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Review

Prevalence of metabolic syndrome in Middle-East countries: Meta-analysis of cross-sectional studies

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ABSTRACT

Objective: Metabolic syndrome is an important metabolic disorder which impose noticeable burden on health system. We aimed to review and imply the prevalence of it in Middle-East countries.
Methods: present study was a systematic review to present overview about metabolic disorder in Middle East. Electronic literature search of Medline database and Google scholar were done for English-language articles without time filtering, as well as for population-based or national studies of the prevalence of metabolic syndrome. The fallowing search terms were used simultaneously: prevalence of "metabolic syndrome" and "national study", "prevalence of metabolic syndrome in Middle East", "prevalence of metabolic syndrome" and "name of country", "metabolic syndrome &name of country". Additionally, relevant articles in bibliography were searched. Analysis of data was carried out in STATA version 11.0.
Results: out of 456 studies in first-step searching (selecting by title) 59 studies were recruited and reviewed. Prevalence of metabolic syndrome fluctuated by country and time of study. This amount was 2.2–44% in Turkish, 16–41% in Saudi-Arabia, 14–63 in Pakistan, 26–33 in Qatar, 9–36 in Kuwait, 22–50 in Emirate, 6–42 in Iran, and up to 23 in Yemen. Pooled estimate was 25%. Attributable risk for cardiovascular disease, coronary heart disease, and stroke was 15.87, 11.7, and 16.23, respectively.
Conclusion: The prevalence rate of metabolic syndrome is high and it is noticeable cause for stroke, coronary heart disease, and cardiovascular disease.

Contents

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1. Introduction

The metabolic syndrome or syndrome X is a common metabolic disorder that results from changing life style and increasing obesity. Various metabolic factors involve in development of cardiovascular disease, such as glucose intolerance (type 2 diabetes, impaired glucose tolerance, or impaired fasting glycaemia), insulin resistance, central obesity, dyslipidemia, and hypertension [1,2]. These conditions co-occur in an individual more often than might be expected by chance. When grouped together, they are associated with increased risk of cardiovascular disease [3]. There are four most commonly used definitions of metabolic syndrome including World health Organization(WHO), European Group for Study of Insulin Resistance, National Cholesterol Education Program (NCEP) Adult Treatment Panel III (ATP III), and International Diabetes Foundation (IDF).The components of these definitions relatively are the same, and generally include Impaired Fasting Glucose(IFG),Impaired Glucose Tolerance (IGT),HOMA-IR, obesity, dyslipidemia, hypertension (WHO criteria),waist circumference, blood pressure, fasting triglyceride, fasting high density lipoprotein(HDL), Fasting Blood Glucose (FBS)(NCEP ATP III criteria) [4].

In the one hand in developing countries, before 2006, the prevalence of the metabolic syndrome varies from 13% in China to 30% in Iran [5]. And the other hand, metabolic syndrome is a risk factor for ischemic stroke and associated with an increased risk for coronary heart disease [6,7]. Additionally, population-attributable fraction for metabolic syndrome for cardiovascular disease is about 12–17% [8].

Although there are several studies about the prevalence of metabolic syndrome in different countries but most of them have been performed for local or national objectives not for a comprehensive estimation of metabolic syndrome in a continent. Also, there is not strong evidence about attributable risk of metabolic syndrome for coronary heart disease. So, we aimed to review systematically English-language published studies, provide a common estimation of metabolic syndrome and its role in creating other disorders such as heart disease and stroke.

1.1. Literature search

Electronic literature search of Medline (pub med) database and Google scholar were done for English-language articles without time filtering, as well as for population-based or national studies about the prevalence of metabolic syndrome. So, observational studies were identified.

The fallowing search terms were used simultaneously to finding articles in both databases: prevalence of "metabolic syndrome" and "national study", "prevalence of metabolic syndrome in Middle East", "prevalence of metabolic syndrome" along with "name of country", "metabolic syndrome" along with "name of country". Additionally, relevant articles in bibliography were searched.

1.2. Inclusion criteria

We searched for population based-studies or cross-sectional studies which had been conducted in large sample size and reported the frequency or prevalence of metabolic syndrome. We did not limit the search to a particular sampling method. However, only English-language papers which have been performed in Middle East countries were included.

In present review the studies which have applied ATP III, IDF, and WHO definition for syndrome metabolic were included in review.

1.3. Exclusion criteria

Interventional studies and other type studies which did not reported a valid and representative prevalence, such as case and control studies, of metabolic syndrome were excluded from this review. Also, specified studies to high risk group, children, and hospital employee did not considered in analysis. In our search a lot studies were found in mentioned databases but most of them have been conducted in outside of Middle East.

Two members of team (Adineh. H, Ansari. A) independently searched, identified, and reviewed qualified studies. They excluded studies which its titles and abstract did not had eligible criteria.

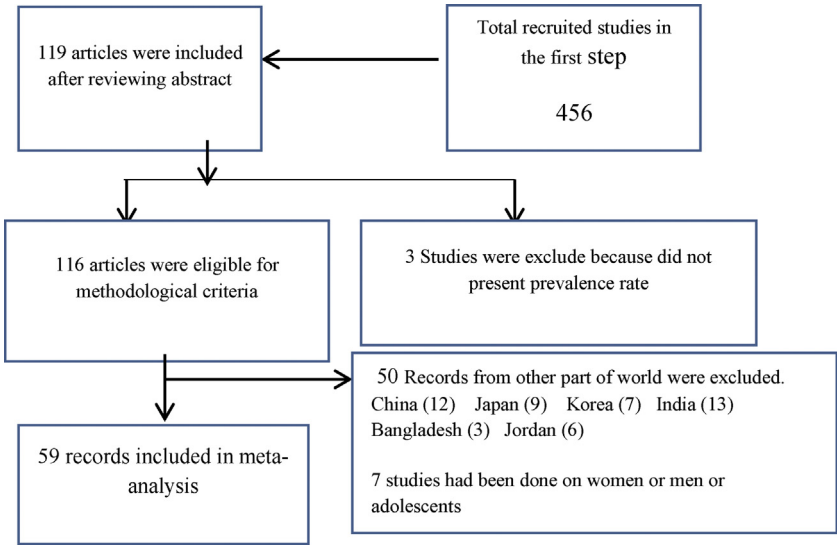

Fig. 1. Study selection process.

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