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Risk factors and quality of life of dyslipidemic patients in Lebanon: A cross-sectional study

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Received 19 March 2016; received in revised form 22 July 2016; accepted 19 October 2016
Available online 11 November 2016

KEYWORDS

Dyslipidemia;
Lebanese population;
Quality of life;
SF-36

Abstract The main objective of this study was to identify the risk factors of dyslipidemia and measure its impact on patients' quality of life (QOL). Secondary objectives were to determine the percentage of dyslipidemia and assess the predictive factors affecting patients' QOL. A cross-sectional study was conducted in a sample of Lebanese population. A standardized questionnaire was developed to assess the QOL using the Short form-36 (SF-36) score. A total of 452 individuals were interviewed, of which 59.5% were females. The mean age was 43.3 ± 15.6 years, and 24.8% had dyslipidemia. The results show a lower overall QOL score among dyslipidemic patients compared with controls (57.9% and 76.5%, respectively; $p < 0.001$). Waterpipe smoking [adjusted odds ratio (OR_a) = 4.113, 95% confidence interval (CI): 1.696–9.971, $p = 0.002$], hypertension ($OR_a = 3.597$, 95% CI: 1.818–7.116, $p < 0.001$), diabetes ($OR_a = 3.441$, 95% CI: 1.587–7.462, $p = 0.002$), cigarette smoking ($OR_a = 2.966$, 95% CI: 1.516–5.804, $p = 0.001$), and passive smoking ($OR_a = 2.716$, 95% CI: 1.376–5.358, $p = 0.004$) were significantly associated with dyslipidemia in individuals older than 30 years. A higher overall QOL score ($p = 0.013$) was observed in patients treated with statins in comparison with other lipid-lowering medications. In addition to clinical and economical consequences, dyslipidemia may have a significant impact on patients' QOL. Further research is needed to confirm the impact of treatment on dyslipidemic patients' QOL in order to maximize the overall benefits of therapy.

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Peer review under responsibility of Ministry of Health, Saudi Arabia.

<http://dx.doi.org/10.1016/j.jegh.2016.10.001>

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1. Introduction

According to the recommendations of the European Society of Cardiology in 2011, dyslipidemia is defined as abnormal levels of lipids in the blood (cholesterol, triglycerides, phospholipids, and free fatty acids) [1]. The sixth edition of the survey ObEpi Roche [2], conducted in France between January and March 2012, in a sample of more than 25,000 individuals aged 18 years and over, has shown 15.9% of the French population to be treated for dyslipidemia. In the United States, 49% of adults have a total cholesterol level of ≥ 200 mg/dL [3].

Dyslipidemia is considered a major risk factor for cardiovascular complications [4]. Many studies such as those conducted by the World Health Organization and "Framingham" created the association of plasma cholesterol level with the risk of cardiovascular disease [5,6]. This association is also confirmed in the results of a meta-analysis of 10 cohort studies, which stated that for a reduction of 0.6 mmol/L of serum total cholesterol in adults aged over 60 years, the risk of fatal cardiovascular disease decreases by 27% [7]. Risk factors for dyslipidemia are well documented, including lifestyle choices such as high-fat diet, smoking, alcohol consumption, physical inactivity, metabolic disorders such as obesity and diabetes, family history, and genetic differences [8–11].

Moreover, it was demonstrated that dyslipidemia may have an impact on the quality of life (QOL) of patients [12,13]. The World Health Organization defines QOL as "an individual's perception of their position in life in the context of culture and value systems in which they live and in relation to their goals, expectations, standards and concerns." This definition implies that the concept of QOL is subjective and multidimensional, including positive and negative elements [14]. In 2001, Lalonde et al. [15] have shown that patients with dyslipidemia had low QOL. This may be due to rigid dietary prescriptions, medication side effects, the need for regular medical care [15], and psychological effect.

Improvement of QOL would be very important in the management of patients with dyslipidemia. The increasing trend in the numbers of patients with dyslipidemia makes this evaluation highly relevant, in order to better manage dyslipidemic patients and consequently improve their QOL [16]. However, a few studies have investigated the impact of detection and treatment of dyslipidemia on QOL. Identification of clinical variables that reduce QOL should help in adopting healthcare

measures with greatest impact on target populations [13]. The impact of dyslipidemia on the QOL of Lebanese patients has never been studied until now.

Therefore, a pilot study was conducted in this context. Its main objective was to identify dyslipidemia risk factors and measure the impact of this disease on patients' QOL. Secondary objectives were to determine the percentage of dyslipidemia and assess the predictive factors affecting QOL.

2. Materials and methods

2.1. Study design and population

This is an observational cross-sectional study, conducted in all districts of Lebanon. Our sample was constructed from community pharmacies. One percent (26 pharmacies) of total Lebanese pharmacies was included in our study. These 26 pharmacies were randomly chosen from the list of pharmacies in Lebanon, obtained from the Order of Lebanese Pharmacists.

Lebanese people of both genders, aged 18 years and above, were included. Individuals having a temporary illness (such as cold); those suffering from cancer, and neurological and psychological diseases; and pregnant women were excluded. Since there are no published data on the prevalence of dyslipidemia in Lebanon, sample size was not previously calculated.

2.2. Data collection

Data were collected using a structured questionnaire. Questionnaires were delivered to the included pharmacies. In each pharmacy, the first five patients, who agreed to participate, were selected. Oral consent was obtained from each patient. A self-administered questionnaire was completed by the participants themselves. Privacy and anonymity were respected.

The survey was conducted between March and June 2014, using a standardized Arabic questionnaire containing 98 questions most of which were closed.

2.2.1. Questionnaire

The questionnaire was divided into five parts: sociodemographic, life style, diseases, medications, and QOL. The first two parts of the questionnaire were developed from general questions and previously documented risk factors [8–11]. It extracted information regarding sex, age, district, employment, active and passive smoking, physical

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