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Case Report

Reversal of Dyslipidemia Through Shared Decision Making: A Case Report on Unfiltered Coffee Abstinence and Patient-Centered Care

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Abstract

Introduction: Current clinical guidelines recommend lifestyle modifications for dyslipidemia, yet long-term adherence remains challenging. Shared decision-making (SDM) provides a structured framework for improving patient engagement and compliance. We report the application of SDM to address heavy unfiltered coffee consumption and facilitate patient adherence to nonpharmacological cholesterol management.

Case Presentation: A 35-year-old man presented with elevated total cholesterol (394.4 mg/dL) and low-density lipoprotein cholesterol (278.4 mg/dL) during routine screening. Using Elwyn's "Three-Talk" model of SDM, the clinician and patient collaboratively developed a 12-week intervention plan. In response to the patient's concerns about potential statin side effects on his high-intensity exercise routine, the intervention consisted of complete abstinence from his baseline intake of 5 to 10 cups of unfiltered coffee daily, and pharmacotherapy was delayed. At the 12-week follow-up, total cholesterol had decreased to 208.8 mg/dL and low-density lipoprotein cholesterol to 116.0 mg/dL; these levels were achieved without lipid-lowering medications.

Conclusions: This case demonstrates that use of a structured SDM framework can support the patient's complete adherence to targeted dietary modifications, such as abstaining from unfiltered coffee. Engaging patients as active participants in their care can effectively improve dyslipidemia, avoiding the need for immediate medical intervention.

Keywords: Case Report, Unfiltered Coffee, Cholesterol Level, Cardiovascular Diseases, Shared Decision-Making (SDM)

1. Introduction

Atherosclerotic cardiovascular disease remains a leading cause of global mortality, and elevated plasma cholesterol is a primary modifiable risk factor (1). To manage dyslipidemia, current guidelines from the European Society of Cardiology and the American Heart Association recommend a combination of pharmacotherapy and lifestyle modifications (1, 2). Although lifestyle interventions are highly effective (3), achieving long-term patient adherence in outpatient settings is notoriously difficult. To address this barrier, shared decision-making (SDM) has emerged as a valuable communication framework that transforms the traditional paternalistic clinical model into a collaborative partnership (4). By integrating patient values with evidence-based options, SDM improves treatment adherence and overall quality of care (5, 6). In this report, we present a case in which a structured SDM approach successfully targeted a specific dietary risk factor by eliminating heavy consumption of unfiltered coffee. This strategy yielded significant improvements in the patient's serum lipid levels, highlighting the practical utility of patient-centered care.

2. Case Presentation

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A healthy 35-year-old, non-smoking Asian male presented with a point-of-care fasting total cholesterol level of 394.4 mg/dL (10.2 mmol/L). He had no family history of hypercholesterolemia or heart disease, maintained an active lifestyle that included high-intensity free-weight training four times per week, and worked in a sedentary office role. The patient reported consuming 5 to 10 cups of unfiltered coffee (Americano or espresso) daily for over a decade, with an estimated caffeine intake of 500 mg to 1540 mg per day. Written, signed informed consent was obtained from the patient for publication of this case report and any accompanying data. Physical examination revealed a normal body mass index (BMI) of 24.8 kg/m^2, normal blood pressure, and no tendon xanthomas. A comprehensive lipid profile confirmed elevated total cholesterol (394.4 mg/dL) and low-density lipoprotein (LDL) (278.4 mg/dL), along with normal triglycerides (62.0 mg/dL) and high-density lipoprotein (104.4 mg/dL). His calculated Framingham Risk Score was 2.3%, indicating a low risk of cardiovascular events. His estimated daily dietary and caffeine intake at presentation is given in Table 1.

2.1. Treatment and the SDM Process

Following the exclusion of secondary causes of hypercholesterolemia, the clinical encounter followed the Elwyn "Three-Talk" Model of SDM.

Team Talk (Establishing Partnership and Choice): The patient expressed a strong belief that his unfiltered coffee consumption was driving his dyslipidemia. The clinician validated the patient's self-directed research, acknowledging clinical evidence linking unfiltered coffee to elevated lipids, and established that the patient's preferences would guide the care plan.

Option Talk (Comparing Alternatives): Two evidence-based options were compared. Option A involved standard pharmacotherapy (statins), which the patient was hesitant to initiate because of concerns about potential myopathy affecting his athletic recovery. Option B involved strict elimination of unfiltered coffee (dietary modification) while maintaining his exercise regimen and delaying medication.

Decision Talk (Reaching Consensus): Given the patient's low cardiovascular risk score, immediate pharmacotherapy was not strictly indicated. A consensus was reached on a 12-week trial of total unfiltered coffee abstinence, with a follow-up lipogram scheduled to monitor safety and progress.

2.2. Outcome and Follow-Up

At the 12-week follow-up, the patient had lost 2.2 kg, with BMI improving to 24.1 kg/m^2. Lipogram results (Figure 1) at this visit showed significant improvement, with total cholesterol at 208.8 mg/dL (5.4 mmol/L), high-density lipoprotein at 81.2 mg/dL (2.1 mmol/L), and LDL at 116.0 mg/dL (3.0 mmol/L).

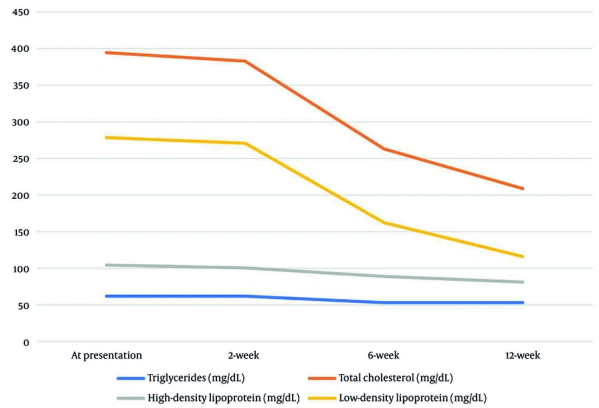


Figure 1. Cholesterol Profile Trend over 12-week course of caffeine abstinence

A comprehensive overview of the patient's sequential lipid profile, detailed in Table 2, illustrates the chronological trends and fluctuations in lipid levels over the 12-week monitoring period.

3. Discussion

This case highlights a significant reduction in total cholesterol and LDL levels in a 35-year-old man after 12 weeks of abstaining from heavy unfiltered coffee consumption (5 to 10 cups daily), facilitated by a structured SDM framework. The clinical presentation demonstrates that incorporating dietary habits into discussions about cholesterol management can yield favorable outcomes, particularly for patients motivated to pursue nonpharmacological interventions.

The association between unfiltered coffee and elevated serum lipid levels is well documented in the literature (7, 8). Historical data, including the Tromsø heart study, established that abstaining from boiled or unfiltered coffee

Table 1. Estimated Daily Dietary and Caffeine Intake at Presentation

Dietary Component	Estimated Daily Intake / Characteristics (servings/day, mg/day)	Clinical Note
Macronutrient Profile	Moderate Carbohydrate, High Protein	Typical Asian diet comprising rice, noodles, poultry, and pork.
Fiber Intake	~4 - 5 servings daily	Sourced primarily from steamed/stir-fried mixed vegetables and fruit.
Primary Beverage	Unfiltered Coffee (Americano, Espresso) [a]	5 to 10 cups daily
Estimated Caffeine	500 mg - 1540 mg daily	Primary modifiable risk factor identified.

[a] Americano (1 cup= 12 oz= 154mg of caffeine), espresso (1 cup= 1 oz=100mg)

Table 2. Serial Cholesterol Profile of the Patient

Variables	Reference Range	At Presentation	2-week	6-week	12-week
Triglycerides	< 203.7 mg/dL (2.3 mmol/L)	62.0 mg/dL (0.7 mmol/L)	62.0 mg/dL (0.7 mmol/L)	53.1 mg/dL (0.6 mmol/L)	53.1 mg/dL (0.6 mmol/L)
Total cholesterol	< 201.1 mg/dL (5.2 mmol/L)	394.4 mg/dL (10.2 mmol/L)	382.8 mg/dL (9.9 mmol/L)	262.9 mg/dL (6.8 mmol/L)	208.8 mg/dL (5.4 mmol/L)
High-density Lipoprotein	> 56.1 mg/dL (1.45 mmol/L)	104.4 mg/dL (2.7 mmol/L)	100.5 mg/dL (2.6 mmol/L)	88.9 mg/dL (2.3 mmol/L)	81.2 mg/dL (2.1 mmol/L)
Low-density lipoprotein	< 100.5 mg/dL (2.6 mmol/L)	278.4 mg/dL (7.2 mmol/L)	270.7 mg/dL (7.0 mmol/L)	162.4 mg/dL (4.2 mmol/L)	116.0 mg/dL (3.0 mmol/L)

reduces serum cholesterol (9, 10). This lipid-raising effect is primarily attributed to cafestol, a diterpene that interacts with the farnesoid X receptor and pregnane X receptor (11). Cafestol suppresses the expression of cholesterol 7 alpha-hydroxylase (CYP7A1), slowing the conversion of cholesterol into bile acids and resulting in serum LDL accumulation (11). Conversely, recent literature suggests that other preparation methods, such as filtered or soluble green coffee, do not have the same adverse lipid profiles and may even reduce cardiovascular risk markers (12, 13).

The successful implementation of this targeted dietary modification underscores the value of the Elwyn "Three-Talk" model in routine practice. By deliberately dedicating time to validate the patient's self-directed research during the "Team Talk" phase, the clinician built essential rapport. The subsequent "Option Talk" directly addressed the patient's specific concerns regarding statin-induced myopathy and its potential interference with his high-intensity training. By shifting from a prescriptive approach to a collaborative partnership, the patient took ownership of the intervention, resulting in complete adherence and improved metabolic outcomes without the need for immediate medication.

However, this report has several limitations. As a single-subject observational case relying on self-reported dietary adherence, the findings are susceptible to recall bias and lack generalizability. Furthermore, the observed improvements in the lipid profile cannot be attributed solely and definitively to coffee abstinence or the SDM process. Other uncontrolled variables, such as underlying metabolic shifts, unrecorded dietary changes, or modifications in physical activity, may also have influenced the outcomes. Future randomized controlled trials involving diverse populations are needed to establish causality and evaluate the broader clinical applicability of SDM in nutritional management.

3.1. Conclusions

This case illustrates that dyslipidemia can be effectively managed without immediate pharmacological intervention when targeted dietary modifications are implemented within a structured SDM framework. By actively engaging the patient and aligning treatment options with the patient's lifestyle values, the clinician achieved complete adherence to the dietary protocol. Fostering structured, collaborative communication remains a vital tool for improving patient compliance and achieving sustainable clinical outcomes.

Footnotes

AI Use Disclosure: The authors declare that no generative AI tools were used in the creation of this article.

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Conflict of Interests Statement: The authors declare no conflicts of interest related to this study.

Data Availability: The dataset presented in this study is available upon request from the corresponding author during manuscript submission or after publication. The data are not publicly available because of privacy and ethical restrictions related to patient confidentiality.

Ethical Approval: This case report was registered with the Malaysian National Medical Research Register (NMRR ID-24-00937-2WM) and was exempt from ethical review because it was strictly observational.

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Informed Consent: The patient provided consent for publication of the results. No personal information will be disclosed, and the patient will not be identified when the results of the case report study are published.

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