The Perioperative Passport: Empowering patients with diabetes along their surgical journey

The perioperative passport empowers surgical patients

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Word Count:

Funding Sources Statement: Ipswich Diabetes Research Funds

No conflict of interest to disclose

Novelty Statement:

- We developed a perioperative passport as a novel approach to help overcome the disempowerment and poor communication that is often experienced by elective patients with diabetes.
- The passport contained essential information pertaining to a surgical inpatient stay and addressed common questions that patients may ask about their care.
- Quantitative and qualitative methods demonstrated that the perioperative passport was effective in involving and informing elective patients with diabetes.
- The perioperative passport has the potential to be widely adopted by other NHS Trusts wishing to enhance their perioperative pathway for elective patients with diabetes.

Abstract:

Aim: The multistep perioperative process presents particular challenges to people with diabetes. We aimed to determine whether a handheld 'perioperative passport' could improve the experience of perioperative care for people with diabetes and overcome some of the communication issues commonly identified in inpatient extracts.

Methods: Individuals with diabetes undergoing elective surgery requiring at least an overnight stay were identified via a customised IT system. Those allocated to the passport group were given the perioperative passport prior to their hospital admission. A 26 item questionnaire was completed post-surgery by 50 passport patients (mean age 69) and by 35 individuals with diabetes who followed the usual surgical pathway (mean age 70). Additionally, the former group had a structured interview on their experience of the passport.

Results: Prevalence of those reporting receiving prior information about their expected diabetes care was 35% in the control group compared to 92% of the passport group ($p<0.001$). The passport group found the information given significantly more helpful ($p<0.001$), including the advice on medication adjustment ($p=0.008$). Furthermore those with the passport were more involved in planning their diabetes care ($p <0.001$), less anxious whilst in hospital ($p<0.044$) and better prepared to manage their diabetes on discharge ($p=<0.001$). Mean length of stay was shorter though not reaching significance in the passport participant group (4.4vs6.5 days; $p<0.058$). Content analysis indicated the passport was well liked and innovative.

Conclusion: Our data indicates that the perioperative passport is effective in both informing and involving people in their diabetes care throughout the perioperative period.

Introduction:

The Perioperative pathway is often a multi-step process which can be particularly challenging to people with diabetes, with many experiencing anxiety and dissatisfaction with their care. [1]. The Joint British Diabetes Societies (JBDS) guidelines state the perioperative process should be seamless and that the patient should be involved in planning at all stages [2] yet failure of communication is often identified as a common issue in inpatient experiences [3] along with difficulty identifying high risk patients prior to surgery [2].Primary care referrals often lack detail about diabetes, such as the patients recent HbA1c or glucose medication and some fail to make mention of diabetes at all in the referral letter [4]

It is known that people's ability to self-manage is integral to successful diabetes management [5]. Elective patients who manage their diabetes every day in the community often find it disempowering when hospital staff, many of whom have little diabetes experience, prevent them taking decisions about their diabetes management [2]. In one Dutch study conducted in six hospitals, only half the participants reported they had received information about perioperative diabetes treatment and only one-third of the participants received any information about the effect of surgery on blood glucose. Most participants were unaware of their diabetes perioperative caregiver or who to contact in case of diabetes-related problems during their hospital stay. Half felt able to ask questions and only one third felt involved in the decision making regarding diabetes treatment [6].

The JBDS perioperative guidance has tried to address many of the issues experienced by people with diabetes undergoing surgery, but many trusts report difficulty introducing this guidance or successful improvements. . A study in the Netherlands looked at multifaceted improvement strategy across six hospitals but found that this had limited impact on the quality of perioperative diabetes care [7]. This prompted us to consider a new strategy in which patients with diabetes are empowered through their perioperative journey. We took the definition of empowerment as being a patient-centered, collaborative approach tailored to match the fundamental realities of diabetes care [8].

To empower patients we came up with the concept of a handheld 'perioperative passport' containing essential information pertaining to a surgical inpatient stay and questions that patients may wish to ask about their care. The 'passport' was put together by a working group of diabetes specialists, surgical health care professionals and the Ipswich Hospital Diabetes Patient User Group. The passport was also approved by the hospital reading group to make sure it was set at a suitable reading age.

The passport was designed for the patient to take on each of the stages in the perioperative journey and to be used as a collaborative tool for patients and health care professionals. The passport was broken down into the stages of the perioperative journey. It included information for the patient to fill in about their diabetes care, information for health care professionals to fill in to inform the patient of aspects of their preadmission care and information about what to expect in terms of diabetes care whilst in hospital. Pages relating to each of the three aspects of care were colour coded for ease of identification (Box1 and Appendix 1).

We aimed to determine whether the 'passport' would help patients with diabetes undergoing elective surgery feel better informed and more involved in their diabetes care at various stages of the perioperative process.

Box 1-Colour coded pages of the passport

Referral:

- Usual diabetes care,
- Normal medication regime
- Injection sites
- History of hypoglycaemia
- Other medical history
- Dietary patterns

Preoperative Care:

- Type of diabetes
- HbA1c
- BMI and BP reading
- Fasting advice
- Medication advice
- Referrals

Hospital Admission:

- What to bring into hospital
- Diabetes self-care
- Preventing hypoglycaemia
- IV insulin infusions
- Managing your continuous subcutaneous insulin pump in hospital
- Foot care
- The Diabetes Inpatient Team

Discharge:

- Diabetes discharge checklist
- Copy of discharge summary

Yellow= patients fill out, green= health professionals fill out, Blue=information pages

Subjects and Methods

Study Design

This comparative study was carried out at Ipswich Hospital NHS Trust and compared the experience of patients undergoing usual diabetes elective care against those who were given a perioperative diabetes passport. Usual care included being given pre-printed instructions produced by the diabetes team at the pre-assessment clinic specifically addressing preadmission eating and drinking and diabetes medication adjustment and being prescribed a bedside snack by the diabetes inpatient specialist nurses on admission. The diabetes inpatient nurses were available to patients in both groups during their admission. Ethics approval was granted by Diabetes Research Team at Ipswich Hospital

Participants

The inclusion criteria for participants were; those undergoing elective general, orthopaedic or spinal surgery; requiring at least an overnight stay. Participants were identified by a customised IT system when listed for surgery and randomly allocated a group using simple random allocation using computer software. Those patients that no longer required surgery or who opted to not proceed with surgery were then excluded. 53 participants who were allocated to the passport group and 39 who were allocated to usual care went on to have surgery.

Procedures

The passport group received an introductory phone call from the diabetes nurse team prior to receiving the passport in the post. The passport was explained to them and they were asked to fill out the relevant sections in the passport and bring this to all appointments and the admission. Before its implementation pre-operative staff, relevant ward nurses, junior doctors and consultants were made aware of the passport at ad hoc briefing sessions.

We could find no standard validated measure to evaluate the various aspects of care associated with the Diabetes Passport. The team generated a number of questions which after discussion and feedback from patients were finalised at 26 items. Comprising some dichotomous items, the majority required the participants to rate various aspects of care on a 10 point scale. The items were presented to participants as a three part questionnaire, as follows; 1) Experience before coming to

hospital, 2) Experiences whilst in hospital, and 3) Experiences of discharge (Appendix 2). On discharge both groups were given this questionnaire which was returned via post. Participants in the passport group were given the option of participating in a structured telephone interview. Fifteen participants opted to do this.

Analyses

The quantitative data from the questionnaire items requiring participants to respond on a 10 point scale were analysed using ANOVA and data presented as means and standard deviations. Categorical data was analysed using chi-squared tests. The interview data were analysed by a psychologist (SJ) using content analysis with an implicit coding structure.

Results:

The two groups were similar in age (68.6 ± 10.4 years passport group, 70.3± 12.8 years usual care group) and gender split (42% female passport group, 41% female usual care group). Lost to follow up rate was 6% in passport group and 10% in the usual care group.

Experiences before coming into hospital

There was no difference between the groups in how well informed they felt about the actual surgical procedure (9.5±0.99 vs 9.0±1.6, p=0.11), however the passport group reported being better informed of the importance of having good diabetes control in the weeks prior to surgery (9.4 ±1.5 vs 4.6±3.7, p=0.0001). More participants in the passport group reported receiving information about their expected diabetes care prior to their surgery (92% vs 35%; p<0.0001). The passport group gave a higher rating to the value of the information given (8.9±1.7 vs 4.6±3.7, p<0.0001), including the information on pre surgery medication adjustments (9.4±1.5 vs 8.1±2.5, p=0.008) and on what they could eat or drink in the hours prior to surgery (9.4±1.2 vs 8.7±1.9, p=0.036).

Experiences during time in hospital

Those given the passport felt more involved in planning their diabetes care (8.3±2.4 vs 5.0±3.3, p<0.0001) and less anxious whilst in hospital (1.8 vs 2.8, p =0.0437). The majority of patients were allowed to monitor their own blood glucose whilst in hospital if they opted to. There were two patients in the passport group and four in the usual care group who were prevented from doing so. There was just one patient in each group who wished to but were not allowed to give their own insulin, although two patients in the usual care group were unsure if they were able to. Of those who were on insulin 86% were able to decide their own dose in the passport group and 81% in the usual care group (p=0.791). Of those in the passport group, 8% received an IV infusion compared to 14% under usual care (p=0.353). Those that did have an IV infusion felt better informed of its purpose in the passport group, although this was not significant (8.7± 1.5 vs 5.8±4.4, p=0.243)

Those in the passport group were more aware of the inpatient diabetes team (76% vs 40%, p=0.0008) but received less visits (4) than the usual care group (11).

One issue identified by some participants during the interviews was that some ward nurses were not aware of the passport.

Experiences after discharge

Those in the passport group felt better prepared to manage their diabetes care on discharge (9.2±1.6 vs 7.0±3.3, p=0.0015). Mean length of stay in the passport group, though shorter, did not reach significance (4.4±2.6 days vs 6.5±7.1; p=0.059). There was no significant difference in how

satisfied they were with their overall care (9 ±1.9 vs8.4±2.2) or the likelihood they would recommend the hospital to family or friends (9±2.1 vs 8.7±1.7).

Content analysis indicated that the passport was well liked by 100% of the participants, met their needs and was easy to fill in. All interviewed said they would use it again. Users also reported they felt more prepared for surgery and that the passport answered all of their questions. Feedback also included that it may be of less use for expert patients who are very assertive and confident, but very useful for people who have to be in-patients, or those with diabetes going into hospital for the first time, or those who have been recently diagnosed or who have poor diabetic control.

Discussion:

The perioperative passport was found to be effective in both informing and involving elective patients about their diabetes care throughout the perioperative period in comparison to existing pathways. Those receiving the passport reported being significantly better informed pre-operatively of the importance of having good diabetes control prior to surgery. Patients that have good diabetes control prior to surgery are less likely to develop post-operative complications so it seems imperative that this is communicated clearly to patients early on in the pathway. This is of even more importance when we take into account that such information is not always communicated fully during the GP referral process.

There was a vast difference between the groups in those reporting to have received information about their diabetes perioperative care. This is not to say that those in the non-passport group did not receive any information, indeed the perioperative information sheets they had been given were produced by the diabetes team, but the fact that the majority could not recall receiving such information would suggest that this format is not effective. Furthermore, when comparing those that did recall receiving prior information, patients with the passport found the information more helpful including essential information on medication adjustment and eating and drinking prior to surgery. Without such information patients are at risk of adverse events, cancellation and delayed procedures.

The results also indicate that the passport can be helpful in establishing a more collaborative approach in perioperative diabetes management, with patients feeling more involved in their diabetes care, less anxious whilst in hospital and better prepared to manage their diabetes on discharge. The results are noteworthy when coupled with the knowledge that when people are involved in their own health care the decisions made are often better, health outcomes improve, and resources are allocated more efficiently [9].

Although we did not set out to measure direct health outcomes, it was noticeable that the length of stay was shorter in the passport cohort, albeit not significantly. Larger numbers may be able to determine whether the passport can also have an effect on important outcomes such as cancellation rates, length of stay, readmissions and diabetes related harms

Strengths of the study include its integration into routine clinical care. The passport did not require staff to make big changes to routine care pathways but instead empowered the patient to take back some control of their perioperative diabetes care. Further strengths include the recruitment from multiple diverse surgical disciplines and that the method of randomisation of participants will have helped to reduce selection and allocation bias.

It could be argued that one of the limitations of the study is the lack of validation of the questionnaire. However as we were reporting results by each item and not by calculating the

questionnaire total and the same questions were used for both groups this should not effect the validity of the study. A further limitation is that we cannot rule out that the results may have been influenced by hospital staff enthusiasm to the intervention tool rather than the use of the passport per se. We tried to minimise this by posting out the passport direct from the diabetes centre so that staff contact with the passport on admission was initiated by the patient. In fact we have evidence from the interview data that staff enthusiasm was even lacking at times as it was identified that some ward staff did not always engage with the passport. We believe this lack of engagement is largely due to not being able to introduce the passport to all ward staff due to shift patterns and agency staff who may have therefore not been aware of its content or purpose.

Lost to follow up was slightly higher in the usual care group and we cannot negate that this along with the difference in group size may have had an effect on bias. The groups became unbalanced because more patients in the usual care group did not proceed on to surgery. However it was a necessity for randomisation to take place before exclusion because the passport needed to be sent out as soon as patients were listed for surgery but it was not known at that point who would not go on to have surgery after listing.

In summary, the perioperative passport achieved its aims of helping patients with diabetes undergoing elective surgery feel better informed, better communicated with, more involved, less anxious and more empowered in their diabetes care throughout the perioperative process. Crucially the passport was well-liked by participants and deemed easy to use, important factors in patients engaging with the passport. We plan to roll out of the passport within other surgical departments at Ipswich Hospital to further enhance the diabetes perioperative pathway and to conduct a larger study to measure clinical outcomes and evaluate the cost effectiveness of the passport. We believe that the passport has the potential to be widely adopted by other NHS Trusts wishing to enhance their perioperative pathway for patients with diabetes.

Competing Interests: None declared

Acknowledgements:

The authors acknowledge the staff of the Orthopaedic and Trauma department and the General Surgery department at Ipswich Hospital, the patients that participated in the study and Ipswich Hospital Diabetes User Group.

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