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The Challenges of Transition in Diabetes Care: Towards a Coordinated and Secure Pathway

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Abstract

Original Research Articles

Objectives: to identify any challenges and constraints encountered during the transition for diabetic patients and to propose a transition care pathway that meets international standards and recommendations for the management of transition in diabetic patients. ***Methods:*** Descriptive and analytical cross-sectional study of 37 diabetic patients aged between 13 and 18 years who were followed up at the Endocrinology, Diabetology and Metabolic Diseases Department at the Mohamed VI University Hospital in Marrakesh. ***Results:*** The average age at transition for our patients was 16 ± 1.42 years, while the average age at diagnosis of diabetes was 11 years. The level of education was mostly satisfactory. With regard to medical follow-up, 47% had irregular follow-up. Only one patient came alone, while the others were always accompanied by their parents. The average glycated haemoglobin level of our patients was 14.28%. The majority of our patients presented with acute complications of diabetes, particularly recurrent hospitalisations for diabetic ketoacidosis [mainly due to discontinuation of treatment]. In our sample, age at transition was a predictive factor for glycaemic control. ***Conclusion:*** The transition of patients with diabetes poses a real challenge due to the complexity of managing the disease at a stage of life characterised by multiple physical, psychological and social changes. Awareness and early initiation of a well-structured transition process for the final transfer of paediatric care to an adult diabetes care team are essential.

Keywords: Chronic disease - transition of care - diabetes mellitus - care pathway.

INTRODUCTION

Diabetes mellitus is a chronic disease whose incidence is steadily increasing worldwide. Indeed, the World Health Organisation [WHO, 2017] estimates that it was the seventh leading cause of death in 2016. Type 1 diabetes [T1D] is a chronic disease that affects patients of all ages and has a high potential for morbidity and mortality; as such, it is a major public health issue. Transition is a gradual, coordinated and organised process that addresses medical, psychosocial and educational [or professional] aspects and aims to meet the needs of adolescents or young adults with chronic diseases as they move from paediatric to adult care systems. Unfortunately, patients transitioning from paediatric to adult care continue to demonstrate poor glycaemic control, partly due to a lack of understanding of best practices in transitioning care. Transition is an active process that should begin in early adolescence and continue into emerging adulthood. The aim is to enable young diabetic patients to receive regular follow-up care in specialised healthcare services, thereby preventing them from falling through the cracks and avoiding acute and chronic complications associated with diabetes. The aim of this work is to identify the potential challenges and constraints encountered during this transition in terms of medical follow-up, the persistence of significant gaps and obstacles during this phase, and their possible links with the psychosocial status of diabetic patients. The second aim is to propose a transition care pathway that meets international standards and recommendations for the management of transition in diabetics.

MATERIELS AND METHODS

This is a descriptive and analytical cross-sectional study conducted at the Mohamed VI University Hospital Centre over a period of four years from July

2018 to November 2022, It included 37 diabetic patients aged between 13 and 18 who had been monitored by paediatricians and then transferred to adult care at the endocrinology department of the Marrakech University Hospital.

Patients whose diabetes was discovered after the age of 18, patients who had interrupted their follow-up and patients referred directly to adult care were excluded from this study.

Data collection for each patient was carried out using an evaluation form. Several parameters were studied, with an emphasis on the transition: age, age at diagnosis of diabetes, duration of diabetes, age at transition, gender, medical history, type of diabetes, level of education, employment status, socioeconomic status, living alone or with parents, medical status, body mass index, HbA1C, acute and chronic complications of diabetes, psycho-affective and behavioural disorders, and concerns. Statistical analysis was performed using Excel 2010 software. Qualitative variables were expressed as percentages and numbers. Quantitative variables were expressed as means with standard deviations.

OUTCOMES

Thirty-seven patients were included in our study. The average age of our patients was 6.16 years, ranging from 13 to 18 years. The average age at diagnosis of diabetes in our patients was 11.6 years, ranging from 10 months to 17 years.

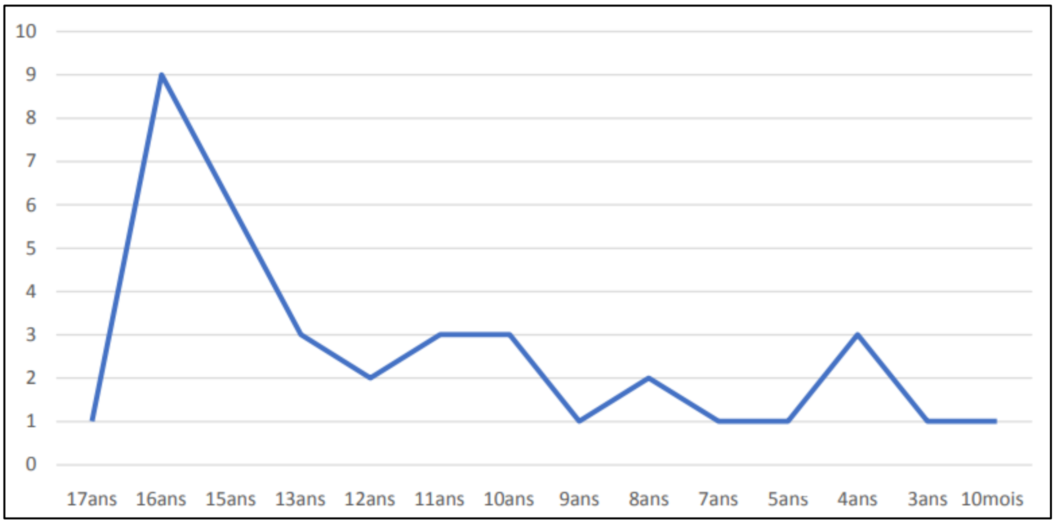

Figure 1: Distribution of patients according to age at diagnosis of diabetes

The average age at transition for our patients from paediatric to adult care is 16 ± 1.42, with extremes ranging from 11 to 17, and two peaks in frequency at 15 and 16. We have two patients, one still being treated in paediatrics and the other who has not yet made the transition.

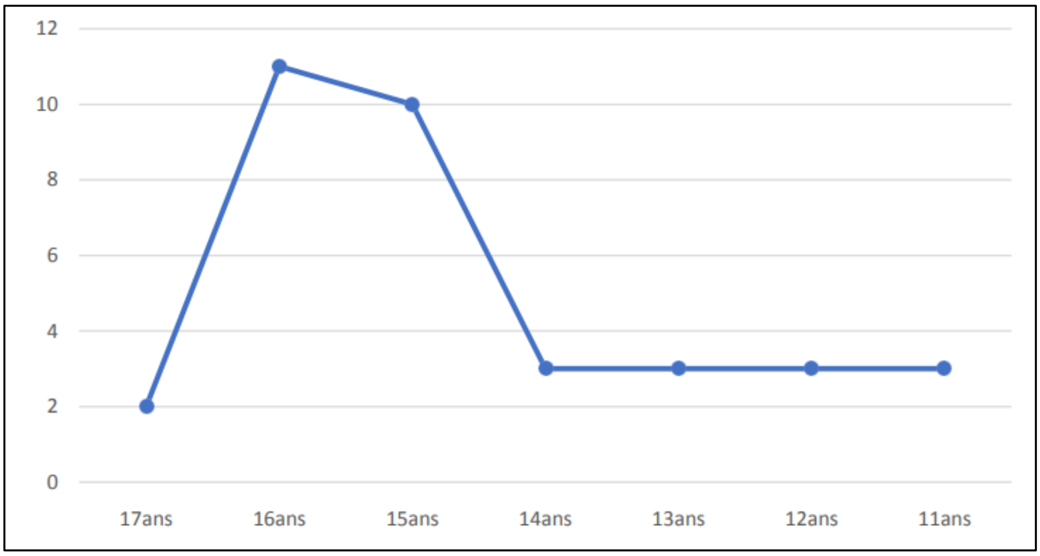

Figure 2: Distribution of patients by age at transition

Four of our patients were university students [9%], twelve patients [26%] were high school students, 28% were middle school students, and eight patients [17%] were elementary school students. Nine of our patients [26%] were employed. All of our patients were single except for one who was married, and almost all of them still lived with their parents, except for the married patient.

With regard to follow-up care, 48% of our diabetic patients attended adult endocrinology consultations regularly, 5% attended pediatric consultations regularly, 42% had irregular adult endocrinology follow-up care, and 5% had irregular pediatric follow-up care.

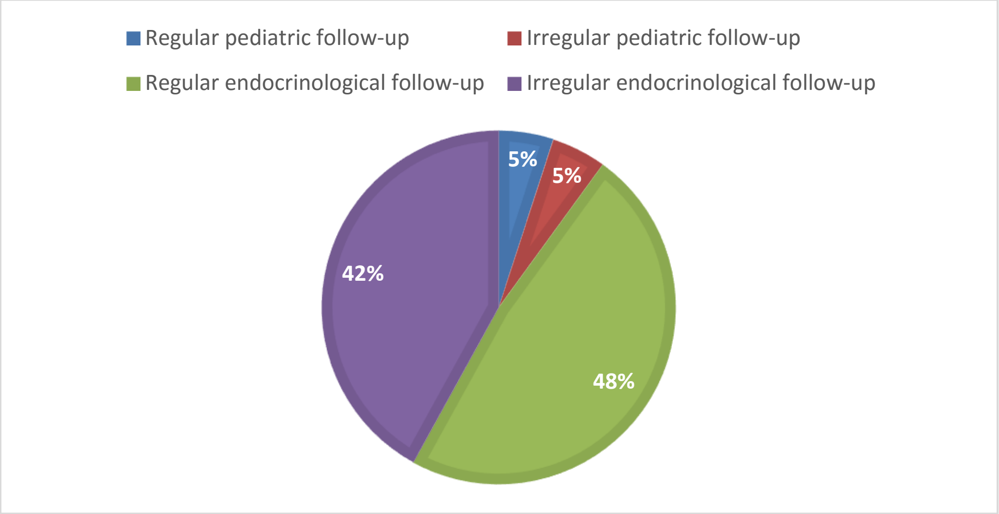

Figure 3: Distribution of patients according to follow-up

The average glycated hemoglobin level of our patients was 14.28%. Thirty-one patients [91%] had glycated hemoglobin levels above 7%, and three patients [9%] had glycated hemoglobin levels below 7%.

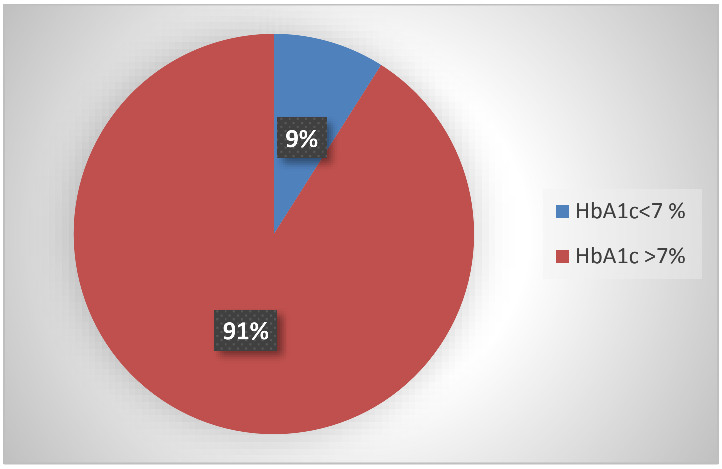

Figure 4: Distribution of patients according to glycemic control

The majority of our patients experienced frequent episodes of hypoglycemia and diabetic ketosis. Only two patients [5%] had not experienced ketosis, and six patients [16%] reported no episodes of hypoglycemia. There was a total absence of macroangiopathy, diabetic retinopathy, and diabetic nephropathy; however, three patients had diabetic neuropathy, presenting with symptoms of electric shocks and tingling, tingling and burning, and urinary leakage with gastroesophageal reflux, respectively.

The majority of patients were satisfied, at a rate of 73%, however 5% of patients felt sadness, 3% were in denial, 5% felt fear, and 14% had concerns about the transition.

DISCUSSION

Type 1 diabetes mellitus is known to be a demanding chronic disease due to the constant need for self-monitoring and self-management, with variable insulin requirements [1]. Type 1 diabetes and its treatment have a direct impact on quality of life: on the one hand, due to the risk of acute decompensation at any time and, on the other hand, due to the risk of long-term chronic complications [2].

Adolescence is a critical period for young diabetics. On the one hand, they have to adapt to the changes in their lifestyle and learn to manage their diabetes. On the other hand, they must re-establish the relationship of trust and reassurance they have already developed with their pediatricians [2]. During this period, there are frequent episodes of hypoglycemia and ketosis caused by the manipulation of insulin treatments and acute alcohol consumption, but also psychiatric disorders secondary to diabetes itself, mainly manifested by depression, generalized anxiety, and eating disorders, leading to underdosing of insulin and thus an imbalance in diabetes. [3]

Transition is the planned transfer of adolescents with chronic illnesses from pediatric care to adult care in order to ensure continuity of care [4]. The success or failure of the transition is assessed using a variety of criteria: attendance at consultations, disease-related indicators [glycated hemoglobin [HbA1c] levels, number of acute episodes leading to emergency department visits, onset of degenerative complications], patient and family satisfaction, etc. The most important criterion agreed upon by a consensus of international experts is that the patient should not be lost to follow-up during the transition [5].

The transition is an active process that should begin in early adolescence and continue into emerging adulthood; it is a necessary step to ensure regular access to specialized healthcare services in order to prevent acute and chronic complications of diabetes [6]. This preparation must be structured and organized around objectives to be worked on individually at the pace of the patient and parents. The aim is to improve knowledge on the one hand and acquire skills on the other, in relation to the disease as well as social, relational, and psychological aspects [6]. The goal is to promote the young person's maturation so that they feel ready to transition to adulthood. Scholarly societies recommend promoting transition programs and developing the skills of young diabetics in terms of communication, knowledge, and understanding of the disease, as well as decision-making and autonomy, to raise early awareness among young people about managing their diabetes [7].

A well-structured and organized transition requires [8]:

- Avoiding changes in treatment before or after the transition;
- A transition carried out during a stable period in order to avoid any medical, psychological, or social instability;
- Correlation between the transition and life events.

This will improve disease management, quality of life, and, above all, reduce complication rates and increase patient satisfaction [9].

There are several types of obstacles to transition [10]:

- Those related to the psychological, developmental, and relational context of the young person and their parents;
- Those related to the organization of care and the transition. Adolescents often express fear of changing teams and losing the support and protection they receive in pediatrics.

The transition period is a key stage in the care of young people with type 1 diabetes and presents many risks and challenges [11]:

- Metabolic control: Adolescents and young adults have the poorest metabolic control [12].
- Discontinuation of care: The transition from pediatric diabetes care to adult care is a period of high risk of discontinuity or even discontinuation of care. After the transfer, there is a reported decrease in the frequency of consultations in adult medicine [13].
- Increased risk of acute complications: The risk of acute diabetes complications is secondary to longer intervals between medical follow-up appointments and lifestyle changes [alcohol consumption, changes in diet, changes in activity levels, etc.]. This risk is proportional to non-adherence to follow-up and treatment, but also to poor metabolic control [14].
- Psychosocial problems are common among adolescents and young adults, especially those with diabetes [15]. Depression is recognized as a comorbidity often associated with diabetes, estimated at 11% among young people in transition. It is associated with poor metabolic control and diabetes complications [16].
- Eating disorders: according to a retrospective study by R. Sakr et al [2016] of young diabetics under the age of 25 in Paris, three people had eating disorders and one person attempted suicide using insulin [17].
- Sexuality and fertility: It has been reported that women with diabetes use contraception less often than non-diabetics. It is therefore recommended to proactively address issues surrounding contraception, with an emphasis on the pre-conception period and optimizing diabetes treatment in order to improve fetal and maternal outcomes [17]. In men, a decrease in sperm quality has been demonstrated in a dozen studies. The abnormalities described relate to sperm count and motility, but also to abnormalities in steroidogenesis [18].
- Alcohol and tobacco consumption is the same among young people with diabetes as among others, but it is important to note that among young adults with diabetes [19], alcohol

consumption worsens metabolic control and promotes severe hypoglycemia; tobacco consumption increases the risk of cardiovascular complications and microalbuminuria.

- The onset of chronic complications is strongly linked to the metabolic balance of the disease, as well as to the presence of personal or family risk factors [overweight/obesity, high blood pressure [HBP], dyslipidemia] [20, 21].

CONCLUSION

Young adults with type 1 diabetes are at high risk of acute and chronic diabetes complications due to non-compliance, suboptimal glycemic control, and loss of follow-up care, despite improvements in management and the development of new technologies. This often leads to recurrent hospitalizations for diabetic ketoacidosis.

The transition of these young diabetics from pediatric to adult diabetes care is an important step, occurring at a critical age, made more difficult by a chronic disease as demanding as diabetes.

Our study has enabled us to identify the following essential and decisive factors for a successful transition: early announcement of the transition by the pediatrician, preparation of adolescents for the transfer to adult diabetes care, and strengthening the knowledge of our young diabetics through a structured therapeutic education program that begins in pediatrics and continues in adult diabetes care. These elements are consistent with data from the international literature; they have been the basis for a successful transition with fewer patients lost to follow-up, stable blood glucose control without deterioration during this period, fewer acute complications, and overall satisfaction among young diabetics and their parents.

The cornerstone is multidisciplinary work involving pediatricians, diabetologists, psychologists, and nutritionists to establish a consensus that will certainly help standardize and improve the care of young patients with type 1 diabetes.

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