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CLINICAL RESEARCH

Characteristics of diabetic patients and diabetes care in cardiac rehabilitation



Profil des patients diabétiques et prise en charge du diabète en réadaptation cardiaque

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Received 5 May 2014; accepted 6 May 2014
Available online 26 June 2014

KEYWORDS

Diabetes;
Cardiac
rehabilitation;
Cardiovascular
disease;
Myocardial
infarction;
Glucose

Summary

Background. — Although diabetes is associated with a high cardiovascular risk, very little information is available about diabetic patients enrolled in cardiac rehabilitation (CR).

Aims. — To analyse the characteristics of diabetic patients and diabetes care in CR.

Methods. — From the database of 700 patients enrolled in CR during a 29-month period, we analysed data from all patients with glucose metabolism disorders ($n = 105$) and 210 matched normoglycaemic patients.

Results. — A total of 105 patients with glucose metabolism disorders (type 1 diabetes, $n = 5$; type 2 diabetes, $n = 84$; impaired fasting glucose, $n = 16$) were enrolled in a CR programme (15% of whole population). Fifteen per cent of patients with type 2 diabetes and all patients with impaired fasting glucose were diagnosed during CR. These 105 patients were older and had a higher body mass index, a larger waist circumference, higher fasting blood glucose and triglyceride concentrations and lower low-density lipoprotein cholesterol concentrations than

Abbreviations: ACE, acute coronary event; CR, cardiac rehabilitation; HbA_{1c}, glycated haemoglobin; LDL, low-density lipoprotein; VO₂, oxygen consumption.

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<http://dx.doi.org/10.1016/j.acvd.2014.05.004>

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MOTS CLÉS

Diabète ;
Réadaptation
cardiaque ;
Maladie
cardiovasculaire ;
Infarctus du
myocarde ;
Glucose

non-diabetic patients; they also had higher rates of hypertension ($P=0.001$) and dyslipidaemia ($P=0.02$). They were more frequently referred to CR for peripheral artery disease ($P=0.001$), coronary heart disease + peripheral artery disease ($P=0.007$) and primary prevention ($P=0.009$). The intervention of a diabetologist was needed for 42.6% of patients because of uncontrolled or newly diagnosed diabetes.

Conclusion. – In the present study, we showed that (1) the proportion of patients with diabetes in CR is lower than expected, (2) many glucose metabolism disorders are diagnosed during CR, (3) patients with glucose metabolism disorders show a more severe cardiovascular risk profile than normoglycemic patients, and (4) the intervention of a diabetologist is needed during CR for many patients with diabetes.

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Résumé

Contexte. – Bien que le diabète soit associé à un risque cardiovasculaire élevé, la situation des patients diabétiques en réadaptation cardiaque (RC) reste mal connue.

Objectif. – Analyser les caractéristiques des patients diabétiques et la prise en charge du diabète en RC.

Méthodes. – À partir d'une base de données de 700 patients admis en RC au cours d'une période de 29 mois, nous avons étudié les données de tous les patients avec anomalies du métabolisme glucidique ($n=105$) et de 210 patients normoglycémiques appariés.

Résultats. – 105 patients avec anomalies du métabolisme glucidique (5 diabète de type 1, 84 diabète de type 2, 16 hyperglycémies à jeun non diabétiques) ont été admis en RC, soit 15% de l'ensemble de la population. Quinze pour cent des diabètes de type 2 et toutes les hyperglycémies à jeun non diabétiques ont été diagnostiqués en RC. Ces 105 patients étaient plus âgés, plus hypertendus et présentaient des valeurs plus élevées de BMI, tour de taille, glycémie à jeun, triglycérides et des valeurs plus basses de LDL-cholestérol comparés aux patients non diabétiques. Ils étaient plus fréquemment admis en RC pour artériopathie des membres inférieurs (AMI) ($p=0,001$), coronaropathie + AMI ($p=0,007$) ou prévention primaire ($p=0,009$). Pour 42,6% des patients, l'intervention d'un diabétologue fut nécessaire en raison de mauvais contrôle du diabète ou de découverte de diabète.

Conclusion. – Notre étude montre que : (1) la proportion des patients diabétiques en RC est plus faible qu'attendu ; (2) Plusieurs anomalies du métabolisme glucidique sont diagnostiquées au cours de la RC ; (3) les patients avec anomalies du métabolisme glucidique admis en RC ont profil cardiovasculaire plus sévère que les non diabétiques ; et (4) que l'intervention d'un diabétologue au cours de la RC est nécessaire pour de nombreux patients diabétiques.

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Background

Diabetic patients are at increased risk of coronary heart disease, heart failure and stroke. Cardiovascular disease in diabetic patients is also more severe, with significantly higher rates of morbidity and mortality compared to cardiovascular patients without diabetes [1,2]. Several studies have clearly shown that cardiac rehabilitation (CR) significantly reduces cardiovascular morbidity and mortality and improves quality of life [3–5]. The first meta-analyses clearly demonstrated that CR after myocardial infarction significantly reduced cardiovascular morbidity and mortality [3,4,6]. This clear beneficial effect of CR on overall mortality and cardiovascular mortality was confirmed subsequently by several clinical trials [7,8] and meta-analyses [5,9,10]. The cardiovascular mortality rate in patients who underwent CR with exercise training after myocardial infarction was found to be 20–26% lower than in those who did not have CR [3,4,10]. Long-term reductions in cardiovascular mortality and total mortality after CR were confirmed by Hedbäck

et al., who showed a 26.7% reduction in total mortality and a 27.1% reduction in cardiovascular mortality over a 10-year period [11]. Hence, CR programmes are recognized as an integral part of the care strategy for patients with coronary heart disease, heart failure, cardiac surgery and peripheral artery disease, and CR is a level A recommendation in patients with coronary heart disease [12–17].

CR is strongly recommended for both primary and secondary prevention in patients with type 2 diabetes because of their high cardiovascular risk. However, little is known about diabetic patients who undergo CR. For instance, it is not clearly known whether diabetic patients referred for CR are representative of all diabetic individuals and whether there are differences compared with non-diabetic patients referred for CR. In addition, there are no data on glycaemic control during CR, and the percentage of patients who are referred to a diabetologist for uncontrolled diabetes is unknown. This lack of knowledge prompted us to perform a retrospective study to analyse the characteristics of diabetic patients enrolled in CR, including clinical

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