 1 diabetes in children born by Caesarian Section. In seventeen of the studies the evidence showed that the diabetes risk was greater with higher birth weight, shorter gestational age and greater maternal age.

The authors concluded the analysis demonstrates a 20% increase in the risk of childhood Type 1 diabetes after Caesarian section delivery. [Diabetologia, Feb 22 2008]

Insulin Injections

At diagnosis of young children probably the thing that most of us as parents fear, is injecting our child but we know the importance of not showing that fear to our child. It is important that we know the correct way to inject and the effects of insulin absorption according to how and where injections are done.
If insulin injections are too shallow or too deep, they affect blood glucose levels. If you have injected the right dose of insulin but blood sugars are sky high, you might have injected too shallowly and hit the skin. The goal is to hit the layer of fat between the skin and the muscle.

What is underneath the skin?

- Skin
- Subcutaneous layer – the tissue just under the skin
- Fat
- Epimuscular space – just underneath the fat, on top of the muscle
- Muscle

If injections are too deep – the insulin can go into the muscle which is painful but also causes the insulin to peak very quickly, in about 15minutes. Muscular injections occur when people inject into areas with little fat without pinching up, such as a thin thigh.
If injections are too shallow - the insulin hits the skin or the subcutaneous layer between the skin and the fat and it 'hangs around' there so that the dose reaching the rest of the body is much lower than intended. Injecting too shallow can occur from injecting at an angle or by using a needle that is too short.

Needle size

It is important to use the correct needle size and this depends whether an adult or a child and the amount of fat under the skin. Everyone is different and a child, a thin adult and an obese adult have varying thicknesses of fat and muscle. Generally most girls have more fat than boys in their abdomen and thigh areas. The needle size should be discussed with your health professional.

Injection sites

Unless obese, the injection site should be where you can 'pinch an inch'. The thighs, buttocks and the stomach are the usual injection sites. The injection should be done into the centre of the 'pinched up' area at 90 degrees and the skin should not be released until all the insulin is fully injected. The needle should then be left in for a few seconds before removing.

Some people, especially children may have preferences for injection sites or perhaps more accurately, may not like injecting in certain areas of the body. My daughter cannot bear to inject in her stomach - she couldn't as a child and still can't 30 years later.
There is no point in trying to force a child to inject in a place that they don't like. The important thing is that they do not inject in exactly the same place each time but that they rotate the injection site around within an area. For instance, there is quite a large area of thigh even in a child if the injection site is rotated round the thigh and up and down as long as there is enough fat. Injecting into the same spot can cause hard, unsightly lumps due to tissue damage and if further injections are done into these lumps the insulin will not be absorbed properly. Children can be tempted to inject into these lumps because the injection is less painful.

Absorption rates

How quickly the body absorbs insulin depends on the injection site. Generally the rates of absorption are as follows:

Injection Site	Absorption Rate
Abdomen	Fastest
Thigh and arm	Slower
Buttocks	Slowest

A Practical Diabetes International Workshop recommends the following sites in relation to the type of insulin being injected.

- Intermediate [NPH] and long-acting insulins should ideally be injected in the thigh or buttock to help them absorb at a slow and stable rate.
- Short- and rapid-acting insulins alone work best in the stomach because they are absorbed very quickly from there.
- Pre-mixed insulins eg Mixtard, given in the morning are recommended for the stomach because the short-acting part of the pre-mix is important at this time. In the evening the long-acting insulin is important so this is better given in the thighs or buttocks for slower absorption.

Tips

- The absorption from the legs is faster if exercise is taken soon after injecting and could cause a hypo. For example, if your child cycles to school in the mornings 5 days a week but lies around on Saturdays and Sundays, then the absorption rate of the insulin will be different at the weekends and you can expect this to be reflected in blood sugars levels.
- Using the stomach for injections before vigorous exercise can help to avoid low blood sugars.
- Generally using the same site for injections at the same time each day gives more consistent absorption of the insulin and therefore more consistent blood glucose levels.
- If parents are doing injections, they may have slightly different injection techniques which may alter absorption rates and so it is better that the same parent injects at the same time each day eg Mum in the morning and Dad in the evening. This is particularly the case when drawing up insulin in syringes because even drawing up techniques can vary from person to person so that the dose can be slightly different too.

IDDT's Annual Meeeting
The Paragon Hotel, Birmingham
Saturday, October 11th 2008

This is a one-day meeting which consists of speakers and discussion groups. It is an opportunity to meet people with diabetes and with parents of children with diabetes to learn and to share experiences. If you would like further information and a copy of the programme, give IDDT a call on 01604 622837 or e-mail enquiries@iddtinternational.org

We hope that you will join us.