Look back at year one

Audrey Sheal wrote this letter to her diabetes doctor at the Aberdeen Royal Infirmary. She looks back over her first year with an insulin pump

Friday 23rd November 2001

Dear Dr Pearson

Introduction

Now that I have been using an insulin pump for over a year, I thought it might be useful to outline the difference that I believe the pump has made.

I have started by outlining my experiences prior to pump therapy as this serves to highlight the difference between the two regimes.

Pre-pump therapy

Insulin regime and usage

On a MDI regime, my base line insulin usage was typically around 75 units/day, however I was always comfortable giving myself extra injections of Humalog, to cover snacks, and any blood glucose readings (*BG*) that were out of the target range - 4-10 *mmol/L* (72-180 *mg/dL*). For corrective injections I would work on a ratio of 1u of insulin reducing my *BG* by 1 mmol/L. For covering snacks, the results were far less predictable, and the variability in insulin requirement was too wide to make this approach effective. As a result my insulin usage was 10 units/day above base at least 60% of the time, and probably exceeded that a further 30% of the time.

With hindsight, I think that I was over-insulinised, but I believe that when chasing the "ideal range", insulin should be used as a tool.

HbA1c and blood sugar range

My *HbA1c* has, in recent years, always been at a very acceptable level. However, this masked a broad range of *BG* - often I was on a rollercoaster, ranging from highs of 20 *mmol/L* (360 *mg/dL*) to lows of 2 *mmol/L* (36 *mg/dL*). As a result, I often felt very apprehensive in situations, such as giving presentations, or chairing meetings, where it might be more difficult to check my *BG*.

Hypo frequency and awareness

For the reasons outlined above, I had frequent hypos - in fact, it was not uncommon to have multiple hypos in one day. As a result, hypo awareness was minimal. In addition, rebounds were common, and contributed to the rollercoaster effect.

Exercise and weight control

Despite exercising on a daily basis and eating a 'sensible' diet, I continued to steadily gain weight. It was a fruitless struggle to lose weight, irrespective of how much exercise I was doing, or how much I would follow dietician's advice to the letter, my weight did not reduce.

In addition, early morning exercise often caused spiking *BG* (typically between 17 and 20 *mmol/L* (300 and 360 *mg/dL*)) mid-morning. As a result, extra insulin would need to be taken, to get back to an acceptable level.

Quality of life

My feelings about my diabetes were becoming increasingly negative. This, combined with my increasingly unpredictable health, caused many and various impacts on my quality of life - energy levels were low,

work situations were causing increasing levels of anxiety, and the hard work I was putting in was not getting the expected rewards. The disease was controlling me, and despite working incredibly hard, I was not making a positive difference to my own health.

Pump Therapy

Insulin regime and usage

Since embarking on pump therapy, my insulin usage has reduced considerably. At the outset of pump therapy, I was taking approximately 45 units/day; now, in an average day I will use somewhere between 36 units and 40 units/day. One unit of insulin will lead to a 1.3 *mmol/L* (23 *mg/dL*) *BG* drop, and 15g of carbohydrate require 1 unit of insulin. These numbers are key to predictable *BG* levels.

Basal rate profiles offer pump users the ability to counter the dawn phenomenon, this has greatly improved my waking sugars. I work with three different basal profiles - early morning exercise; no early morning exercise and a pre-menstrual profile. Indeed, if my pump could accommodate more profiles, I could certainly fine tune things further!

With bolus pattern options, I use normal bolus, square wave (allowing steady delivery over a period of several hours) and dual wave (initial normal bolus followed by remainder of bolus as square wave). These options make it easy to accommodate business dinners, Christmas day and the like as well as high fat, slow carbohydrate absorption meals.

HbA1c and blood sugar range

There has been no great improvement in my *HbA1c* since going on the pump. This is of no great surprise, and was not, in fact, one of my aims. What has changed radically is the range of *BG* readings that makes this up. My target range is now set from 5-10 *mmol/L* (90-180 *mg/dL*). As a crude measurement, I totalled how many readings were in that range over the last three months of data - the result was 86%. Of the readings outwith target range, they were fairly evenly split between < 5 *mmol/L* (90 *mg/dL*) and > 10 *mmol/L* (180 *mg/dL*). In that three-month period, I had less than 10 readings in the high teens. This steadiness of control and the previously mentioned predictability of reaction to insulin and food make for a much more stable disease and life.

Hypo frequency and awareness

Hypos are now rare, and as a result hypo awareness has returned. It is still not as evident as it was in the early days after diagnosis, but I do now know if I am going low without having to test (although I always do!).

Exercise and weight control

I have purposely maintained the same exercise regime and diet since starting the pump. I lost approximately 14lbs in the first six months of starting pump therapy and have maintained that weight since then.

Due to the ability to alter basal rates and set temporary basal rates for different activities and times of the day, I am now able to exercise in the early morning without experiencing spikes later in the day. Any activity can be matched with an adjusted basal rate, be that as part of a profile or by setting a temporary basal rate. The benefits of exercise are more apparent when not then having to chase insulin with food, or countering spikes with extra insulin.

Quality of life

Without question the pump has greatly improved my quality of life. Having more energy, being able to have a long lie, skip a meal, travel across time zones whilst altering insulin delivery, not have a hypo during Christmas lunch - all relatively simple things that previously seemed unattainable without paying a penalty.

I firmly believe that the pump and my improved quality of life will have an impact on my health in the longer term. Whilst I appreciate that *HbA1c* levels are a fundamental measure, I am convinced that blood

sugar ranges, hypo awareness and a variety of other factors impact on any diabetic physically and mentally. If better quality of life gives a diabetic a more positive approach to managing their health, then this can surely only be for the good.

Adjusting to a pump

This was undoubtedly my greatest fear - how would life be with an attachment! I was scared what would happen when I slept, when I exercised, when I wore clothes without a waist band, when I ate differently, when I was not well.

Probably, the most important lesson that I learned at the outset was that if I did not like it, I did not have to keep using it. Within a couple of weeks I barely noticed my pump, and within three months I felt entirely comfortable. Still I encounter new situations, and have to think them through - undoubtedly there is another "pumper" out there who has been through it, and help is always close at hand.

I have not experienced any major difficulties with infusion sites or sets. Over the year, I have twice had to change uncomfortable sites. Both become uncomfortable rapidly after insertion. I am aware of the potential difficulties of site infection and ensure that I change my site every three days.

Illness/*DKA*

Since going on the pump, I have had a variety of minor ailments. With each I have been able to make the necessary adjustments to my insulin levels to ensure as steady *BG* as possible - both when being able to eat, and when not. I have found my diabetes far more manageable during illness with the constant adjustable insulin delivery that a pump offers.

If I have a *BG* above 13 *mmol/L* (234 *mg/dL*), I always check for ketones, and always check that my pump is functioning correctly. To date, I have not detected ketones, nor experienced DKA.

Clinic support

The support that I received from the clinic has been superb. Dr Shaw provided me with the level and quality of support that made this transition not just possible, but straightforward and effective. Dr Abraham is now continuing to provide such a level of support that gives me great confidence. In addition, Ailleen Robertson has helped me to understand how to balance my nutritional needs with this regime.

Dr Shaw's support certainly went above and beyond the call of duty, and probably, as things stand, would be difficult to offer many patients. My hope is that in the longer term my experience and my health will prove that this time has been well spent and will reduce my ongoing need for clinic support and hospital treatment.

Conclusion

Starting insulin pump therapy is undoubtedly the most positive thing I have ever done to improve my health. Insulin pump therapy may not be for everyone however if anyone is committed to controlling their diabetes, struggling to make this happen, and willing to work at it, then pump therapy can reward efforts. I do not work any harder at controlling my diabetes than I did before I started on pump therapy, but now the hard work is rewarded. Finally I feel that I am controlling this disease, in the broadest sense.

I am very grateful for the support that I have received and continue to receive from the clinic in my efforts. This therapy has worked superbly for me to date, and there is not a day that goes by that I do not recognise this.

With kind regards

Yours sincerely

Audrey Sheal

Author: Audrey Sheal <stephen@sheal.fsnet.co.uk>. Audrey Sheal is not a medical professional. She has Type 1 diabetes and uses an insulin pump. The information given here is based on her own personal experience. More about Audrey Sheal...

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