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EDITORIAL

Structured therapeutic education in diabetes: is it time to re-write the chapter on the prevention of diabetic complications?

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Diabetes mellitus is an epidemic, chronic condition characterized by increased morbidity, disability, and mortality because of frequent complications [1]. Complications mainly affect the heart, brain, limbs, eyes, nerves, and kidneys; in addition, most of the diabetic patients die from cardiovascular events [1]. A strict glycemic control, together with the appropriate management of any associated risk factor, such as hypertension, dyslipidemia, obesity, and thrombotic risk, can significantly decrease the complications of diabetes [2–4]. The tight control of diabetes and other risk factors is usually obtained by treatments with specific medications [2–4]. Therapeutic patient education (TPE) is considered a central element of the management of diabetes [1]. Many studies have shown that a structured TPE is able to determine a significant improvement in several clinical, lifestyle, and psycho-social outcomes in people suffering from diabetes [1]. However, there are a few data regarding the potential direct and indirect role that a structured TPE may have in the prevention of diabetic complications. An early study suggested that complications can occur about 4 times more frequently in diabetic people with no education [5]. In the present issue of Endocrine, Wong and colleagues have shown that a structured TPE, called patient empowerment programme (PEP), can determine a lower incidence rate of all-cause mortality and first macrovascular and microvascular events [6]. Nevertheless, an additional benefit was not observed in obese diabetic subjects who participated in a specific weight management program [6]. However, the present study has confirmed previous data on the effectiveness of PEP in decreasing complications and mortality in people with diabetes [7, 8]. In the recent long-term study with a follow-up of about 13 years, a structured personal care delivered by general practitioners to 1381 newly diagnosed type 2 diabetic patients was able to reduce mortality and morbidity in women but not in men [9]. These findings should open an active debate and stimulate new research on the decisive role that TPE can play in the prevention of diabetic complications and in the reduction of mortality. On the other hand, the American Association of Diabetes Educators has suggested that diabetes self-management education and support should be an essential tool to reduce the risks of complications and death [10]. In other words, a structured TPE should be always added to medications not only to better manage the disease but also to reduce its risks. The new findings suggest some questions: Could TPE improve the impressive results obtained with medications in the prevention of complications and reduction of mortality [2, 11–13]? Could TPE modify the results of the trials which failed to show significant differences in the outcomes between intervention and control group [14, 15]? A sure answer does not exist, but we cannot exclude that TPE could give an additional benefit. Indeed, a synergic effect between medications and TPE on the reduction of complications and death can be hypothesized for at least two reasons: (1) both can improve outcomes in an independent manner and therefore the positive effect may be additive; (2) TPE can optimize effects of medications because of an improvement in adherence [16]. However, if we assume that TPE can prevent the complications, other investigations should explain whether the effectiveness of TPE reported in the published studies [1, 6–9] can be further increased. At the moment, the ideal characteristics of TPE to give the best

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results in the management of diabetes and in the prevention of its complications are not defined [1, 10]. Therefore, other works are needed to definitively clarify these ideal characteristics: type of PTE (individual or group education, or both), themes, frequency and number of education sessions, contact time between educator and patient, background of educators, use of new technologies [1]. Another intriguing consideration regards the fact that TPE was able to significantly reduce the risks due to diabetes, even if in the above-mentioned studies the program included some of the potential themes of education [6–9]. So, it is likely that a global, comprehensive education could give better results. Therefore, other investigations should clarify whether the positive impact of TPE on the prevention of diabetic complications can be further increased by including additional themes, such as diabetic foot, sexual health, and peripheral artery disease [1, 17–19].

The positive effects of a structured TPE on several metabolic, lifestyle, and psycho-social outcomes are well known and all guidelines regarding diabetes recommend delivering an adequate education [1]. As reported, recent data suggest that TPE may even have a positive impact on the prevention of the complications of diabetes [6–9]. Nonetheless, in clinical practice, a structured TPE is not delivered to all people with diabetes. Some data are dismaying: <50 % (about 35–40 %) of diabetic people ever attend a diabetes education/behavioral intervention program and about 50 % complete the program [20]. This is a serious problem that should be avoided. On the other hand, the omission to deliver TPE may explain at least partially why there is the so-called "residual risk" of developing complications, when an adequate control of all risk factors is obtained with medications.

In conclusion, it may be the time to re-write the chapter on the prevention of the complications of diabetes. In this new chapter, the structured TPE should have an important role, as it may be pivotal in reducing morbidity, mortality, and disability, if it is delivered to all the patients both in primary care and in diabetes clinics.

Compliance with ethical standards

Conflict of interest Carmine Gazzaruso, Mariangela Fodaro, and Adriana Coppola declare that they have no conflict of interest.

Ethical Requirements The present editorial complies with ethical requirements. No informed consent was necessary, since no patient was recruited.

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