



## Case Report: The Effect of Ajwa Date Consumption on Total Cholesterol Levels in Perimenopausal Women

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### Abstract

Based on the 2016 Riskesdas, the prevalence of high cholesterol in Indonesia among women aged 35-59 years was 52.9%, and among those aged  $\geq 60$  years, it was 58.7%. According to provincial data, the highest percentage of patients with high cholesterol levels at Posbindu and FKTP in Indonesia was in West Papua Province, reaching up to 70%. The concentration of cholesterol levels in women's blood tends to increase with age, particularly for those over 40 years old, due to hormonal factors, especially the decrease in estrogen production and function. The decline in estrogen levels leads to an increase in lipids or total cholesterol, resulting in changes in body fat composition associated with hypercholesterolemia. This case report aims to investigate the impact of consuming Ajwa dates on the total cholesterol levels of perimenopausal women. Results: Ajwa dates contain higher polyphenol concentrations with an impressive nutritional profile that enhances blood lipoproteins. Additionally, dates can increase estrogen levels due to the estradiol and estrone present in their pollen. Several experimental studies have shown a significant difference in total cholesterol levels in subjects before and after consuming Ajwa dates. Conclusion: There is a notable difference in total cholesterol levels before and after the administration of Ajwa dates.

## Introduction

Based on the 2016 riskesdas, the prevalence of high cholesterol in Indonesia in women aged 35-59 years is 52.9%, age 60 years to 58.7%. Based on data from the province, the percentage of patients who have high cholesterol levels at posbindu and FKTP in Indonesia is the highest in West Papua Province up to 70%. When entering the age of 50, women will step on the menopause period which makes the function and production of the hormone estrogen decrease (Kementerian Kesehatan RI, 2017; Maita et al., 2013).

There is only one marker, menstrual irregularities, that can be used to objectively define and establish the so-called menopausal transition. These irregularities will be considered by the patient as skipped menstrual periods or longer durations (about 40-60 days) between periods. There is no universal pattern; Every woman will feel a change that is a change in her own individual characteristics. Perimenopause is a more recent term that covers the years before the final menstrual period in which the menstrual cycle progresses from regular ovulation and

predictable patterns to irregular cycles and increasingly anovulatory until finally stopping menstruation (Taylor et al., 2020).

The concentration of cholesterol in women's blood will increase with age, especially for those over 40 years old with the highest risk because it is affected by hormonal aspects, especially due to a decrease in estrogen production and function. The decrease in estrogen levels causes an increase in lipids or total cholesterol so that there is a change in the composition of body fat related to hypercholesterolemia. Cholesterol is a lipophilic compound with many functions for a person's survival, especially in maintaining normal cell function. Cholesterol can act as a precursor molecule for the synthesis of vitamin D, sex hormones (e.g. progesterone, estrogen and testosterone) and steroid hormones (e.g. adrenal androgens aldosterone and cortisol). Cholesterol also plays a role in compiling bile salts for the digestive process and plays a role in absorbing vitamins A, D, E, and K which are easily soluble in fat (Akhfiya et al., 2018; Huff et al., 2023);

80% of cholesterol is produced through the liver and the remaining 20% is produced through a person's consumption. Cholesterol is a unique compound produced through the metabolism of animals and various processed products from animals such as milk, cheese, eggs, meat and others. Cholesterol with food-based ingredients, very rarely has the property of free cholesterol, and tends to be cholesterol esters or fatty acid cholesterol. Cholesterol can only be obtained through cells in humans as well as animals and cannot be found through plant cells. Consumption of foods with high and sustained cholesterol levels can cause blood cholesterol levels to increase or hypercholesterolemia. The hypercholesterol condition will stimulate fat deposition in the walls of blood vessels. The deposition of these fats eventually creates plates that make blood circulation blocked (Maharani & Saktiningsih, 2022; Naim et al., 2019).

Sourced from several studies, it was obtained that dates are able to make the cholesterol content in a person's blood decrease. Dates or phoenix dactylifera L are fruits that are often found in many countries in the Arabian plain, especially in the city of Medina. Phoenix dactylifera L. dates are a fruit with many properties for optimizing a person's health, including being a protective agent of the liver, lowering blood lipids, and preventing blood vessel and heart disorders as well as antioxidants. Metabolic analysis for 12 types of dates from Saudi Arabia aimed to find out the nutritional content for each type of date. The results of the research revealed that Ajwa dates have the highest phenol content, while Ajwa dates have the highest flavonoid content and are followed by Safawi dates. According to the findings of various studies, it was obtained that date extract can optimize the activity of serum paraoxonase, an enzyme that plays an important role as an antioxidant in preventing the oxidation of Low-density lipoprotein (LDL), a process that involves directly in the development of atherosclerosis. Serum concentration is affected by inflammatory changes and serum oxidized LDL levels. This beneficial effect may be due to the presence of natural antioxidants such as phenolic compounds in date seeds. This case report aims to discuss the effect of ajwa date consumption on total cholesterol levels in perimenopausal women (Khan et al., 2016; Royani et al., 2019; Takaeidi et al., 2014).

## Methods

This study uses a descriptive research design with a case study approach. This design was chosen because the study focused on in-depth observation and analysis of the effect of Ajwa date consumption on total cholesterol levels in perimenopausal women. This case study provides a detailed and in-depth description of the phenomenon studied, allowing researchers to explore richer and more comprehensive information about the impact of Ajwa date consumption in a specific context.

The subjects of this study are perimenopausal women who meet the inclusion criteria, namely between 45-55 years old, experiencing perimenopausal symptoms, not taking cholesterol-

lowering drugs, and willing to consume Ajwa dates in accordance with the provisions of the study. The selection of subjects is carried out by purposive sampling to ensure that the selected subjects are really in accordance with the desired characteristics. The subject's total cholesterol level will be measured using a valid and reliable laboratory blood test.

Data were collected through the measurement of total cholesterol levels before and after the consumption period of Ajwa dates. Measurements are carried out in an accredited medical laboratory to ensure the accuracy and validity of the results. In addition, additional data in the form of demographic characteristics and health history of subjects were also collected through questionnaires. Data analysis was carried out by comparing total cholesterol levels before and after consumption using a descriptive statistical test to describe the changes that occurred. The results of the analysis were interpreted to determine whether there was a significant effect of Ajwa date consumption on total cholesterol levels in perimenopausal women.

**Case Study:** A 47-year-old woman came to the emergency room of RSIA Sitti Khadijah 1 Makassar with complaints of irregular menstruation. This has been felt since 3 years ago. History of TT injection has never, history of contraceptive use is there is IUD insertion 4 years ago, history of surgery there is namely giving birth 2x secio, history of disease is there is cholesterol with complaints of leg pain that has been felt worse since the last 5 years. The patient said that the pain worsened during physical activity, this complaint was felt by the patient after a few days of consuming fried food. Based on the results of the anamnesis, the patient is known to have the same complaint since 2 years ago. Patients also sometimes feel numbness in both hands and feet, especially when eating meat and fried foods.

The patient has no history of allergies, hypertension, diabetes mellitus is also denied by the patient. The same complaint against the family was denied. The history of drug consumption is also denied. On physical examination, the general condition of mild pain was obtained, commencement consciousness on the examination of vital signs was obtained blood pressure 125/80 mmHg, pulse rate 78 times/minute, respiratory rate 18 times/minute, temperature 36.8oC. Based on the supporting examination, the total cholesterol level was 306 mg/dL, GDP 76 mg/dL, HB 13.4 g/dL.

## **Result and Discussion**

In women aged 47 years based on anamnesis, physical examination and supporting examinations can be established for the diagnosis of dyslipidemia. Symptoms that are characteristic include numbness in the hands and feet, tingling, accompanied by dizziness. The symptoms felt by patients are generally aggravated by physical activity, exposure to allergens, and emotions. The characteristics of such symptoms of dyslipidemia can be found in the patients in this case report. Symptoms of numbness, tingling, and dizziness in the hands and feet are symptoms that arise due to too high cholesterol. Blood vessels in the legs and hands can also become clogged due to cholesterol buildup. This buildup generally occurs continuously and makes the hands and feet feel numb. Tingling is related to nerves that do not get blood flow. Tingling in the hands and feet is an implication of unsmooth blood flow in certain parts of the body. This makes the blood flow thick due to high cholesterol levels. Dizziness in the back of the head is caused by blockage of blood vessels in the area around the head. This blockage occurs because cholesterol begins to form plaque in the blood vessels. If left unchecked, blood vessels can burst and result in strokes.

Based on the anamnesis and physical and laboratory examinations obtained, the patient was diagnosed as a perimenopausal woman so that it met the research criteria to determine the effect of ajwa date consumption on total cholesterol levels in perimonopause women. From the results obtained after giving dates which were carried out 4 times on June 19, 2021, June 25, 2021, July 2, 2021 and July 9, 2021 in the administration of 49 dates that were consumed regularly, a significant change was obtained, namely a decrease in fasting blood sugar levels from total

cholesterol (1) 306 mg/dl to total cholesterol (2) 238 mg/dl so that it can be proven that ajwa dates have an influence in reducing total cholesterol levels in perimenopausal women.

## Conclusion

There is an influence on the administration of ajwa dates in perimenopausal women due to the content of ajwa dates, namely flavonoids, and phenolic properties that are antioxidants, antihyperlipidemia, and hepatoprotective agents, as well as preventing cardiovascular diseases.

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