Diabetes and education in the elderly

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Abstract

Diabetes mellitus (DM) in the elderly is a chronic disease where self management is a key aspect. This includes lifestyle modification (diet and exercise), medication compliance and hypoglycaemia management. Education is an important part of this process and the specific needs of the older population with DM have been underlined. The literature has shown that education through a multidisciplinary approach may improve the glycaemic control in selected elderly patients with DM. This article will focus on the evidences from the medical literature and the multiple challenges of teaching in this population.

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Résumené

Les aspects de l’éducation chez le diabétique âgé.

Le diabète chez le sujet âgé est une maladie où la prise en charge par le patient et ses proches, est un aspect très important. Les éléments qui doivent être considérés sont le changement des habitudes de vie (incluant la diététique et l’activité physique), la compliance au traitement et la prise en charge des épisodes hypoglycémiques. Ce processus peut prendre un certain temps et le transfert des connaissances se heurte souvent à certaines barrières. La motivation à long terme et les croyances personnelles peuvent ralentir cet apprentissage. Les difficultés cognitives sont fréquentes dans cette population. L’enseignement est un aspect important de l’intégration de ces concepts et les besoins spécifiques de la population âgée diabétique ont été mentionnés. La littérature médicale a démontré que l’intervention d’une équipe multidisciplinaire peut améliorer les paramètres de contrôle glycémique chez certains sujets diabétiques âgés sélectionnés. La plupart des modèles d’enseignement pour la population diabétique sont destinés à un groupe de patients qui acceptent de se déplacer et qui ne présentent pas de handicap fonctionnel important. Le présent article fera le point sur les études publiées dans ce domaine et sur les interventions faites chez des patients âgés diabétiques avec difficultés cognitives ou d’autres types de problèmes fonctionnels.

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In the evolution process, the older diabetic patient usually presents micro- and macro-vascular complications [1-2]. The population in nursing home has usually more advanced complications and the quality of diabetes mellitus (DM) management is variable in this setting [3-4]. Obesity and inactivity have often coexisted for a number of years. The management of antidiabetic and cardiovascular medications are often challenging for the patient and the treating team. Even though the educational process is a key aspect in DM management, multiple barriers exist for the transfer and application of theoretical knowledge.

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1. Glycaemic objectives in elderly patients with diabetes

The optimal glycaemic control in elderly diabetic patients remains a controversial issue in the medical literature and among clinicians. Moreover the elderly population is heterogeneous and metabolic objectives have too be individualised according to the “frailty” status of the patient. Published Canadian guidelines have suggested that elderly patients with type 2 DM should be offered the best possible glycaemic control [5]. However European guidelines [6] are less stringent and recommend a HbA1c level between 6.5 and 7.5% for healthy elderly diabetic patients and between 7.5 and 8.5% for frail elderly diabetic patients. Most of the intervention studies on DM have shown that tighter glycaemic control is associated with an increased incidence of hypoglycaemic events. Hypoglycaemia secondary to sulfonylureas is associated with increased morbidity in the elderly [7]. As education is a major tool to improve glycaemic control, the physician and the multidisciplinary team should discuss goals to attain before starting the interventions. These goals should be shared by each member of the team and of course, the patient and his caregivers.

2. The patient’s point of view

The elderly patient with DM will often meet a number of health professionals who will help him to meet the objectives of a diabetic treatment: the physician will manage the medical aspects of the disease, a specialised nurse will give education on diet and weight control. The adherence of the patient to these recommendations is related to his personal beliefs and environmental barriers [8]. The self efficacy process is based on performance accomplishments, vicarious experience, verbal persuasion and self-evaluation [9]. It has been suggested that every patient, including the elderly, should be offered optimal blood control: this point of view may be partially shared by the patient and her caregiver. Traditional education is based on transfer of theory from an expert to a patient-student: studies have shown that knowledge alone does not predict individual’s capabilities to incorporate self-management behaviours into their activities of daily living [10].

This traditional educational process requires mobility to access the health professionals on multiple appointments. Numerous older patients have physical limitations in relation to complications of the disease as impaired visual acuity or cardiovascular problems. In addition, it has been suggested that the presence of DM is associated with an increase of cognitive problems. The individuals with diabetes have a 1.2 to 1.5 fold greater cognitive decline change over time in cognitive functions than those without DM [11]. The risk of dementia is also increased in later life in presence of DM [12]. The traditional education and learning methods in DM are largely based on learning and memory: these strategies may not be adapted to the patients with impaired cognitive capacities.

3. The educator point of view

The challenge of the diabetes educators is the transfer and application of theoretical knowledge for the management of concrete situations in DM. The attitude of the educator may be didactic of (teacher vs. student) or adopt a paternalistic dynamic (“I want you to loose 5 kg and take my medication”). The goal setting may be negotiated with the patient (“Do you think that weight loss is important and how much do you think you can loose?”). The patient may be put in situational problem solving (“If you go in an all-you-can-eat restaurant, I’ll give you a few tips on how to respect your diet”). Cognitive reframing may also be used in certain situations (“instead of feeling punished by some low calorie food, think about some situations where this diet was enjoyed by a number of your guests and yourself”) [13]. Interventions including a face-to-face delivery, cognitive reframing and exercise content were likely to improve glycaemic control. The optimal educational process is probably a variable combination of these four aspects. The learning process is also function of the needs perceived by the patients and his caregivers.

The educator may have to validate the transfer of knowledge during an education session (“tell me what you feel is important in the course I just gave you”). This process may be challenging to the educator since the perception of the patient may be different from the theory delivered by the teacher. The validation of the transfer knowledge is a constant process in which the educator and the patient have to be in constant connection.

The literature also recognises the importance of training the educators. The capacity of transferring knowledge is the result of adequate training [14]. One of the particularities of diabetic education in the elderly is this process may have to focus on the caregiver: this is particularly true in situations where the patient has multiple morbidities as in a nursing home setting [15].

On a practical point of view, different structures to provide education to elderly diabetic patients exist: conventional in-hospitalizations, networks set-up by diabetes units, realizing educational programmes in nursing homes devoted to patients, families, nurses and doctors, or outpatients units with adapted programmes to elderly patients. All these formula may be adapted to different types of patients and are complementary. The healthy diabetic patient 66 years old, having had DM for six years, may also choose to continue under the care of his diabetologist, the frontier to the status of elderly being not so rigid as seen before.
4. Literature review

A limited number of short term randomized or case-control studies looked at efficacy of a multidisciplinary approach in an elderly population with DM. A 1-year case-control study demonstrated that a weekly diabetic education program on four weeks helped to diminish weight and the amount of medication in an elderly population with known DM [16]. A 16-week randomized study in a small group of elderly patients showed that a multidisciplinary approach helped to loose weight and lower HbA1c [17]. These two studies recruited voluntary patients in their mid-sixties with minor weight problem: a recruitment bias is suspected and the patients who participated probably represented the healthiest subjects in the older population with DM.

In a large sample of adults with DM, physical inactivity and old age are associated with lower index on perceived quality of life [8]. A number of randomized studies have shown some benefits of exercise training with or without weight loss in elderly patients with DM [18-20]. In these studies, the recruitment bias was affected toward the most mobile and motivated patients and the duration of evaluation were relatively short. A follow-up study after an intervention failed to show that this initial improvement was maintained after a few months [21]. This suggests that our view of education is too often short-viewed: an initial demonstrable benefit should be followed by a long term consolidation program that will take into account the specific needs of the elderly.

More recent studies have focused on specific aspects of education in diabetes management in the elderly. The German DICOF trial randomized patients with some cognitive impairment to a specific education program for insulin management and to a control group [22]. The intervention group showed better results at six months regarding diabetes self-management. This suggests that education should be focused on specific needs expressed by the older population. A recent trial with a quasi-experimental methodology looked at the effects of a home-base nursing program intervention: two intervention groups (I and II) received a daily (I) or weekly (II) home intervention for six weeks on diet, exercise, medication and blood glucose self-monitoring. Patients who accepted only blood testing were assigned to a control group [23]. Taking into account this bias, the intervention groups showed a better DM control compared to the control group. The feasibility of daily home visit in a routine clinical practice is not often possible, but this study demonstrated that a home-bound population can demonstrate some benefits of an intervention in their living setting in regard to DM control.

In summary, methodology of teaching should be adapted to the existing physical and cognitive handicaps in this population. Transfer of knowledge should also be focused on actual problems in DM care (as insulin treatment and hypoglycaemia management). Since the elderly is at risk of lower limb amputation, foot care should be seen as an integral part of diabetes teaching [24]. Inclusion of caregivers in this process may be crucial particularly in vulnerable and cognitively impaired populations.

5. Conclusion

The diabetes educational process is a key aspect of DM management in the elderly. Perceptions of the patient, participation of the caregivers, motivation of both, adapted teaching strategies, are elements where education will improve DM control. The older population with DM is extremely heterogeneous: it is a spectrum of “young-old” patients with few complications to the heavily handicapped population living in nursing home: the educational tools and therapeutic goals should be adapted accordingly. The clinicians are often confronted with enormous clinical demands and limited resources: in most clinical settings, reaching all elderly patients with DM for adequate teaching is virtually impossible. The clinicians should direct their interventions in the population with the best life expectancy, but without neglecting the most vulnerable ones.

Moreover, diabetes education should be viewed as a long term process where goals should be discussed with the patient and his caregiver in relation to an evolving situation where long term complications should be postponed as much as possible. This long-term prospective view is another difficulty in performing education at this age.

References


