EDUCATIONAL PLAY FOR PRE-SCHOOL CHILDREN SUFFERING FROM TYPE 1 DIABETES MELLITUS

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Abstract

Education is the keystone of diabetes care and management. The Diabetes Control and Complications Trial (DCCT) provided clear evidence that successful intensification of management reduces microvascular complications. But intensification of management requires effective diabetes self-management, which requires frequent and high levels of educational input and continuous support ISPAD Consensus Guidelines for the Management of Type 1 Diabetes Mellitus in Children and Adolescents recommends that every person with diabetes has a right to comprehensive expert practical education. Diabetes education should be delivered by health care professionals with a clear understanding of the special and changing needs of children and their families as they grow through the different stages of life. Diabetes education needs to be adaptable and personalized so that it should be appropriate to each individual's age, stage of diabetes, maturity and lifestyle. It also needs to be culturally sensitive and at such a pace as to suit individual needs. Toddlers are totally dependent on parents/care providers for injections, food and monitoring. Also, hypoglycemia is more common and may be more severe in this stage of age. Education on prevention, recognition and its management is a priority. Diabetes education needs to be a continuous process and it should be repeated if we want it to be effective.

***key words**: diabetes education, type 1 diabetes mellitus, hypoglycemia, toddlers, educational play*

Introduction

The optimum metabolic control in type 1 diabetes mellitus in children can be obtained through a complex and individualised programme of intensive insulinotherapy, a healthy meal plan, systematic and well-planned physical exercise, psychological counselling and a structured educational programme [1].

Starting with the Consensus Guidelines from 1995, which incorporates ISPAD's (The

International Society for the Diabetic Child and Adolescent), IDF's and WHO's opinions, all specialised publications these last years consider that intensifying the management in diabetes mellitus requires as a direct consequence the intensifying of self-management as well [2, 7, 8]. Thus, microvascular complications can be reduced and the quality of life of the future adolescent and adult can improve consequently [3,6]. The success of self-management requires profound knowledge, specific practical skills and sustained motivation as well as particular attention to the behavioural component that might allow sustained efforts. So, structured education can be considered the key to success in the management of diabetes mellitus, enabling the family of the child and adolescent suffering from this disease to lead a more normal life [4, 7].

In consequence, we may agree that education is not everything, but without education, everything is almost nothing [4].

Furthermore, knowing the patient's goals, the approach based on the theory of empowerment, the structured educational programme applied in a personalised way can focus the patient and his/her family on self-management and self-care [2, 5, 6].

The pre-school child with diabetes is totally dependent on family/care providers. That is why, it is imperative that the family/care providers (at least a member) should become aware that, at this age, the child's activities are often unpredictable : he/she will not always play in the same way, will not eat at the same time or the same quantity of carbohydrate/protein-caloric units. So, hypoglycemia management may be more problematic and/or more severe [2, 7].

Taking into consideration the fact that such situations require extra vigilance, that the most appropriate educational approach at this age is the play and being confident that by **addressing the child directly we may obtain improved cooperation, we have devised an illustrated educational game** (figure 1). Having in view the pre-school child's cognitive characteristics, we have chosen a colourful attractive picture, appropriate for this age and suggestive for the educational notions important at this age with our, gratest priority, hypoglycaemia (prevention, recognition and management).

At this age, playing covers a child's preoccupations almost entirely. His or her symptoms may often be relegated to a second level in the child's mind. Similarly, any symptom of hypoglycemia can be ignored in favour of continuing the interesting activity he/she is performing. Thus, the risk of medium or even severe hypoglycemia with its possible dramatic consequences can rise [8].

We assume that the repetitive exercise through this educational game, during which learning is stimulated while advancing with a few squares on the track or by rolling the dice again, will empower the child to recognise his/her own hypoglycemia and to immediately let others around him/or her know about them.

Having as further objective the progressive assuming of the future schoolchild's responsibilities, we have also illustrated the blood glucose monitoring and participation in injection techniques. With the same aim in view, the game proposes a healthy lifestyle, including both diet and practising a planned sport with safety foremost. Stimulating independence can also

be achieved through images about observing the meals time, knowing the factors that glycemia depends on and recognising hyperglycemia and any impeding ketoacidosis (ie. With associated illness or omitted insulin dosage). We have also considered learning the elements of primary prevention of diseases as important, such as washing the hands before any activity or toothbrushing before going to bed, not smoking, talking to parents about their not smoking. The game consists of 15 numbered grid squares in an A3 boardgame format accompanied by 12 cards of an A7 format. The players take turn to roll a dice to move the token by a number of squares indicated by the dice roll, following a fixed route marked on the gameboard. The child receives the game at the beginning of the programme, being encouraged to play it both with the staff offering medical assistance and with his/her parents/care providers or mates. The correct answer for each grid square can be found on the cards having the same number as the square.

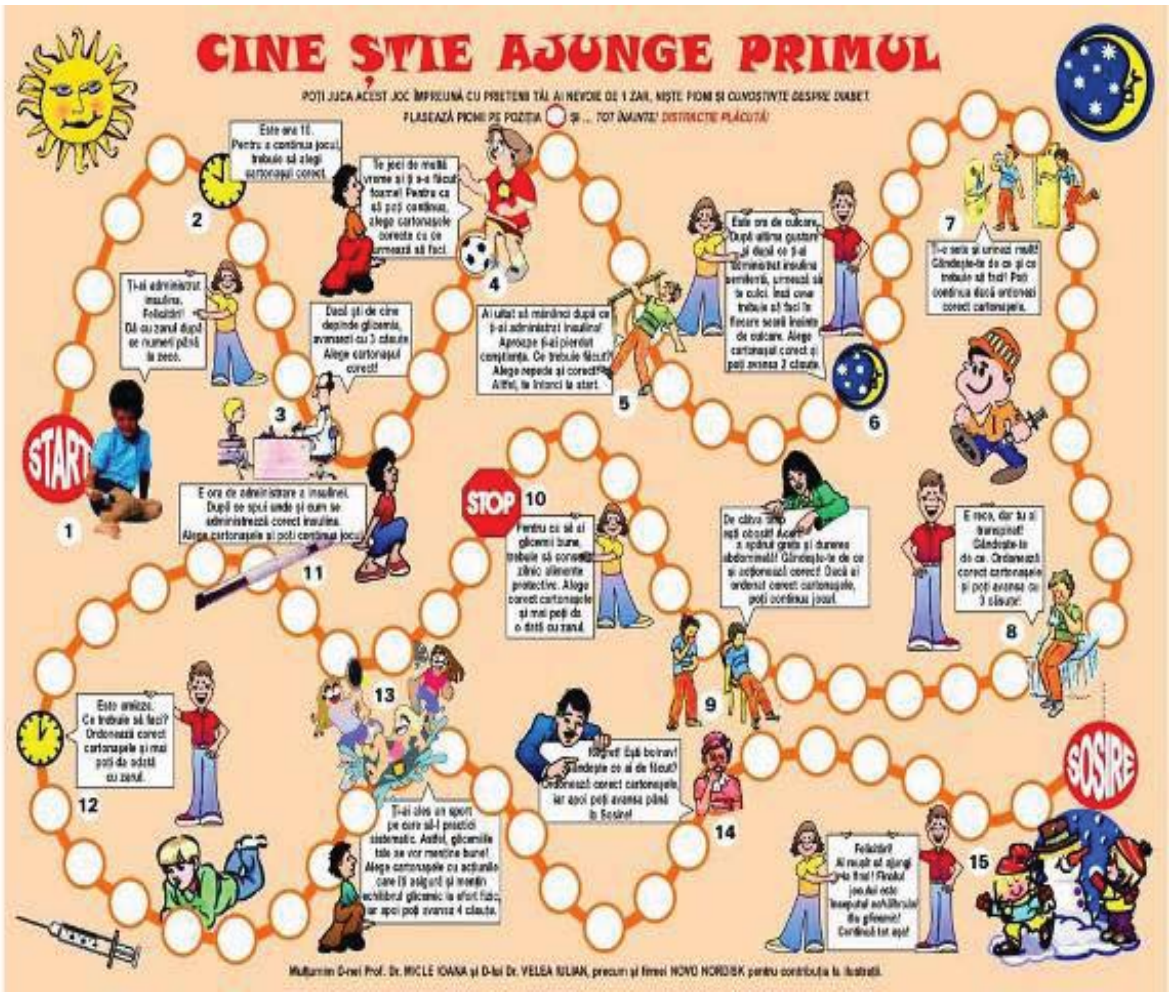

Figure 1. Educational game in Type 1 diabetes in children

In the Diabetes Centre of Oradea **empowering parents/care providers** is achieved through a structured educational programme, devised and presented by the pediatrician also specialised in diabetes/the diabetes specialist with responsability for this

age group, the nurse responsible for looking after a child or adolescent with diabetes mellitus and the dietician as well as support of a diabetes team psychologist if needed. Thus a full diabetes multidisciplinary team is available at the Diabetes Centre of Oradea in keeping with national and international recommendations.

The programme consists of 12 theoretical lessons and 6 practical instruction sessions, it is structured in a 50-minute daily session and takes place in the specialist's surgery. It is especially addressed to new in-patients. The themes will be later repeated and reinforced, when the patient return on an ambulatory basis for follow-up. The theoretical sessions have the following themes presented in this order: 1. what is diabetes and the anatomy of the digestive tube 2. hyperglycemia 3. hypoglycemia 4. intensive insulin treatment 5. food and scales 6. systematic and planned exercising 7. compensatory and prevention adaptation of insulin doses 8. Sick day guidelines and out-patient DKA management 9. remission 10. severe accute complications 11. chronic complications 12. adolescence. The practical sessions will present: 1. general notions about diabetes 2. filling in the self-monitoring form 3. insulin (classification, presentation, administration methods, preserving) 4. the technique and the areas for insulin administration (with syringe and pen) 5. the technique of using and the hygiene of the glucometer 6. determining the glycosuria and ketonuria.

Each new lesson starts after assessing the previously aquired knowledge and skills, which will determine either a second discussion of the theme for a better consolidation of the notions, or the presentation of a new theme. At the end of the educational programme, after a final test of evaluation, the parent/the care provider will receive the informative packet at home.

The educational programme and the permanent stimulation of the pre-school child in recognizing hypoglycaemia and signalling it to those around him/her continues after leaving the hospital, too. The parents are informed about the importance of a systematic revision of the new knowledge and skills acquired both by them and the child.

Together with the diabetes multidisciplinary team, the Play Education (play therapy) is organized in small groups (4 children for a game, of whom one is the patient) during a mass-informative programme on diabetes organized by The Diabetic Children's Association of Oradea, and which was initiated in 2005 with children in the kindergarten. The festivities organized for Easter and Christmas, or with the occasion of the International Day of Diabetes are other opportunities of continuing education, and the game *Who knows is the first to arrive* is included in the programme. Questionnaires, pictures, films, workshops, brochures and conferences will supplement on these occasions **the continuous educational programme** applied to children with diabetes in the Bihor county. In order to stimulate the acquiring of the optimum knowledge and skills, if possible, we organize award festivities for those obtaining very good scores.

Methodological letters addressed to the educators and the general practitioner will extend the educational process in the child's environment [9, 10].

The educational structured programme is continued after leaving the hospital under the guidance of a diabetes specialist physician. It is organized either in big groups comprising several families/care providers or individually, or for the members of one family only. The methods and the materials used are: 1. a theoretical presentation of the knowledge sustained by pictures, brochures, guides or the educational play 2. interactive lessons with themes proposed by the family/care provider 3. practical instruction for a correct use of the syringe, of the pen or of the glucometer 4. discussing and managing conflicts about the child's behaviour related to food and family.

Camps and education during weekends or holidays also are considered important successful methods in the management of the diabetes in children in many countries throughout the world. Informal education, encouraging independence for self-injecting and self-monitoring, participating in specific activities which demonstrate the child's compatibility with diabetes, acquiring a healthy food and snack choices and spending the holiday in a secure place, are some of the benefits of the camp for pre-school children. The secondary benefits are releasing the parents from the pressure of a continuous responsibility related to management (planned respite), as well as an opportunity for the organizers to acquire knowledge and skills

related to diabetes [2, 9].

The pilot camp organized not far from Oradea in the summer of 2009 had as its main objectives a structured education in diabetes, a correction of the bad habits in diet, and a preventive and compensatory adaptation of the insulin doses to different types of physical activities (hiking, swimming, ball games and kinetotherapy).

The patient's visits to the surgery, the programmed educational lessons, the festivities organized for different holidays, the manifestations on the occasion of The International Diabetes Day and the speciality camps will be completed by a permanent telephone link.

Having, in need, the psychologist's support, the children will learn to accept themselves as individuals, to identify their particular skills, which make them special, and to become aware of the fact that diabetes does not affect their value as person. Learning how to identify and manage their negative emotions, they will improve their self-esteem, they will increase their self-confidence and they will give up their complex.

In conclusion, the feed-back received from the families is favourable. No severe hypoglycaemic event has appeared after putting into practice the educational *play*, and the number of medium and/or light hypoglycaemia (confirmed by the glucometer) signalled by the child has increased considerably. Surprisingly, the parents have considered the game useful for themselves, too in understanding diabetes and in our request for them to accept and perform some unpleasant procedures.

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