Is there an association between the infection with Helicobacter pylori and cardiovascular risk in diabetic patients?

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PLoS One. 2025 Apr 9;20(4):e0319688.

Association of helicobacter pylori infection with lipid metabolism and 10-year cardiovascular risk in diabetes mellitus: A cross-sectional study

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PMID: 40203057, DOI: 10.1371/journal.pone.0319688

Abstract

Background: Previous studies have shown that Helicobacter pylori infection is not only a risk factor for gastrointestinal diseases but also associated with various non-digestive conditions. This study aimed to investigate the effect of Helicobacter pylori infection on the risk of lipid metabolism disorders and cardiovascular disease in individuals with diabetes mellitus.

Methods: This cross-sectional study was conducted at a health examination center. Data from life questionnaires, laboratory tests, the carbon-13 urea breath test, and the Framingham Risk Score were collected from 266 patients with diabetes. All participants were categorized into Helicobacter pylori-uninfected and Helicobacter pylori-infected groups based on the carbon-13 urea breath test results. Differences in lipid levels, Framingham Risk Score, and cardiovascular disease risk were compared between the two groups. A logistic regression model was applied to analyze whether Helicobacter pylori infection is an independent risk factor for dyslipidemia in patients with diabetes.

Results: Total cholesterol and low-density lipoprotein cholesterol levels were higher in the Helicobacter pylori-infected group than in the uninfected group, and high-density lipoprotein cholesterol levels were lower in the infected group (both $P < 0.05$). There was no statistically significant difference in triglyceride levels between the two groups. Regression analysis showed that Helicobacter pylori infection was an independent risk factor for dyslipidemia in patients with diabetes ($P < 0.05$). The Framingham Risk Score and 10-year cardiovascular disease risk were higher in the Helicobacter pylori-infected group compared with the uninfected group ($P < 0.001$).

Conclusion: Helicobacter pylori infection is associated with dyslipidemia and may contribute to an increased risk of cardiovascular disease in individuals with diabetes.

In this epidemiological study, they found that the incidence of hypertension increased by almost 50% from the year 1962 to the year 2012.

When the threshold for diagnosis of hypertension is ≥130/80 mmHg, the incidence of hypertension is doubled as compared to a cutoff level 140/90 mmHg.

Mayo Clin Proc. 2025 Apr 8:S0025-6196(24)00623-2. Online ahead of print.

Trends in the Incidence of Hypertension Among Healthy Adults Across 6 Decades

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PMID: 40196968, DOI: 10.1016/j.mayocp.2024.10.025

Abstract

Objective: To determine long-term trends in the incidence of hypertension.

Patients and methods: Healthy adults in Olmsted County, Minnesota, from 1962 to 2012 were identified and studied with follow-up through 2024. One blood pressure (BP) reading for each calendar year (as available) through follow-up was identified. Hypertension was defined by BP ≥130/80 mm Hg or ≥140/90 mm Hg in 2 different calendar years or by use of antihypertensive medication. Analyses were adjusted for calendar period, age, sex, race, tobacco smoking, nontobacco substance use, depression/anxiety, dyslipidemia; family history of diabetes mellitus or hypertension, body mass index, systolic and diastolic BP, and fasting blood glucose level. Cumulative incidence estimates of hypertension accounted for death as a competing risk and were adjusted to characteristics of the 2000-2012 subcohort.

Results: There were 8323 healthy adults studied (mean age, 39 years). Risk factors for hypertension were older age, male sex, Black race, past and current tobacco smoking, current substance use, depression/anxiety, family history of diabetes or hypertension, higher systolic and diastolic BP, higher blood glucose level, higher body mass index, and period. For the baseline periods of 1963-1969, 1970-1979, 1980-1989, 1990-1999, and 2000-2012, the adjusted 20-year cumulative incidence of hypertension defined by BP ≥130/80 mm Hg was 45%, 47%, 54%, 70%, and 67%; by BP ≥140/90 mm Hg was 22%, 24%, 26%, 35%, and 33%; and by medication use alone was 13%, 12%, 13%, 17%, and 19%, respectively.

Conclusion: A large increase in the incidence of hypertension among healthy adults occurred in the 1990s, with subsequent stabilization.

The cardiometabolic index was found to be associated with increased cardiovascular risk, but does it have any association with sleep disorders?

Read this article to find more information.

Medicine (Baltimore). 2025 Apr 4;104(14):e42029.

The cardiometabolic index as a predictor of sleep disorders and mortality: A cross-sectional study

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PMID: 40193687, PMCID: PMC11977747, DOI: 10.1097/MD.0000000000042029

Abstract

The cardiometabolic index (CMI) reflects an individual's cardiometabolic health and is linked to the risk of dyslipidemia, obesity, hyperglycemia, and hypertension. These risk factors not only increase the likelihood of cardiovascular disease but are also strongly associated with sleep issues such as sleep apnea and insomnia. However, the relationship between CMI and the risk of sleep disorders remains unclear. This study aimed to investigate the association between CMI and sleep disorder-related morbidity and mortality. This cross-sectional study utilized data from 6220 adults aged ≥ 20 years from the National Health and Nutrition Examination Survey (2007-2014). The CMI was calculated as [waist circumference (cm)/height (cm)] × [triglycerides (mmol/L)/high-density lipoprotein-C (mmol/L)], reflecting metabolic risk. Participants were categorized into 3 CMI tertiles (Q1-Q3). Based on survey data, participants were classified into sleep disorder and non-sleep disorder groups. The analysis included logistic regression, subgroup analysis, forest plots, and survival analysis. The average age of participants was 49 ± 18.00 years; 49% were male. The high-CMI group had older participants, more males, higher body mass index, higher triglycerides, and more hypertension ($P < .001$). Higher CMI was significantly associated with an increased risk of sleep disorders (odds ratio [OR] = 1.11, 95% CI: 1.02 to 1.21, $P = .017$), with the prevalence being greater in Q3 than in Q1 (OR = 1.46, 95% CI: 1.27 to 1.68, $P \leq .001$). After adjusting for demographics, the association persisted (OR = 1.13, 95% CI: 1.03-1.24, $P = .014$). The mortality rate was also higher in the high-CMI group ($P \leq .001$), with a 34% increased risk of death (OR = 1.34, 95% CI: 1.08-1.67, $P = .021$). The study found that a higher CMI is associated with increased risks of sleep disorders and mortality. Understanding this relationship may help in monitoring cardiometabolic health and assessing sleep disorder severity. CMI could serve as a cost-effective indicator for sleep disorder assessment.

Keywords: CMI; mortality; national survey; sleep disorders.

Can cardiac rehabilitation therapy promote a healthy lifestyle? This article answers this question.

Eur J Prev Cardiol. 2025 Apr 9:zwaf193. Online ahead of print.

Lifestyle behaviour change of patients following cardiac rehabilitation: the BENEFIT intervention study with one-year follow-up

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PMID: 40203287, DOI: 10.1093/eurjpc/zwaf193

Abstract

Background: The majority of people with cardiovascular disease (CVD) do not maintain a healthy lifestyle. To help patients implement behaviour change at home, the BENEFIT programme was developed as an addition to cardiac rehabilitation (CR) care.

Methods: Using a cluster non-randomised controlled trial design involving 7 CR centres, we examined whether intervention group patients (n=587) showed increased improvements in health behaviour change compared to control group patients (n=298) who (only) received a multidisciplinary, comprehensive CR programme. Physical activity, smoking, alcohol use, diet, stress and sleep were assessed at the start and after finishing CR (short-term) and at one-year follow-up (long-term). Core of the intervention was access to an advanced eHealth platform consisting of functionality for daily goal monitoring, access to lifestyle interventions, personal coaching and a reward programme.

Findings: The standard CR programme improved most lifestyle behaviours, while the intervention led to additional short-term changes in vegetable intake (t= 2.00, p=.023), work-related stress (z= -2.97, p=.002), and sleep hours (t= 2.57, p=.005). Finally, in contrast to the control group (t= 1.88, p=.415), the intervention group significantly increased its physical activity long-term (t= 5.04, p<.001) exercising 42 minutes more per week, yet this group-interaction effect showed only a trend (t=1.55, p=.061).

Conclusions: While comprehensive CR care led to improvements in most lifestyle behaviours, the BENEFIT programme demonstrated additional benefits, particularly in physical exercise, dietary habits, stress reduction, and sleep, across a diverse CR-patient population. These findings underscore the potential of integrating eHealth solutions as an effective supplement to traditional CR care.

Keywords: cardiac rehabilitation; cardiovascular disease; coaching; health behaviour change; intervention; lifestyle; modifiable risk factors.