Setting up a fast-track insulin start clinic for type 2 diabetes

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When people with established type 2 diabetes need to begin taking insulin therapy there is often a delay in accessing services. Since the report of the UK Prospective Diabetes Study was published it has been recognised that people with type 2 diabetes have a progressive disease and a need for increasing treatment. The authors set up a fast-track service to enable GPs and practice nurses to refer to a nurse-led service at the diabetes centre.

A progressive disease

Since the publication of the report by the UK Prospective Diabetes Study Group (UKPDS, 1998) it has been recognised that people with type 2 diabetes have a progressive disease and need increasing levels of treatment. The condition may well initially respond to lifestyle changes, such as losing weight and taking regular exercise, but the progressive reduction in the number of insulin-secreting cells means further treatments will need to be added in the form of increasing doses of oral hypoglycaemic agents (OHAs) and in increasing combinations to maintain the glycated haemoglobin (HbA1c) below seven per cent. When this is no longer effective insulin is required, either alone or in combination with OHAs.

Jarvis et al (2004) found that starting on insulin using an individually calculated methodology in patients with type 2 diabetes is more effective than the classical technique of beginning with a ‘safe’ dose of 10 units twice daily and gradually increasing it until the target HbA1c level is reached. The new system led to quicker follow-up by diabetes specialist nurses and faster achievement of HbA1c targets and resulted in no significant adverse outcomes for patients. Having examined this research, the authors set up a fast-track nurse-led service in the diabetes centre at Leicester General Hospital to which GPs and practice nurses could refer patients.

The fast-track clinic

The aim was to set up a fast-track nurse-led diabetes clinic without a waiting list to prevent the delay often associated with starting insulin therapy. This was made possible by the reduction in follow-up and the faster discharge back to the primary care team.

BOX 1. DEMOGRAPHICS OF PATIENTS SEEN IN THE FAST-TRACK CLINIC

- 60 referred to clinic
- 44 started on insulin
- 21 male  23 female
- 29 white  15 Asian
- Age at referral: 28–88 years (median 60)
- 16 inappropriate referrals
- HbA1c data available at three months in 35 people
- Weight data available at three months in 29 people
Follow-up was undertaken with support from the diabetes specialist dietitian and diabetologist if necessary. The nurses ran clinics at which they could see patients face to face, while follow-up was by arranged telephone contact. Patients were also offered small-group education within a month of starting insulin.

The regular nurse follow-up was discontinued when patients were confident about their injection technique and close to their HbA1c target. They were then discharged back to the primary care team with contact numbers and information about the drop-in service available at the diabetes centre.

**Audit of the fast-track clinic**

An audit was undertaken after the clinic had been operating for one year. This covered changes in HbA1c, rates and severity of hypoglycaemia, weight gain and patients’ waiting time for appointments.

**Results**

Sixty patients were referred to the clinic (21 male and 23 female), of whom 15 were South Asian (Box 1). There were 16 inappropriate referrals (Box 2). As patients were discharged early, some HbA1c data was missing at review and full information was obtained on 35 patients.

This showed a mean 2.4 per cent reduction in HbA1c since the referral (p<0.0001) (Table 1). Some data on weight was missing and there was a mean increase of 1.8kg in 29 patients who started insulin (p=0.51) (Table 2). The average waiting time for patients was 14 days (range 1–31). This compared with a waiting time in the main diabetes clinic of 13 weeks (Box 3, p30).

**Summary**

In summary, 20 patients achieved an HbA1c below eight per cent, with six achieving below seven per cent. There were mild, self-treated hypoglycaemic episodes in 29 (66 per cent) patients but no severe hypoglycaemic episodes. There was one death in this cohort during the audit but this was unrelated to diabetes. No patient waited more than four weeks for an appointment at the fast-track clinic (Box 4, p30).

**REFERENCES**


Discussion

Referrals

The audit of the fast-track clinic started from the beginning of the service. Some practical difficulties did occur but have now been addressed.

Some referral forms were incomplete – this was mainly due to difficulties obtaining laboratory fasting plasma glucose results because GPs and practice nurses were unwilling to send patients for this test or patients failed to attend.

This fasting plasma glucose result was important to calculate the individual’s dose requirement, which estimates insulin resistance factor using height, weight, fasting plasma glucose and presence of ketones. Attempts were made to obtain missing information from the GPs concerned but failing this and with more use of this method of calculation, it proved possible to estimate the fasting plasma glucose from the patients’ own blood or urine tests when we were confident that these reflected their HbA1c results.

The other factor in estimating using urine tests is renal threshold. If this was normal, then a positive prebreakfast urine glucose was taken to reflect at least a fasting plasma glucose of 10mmol/L. The insulin start was not delayed because of lack of this result if the patient’s history and HbA1c indicated a need, although a more cautious prescription was given until the ideal dose was established.

It was found that some GPs and practice nurses had not told patients why they were being referred to the fast-track clinic and they were unprepared for the fact that they needed insulin. This sometimes led to the need to delay the appointment although some patients agreed to start with the assurance that they would receive support.

Discharge

A further problem was that in a minority of cases GPs and practice nurses did not review patients on discharge from the fast-track clinic. This appeared to be due to the change in practice – they were accustomed to diabetes specialist nurses continuing to follow up patients. Although the letter explained that their role would be to continue routine follow-up and seek support if needed they had not really understood their responsibilities. This was overcome by giving patients contact numbers and access to the diabetes team if they felt their care was not what they required.

Missing data

To overcome the problem of missing data for audit of this clinic, patients were asked to attend a review clinic at three months, even though they may have been discharged from regular diabetes specialist nurse follow-up. Patients’ experiences were reviewed and HbA1c, weight, blood pressure and hypoglycaemic episodes were measured at this review.

Conclusion

Putting research into practice

Previous research undertaken in the department was put into routine practice and audited. Changes to the service have been and will continue to be made to reduce the practical difficulties that primary care staff experience when referring patients needing to start insulin therapy, to reduce inappropriate referrals. It was felt that this framework could be used to start insulin in primary care as GPs and practice nurses gain skills in starting and maintaining insulin therapy.

Weight gain

In the original research, possible adverse outcomes of hypoglycaemia and weight gain (not statistically significant) were identified. The diabetes specialist nurses received increased training on dietary prescriptions before the research led to routine practice, and the weight gain observed in this study was not significant and represented the amount expected from improved glycaemic control. We believe that using this calculated dose for starting insulin in type 2 diabetes provided a useful and safe framework that would prove useful in primary and secondary care.

Box 3. Patient waiting time to be seen in the fast-track clinic

- Average waiting time: 14 days
- Range: 1-31 days
- Waiting time in main diabetes clinic during the audit: at least 13 weeks

Box 4. Summary of main results of audit

- Median reduction in HbA1c: 2.2 per cent
- Median weight increase: 1.8kg
- Self-treated mild hypoglycaemia recorded in 29 patients (66 per cent)
- No episodes of severe hypoglycaemia
- One death, considered unrelated to diabetes
- Average patient waiting time: 14 days