

# Knowledge, attitudes and current practices of Palestinian internists toward aspirin prescription

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## Abstract

**Background and Aim:** Long-term aspirin therapy is crucial for patients at increased risk for cardiovascular diseases. However, differing perceptions among healthcare providers profoundly shape the challenges observed in risk assessment. This study assessed the knowledge, attitudes and current practices of internists who prescribe aspirin as a preventive measure for cardiovascular diseases.

**Methods:** A questionnaire was distributed to a total of 38 internists working at healthcare centres in Nablus, Palestine.

**Results:** The majority of physicians (95%) reported that they prescribe aspirin for patients following a coronary artery bypass graft. About 92% of physicians prescribe aspirin for patients with a peripheral vascular disease or acute myocardial infarction, and 85% of physicians prescribe aspirin if patients have a history of stroke and congestive heart failure, or stable angina. The prescribing of aspirin as prophylaxis for patients without cardiovascular disease, but with one or more risk factors, was reported by 61% to 79% of the physicians depending on the nature and number of risk factors. In some cases, the presence of additional diseases in association with cardiovascular diseases tended to hinder physicians from prescribing aspirin.

**Conclusions:** The majority of Palestinian internal physicians recommend the use of aspirin as a primary prevention tool for cardiovascular disease in spite of its potential negative side effects. Our results revealed that physicians in Palestine tend to prescribe aspirin with varying patterns and therefore a set of evidence-based recommendations should be implemented.

## Introduction

Aspirin is considered the most universal and cheap medication.<sup>1</sup> Aspirin acts as an analgesic, anti-inflammatory, and antiplatelet drug and its effect is attributed to the inhibition of cyclooxygenase-dependent platelets.<sup>2,3</sup> Aspirin is used in preventing a multitude of cardiovascular diseases (CVD), including myocardial infarction (MI), stroke, and peripheral vascular diseases (PVDs). Furthermore, aspirin may reduce non-vascular events such as cancer when used in regular doses.<sup>2</sup>

Aspirin has been increasingly used to treat fatal and nonfatal CVD, especially in the elderly population and among patients at high risk to develop CVD.<sup>4</sup> Many trials confirmed that aspirin has succeeded in preventing various vascular diseases. Meanwhile, other studies concluded that a low daily dose of aspirin reduces the risk for stroke and MI by up to 25%.<sup>5</sup> Cryer and his team concluded that the use of low to medium doses of aspirin improves CVD prophylaxis.<sup>6</sup> In addition, a low daily dose of aspirin was also beneficial in reducing the risk of post-MI vascular events. On the other hand, a dose of 650-1300 mg/day was more beneficial for patients with transient ischemic attacks (TIA) or strokes. Unfortunately, the high dose comes at the cost of more side effects.<sup>7</sup> Therefore, aspirin therapy should always be an adjunct, rather than the primary therapy in management of CVD.

Secondary prevention of CVD is considered a key element of a cost-effective health strategy to help fight the increasing burden of these diseases.<sup>8</sup> Many efforts have been undertaken by the World Health Organization to reduce the mortality rates of CVD. Some of these efforts focused on the importance of aspirin for individuals at high risk to develop CVD.<sup>9</sup> According to a retrospective study on diabetic hypertensive patients attending government clinics, there had been an improvement in antiplatelet therapy when aspirin was used as a primary prevention for CVD.<sup>10</sup>

In Palestine, patients with CVD typically receive medical care from general practice (GP) physicians rather than cardiologists. As a result of cardiologists' shortage, and the absence of guidelines for GPs, there is a necessity for improving the primary and secondary prevention services through short courses that teach and reinforce the necessity for implementing health guidelines. This study assessed the knowledge, attitudes and current practices of internists who prescribe aspirin as a preventive procedure for cardiovascular diseases.

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## Materials and Methods

### Study population

The study's population consisted of all internists in Nablus, Palestine. All physicians were visited and the response rate was about 95%. A total of 38 physicians out of 40 agreed to complete a self-administrated questionnaire and sign a consent form.

### Study tool: Questionnaire

A questionnaire was used to collect data from our study population. The questionnaire was obtained from Al Omari<sup>2</sup> and was modified to match the local conditions.

Participants working in different centres during a period of three months (1st of November 2016 to 30th of January 2017) were asked to fill out a questionnaire. These centres included Najah National University Hospital (NNUH), Ministry of Health (MOH), and private internal medicine clinics. The questionnaire's structure was designed to assess the physicians' awareness, attitudes, and practices of prescribing aspirin for the primary and secondary prevention of vascular diseases in eligible patients.

The questionnaire was divided into two sections: the first section covered personal and professional characteristics of the participants such as, gender, age, experience, and place of work; the second section included 15 scenarios that had been mentioned in a study by Welton et al.<sup>11</sup> Some scenarios included patients with vascular diseases and those who were previously suffering from CVDs, whilst other scenarios included patients free from vascular diseases, but with multiple risk factors. In addition, the questionnaire explored information about aspirin formulation, usage, recommended dose and co-prescribing.

Data were analyzed using a statistical package for social sciences (SPSS, Version 16). Chi-square testing was used to describe the percentages of results, and a p-value less than 0.05 was considered statistically significant.

## Results

A total of 38 internists (4 females and 34 males) completed the questionnaire. The mean age of physicians was 46 years (SD ±11.4 years). Half of the physicians were working in private healthcare clinics; whereas 29% of physicians were working in MOH (Table 1). The majority (78%) of the participants had at least four years of experience in the medical field.

In the context of CVD prevention, most physicians (66%) prescribe 100 mg aspirin, 16% prescribe 75 mg aspirin, and 18% prescribe other doses (Table 2). Regarding the place of work, results show that the majority of physicians who work in private healthcare (68%) prescribe 100 mg aspirin. Meanwhile, in NNUH there was a variation between all prescribed doses. Finally, results revealed that about 82% of physicians in MOH prescribe 100 mg aspirin (Table 2).

The majority of physicians reported that they prescribe aspirin for patients following coronary artery bypass grafting and PVDs – 95% and 92%, respectively. In addition, 84% and 92% of physicians prescribe aspirin for patients with stable angina and acute MI, respectively (Table 3). On the contrary, only 42% of physicians reported that they prescribe aspirin for patients with atrial fibrillation.

The frequency of aspirin prescription was decreased when cardiovascular disease was present with another disorder. The

prescription frequency decreased from 92% to 79% in cases of MI and asthma or a hiatus hernia. About 89% of physicians prescribed aspirin if patients had a history of stroke and congestive heart failure.

The risk factors for MI encourage physicians to prescribe aspirin. Aspirin was prescribed by 79% of physicians for smoking patients with a family history of acute MI and hypercholesterolemia; 66% of physicians prescribed aspirin for patients with non-insulin dependent diabetes mellitus (NIDDM). The prescribing of aspirin as prophylaxis for patients without CVD, but with a family history of MI, was reported by 61% of physicians (Table 3). Nonetheless, aspirin was prescribed by 63% of physicians for smoking patients with a family history of acute MI and hypertension. Aspirin was prescribed by 76% of physicians to TIA and potential bleeding disorder patients, as well as for patients with past TIA and inactive duodenal ulcers (Table 3).

About 58% of physicians reported that they prescribe aspirin for all patients with vascular diseases. Most physicians who consider aspirin for all patients with vascular diseases work at the MOH (73%). However, only 50% of physicians who are working in NNUH and in private healthcare consider aspirin for all patients with vascular diseases. Most of MOH physicians (82%) ensured that they recorded their advice about aspirin in the patient's records. About 55% of the physicians agreed that patients with ischemic heart disease should receive aspirin using the repeat prescribing system. Around 91% of MOH physicians prescribe aspirin by using their repeat prescribing system. On the other hand, 50% of NNUH physicians and only 37% of private sector physicians

**Table 1.** Socio-demographic characteristics of the study participants

Variable	Frequency (%)
Gender	
Female	4 (10.5)
Male	34 (89.5)
Years of experience	
1 year	1 (2.5)
2 years	3 (7.9)
3 years	4 (10.5)
4 years or more	30 (78.9)
Place of work	
NNUH*	8 (21.1)
MOH**	11 (28.9)
Private	19 (50)
Age (years)	
Less than 40 years	17 (44.7)
40-60 years	16 (42.1)
More than 60 years	5 (13.2)
Mean ± SD	46.16 ± 11.4

\*NNUH: Najah National University Hospital; \*\*MOH: Ministry of Health

**Table 2.** Dosage of aspirin prescription in relation to the place of work

Dose (mg)	Number of Physicians (%)			
	NNUH	MOH	Private	Total
75	3 (38)	0 (0)	3 (16)	6 (15.7)
80	0 (0)	1 (0.09)	1 (0.05)	2 (0.05)
100	3 (38)	9 (82)	13 (68)	25 (65.8)
150	1 (13)	1 (0.09)	0 (0)	2 (0.05)
300	0 (0)	0 (0)	2 (11)	2 (0.05)
325	1 (13)	0 (0)	0 (0)	1 (0.03)

\*NNUH: Najah National University Hospital; \*\*MOH: Ministry of Health

use their repeat prescribing system (Table 4). Approximately 63% of physicians prescribe aspirin with prophylactic anti-ulcer medication (Table 4). Out of these physicians, 68% belong to the private sector and 50% belong to NNUH.

Comparing the percentages of how physicians perceive the knowledge and awareness of nurse practitioners, our results revealed that 73% of MOH physicians feel that nurse practitioners

are aware of the role of aspirin in patients with vascular disease. In the Palestinian health system, nurse practitioners are not authorized to prescribe any drugs for patients but may give CVD patients aspirin at the time of admission. There were physicians that opposed the prescription of aspirin alongside NSAID drugs; this included 100% of NNUH physicians, and 73% and 89% from MOH and private physicians, respectively (Table 4). Regarding

**Table 3.** Patterns of aspirin prescription as reported by physicians according to diagnosis in relation to the place of work.

Diagnosis/Risk for a Disease	Number of Physicians (%)				P-value
	NNUH	MOH	Private	Total	
<b>Single cardiovascular disease</b>					
Post-coronary artery bypass graft	7 (88)	10 (91)	19 (100)	36(95)	0.330
Peripheral vascular disease	6 (75)	11 (100)	18 (95)	35(92)	0.114
Stable angina	6 (75)	10 (91)	16 (84)	32(84)	0.640
Acute MI	7 (88)	10 (91)	18 (95)	35(92)	0.804
Stroke	6 (75)	11 (100)	15 (79)	22(58)	0.227
Atrial fibrillation	4 (50)	6 (55)	6 (69)	16(42)	0.597
<b>Cardiovascular disease with another diagnosis</b>					
Past acute MI and asthma	6 (75)	10 (91)	14 (74)	30(79)	0.512
Past acute MI and hiatus hernia	6 (75)	10 (91)	14 (74)	30(79)	0.512
Past stroke and congestive heart failure	7 (88)	11 (100)	16 (84)	34(89)	0.389
Past TIA and inactive duodenal ulcer	7 (88)	8 (73)	14 (74)	29(76)	0.703
TIA and potential bleeding disorder	7 (88)	10 (91)	12 (63)	29(76)	0.160
<b>Risk factors for cardiovascular diseases</b>					
Smoking, family history of acute MI, and HC	5 (61)	8 (73)	17 (90)	30(79)	0.244
Non-insulin dependent diabetes mellitus	4 (50)	7 (64)	14 (74)	25(66)	0.488
Strong family history of MI	4 (50)	7 (64)	12 (63)	23(61)	0.790
Smoking, HP, and family history of acute MI	7 (88)	10 (91)	17 (90)	24(63)	0.972

MOH: Ministry Of Health; NNUH: An-Najah National University; MI: Myocardial Infarction; HP: Hypertension; TIA: Transient Ischemic Attack; HC: Hypercholesterolemia.

**Table 4.** Physicians' practices and attitudes towards aspirin prescription

Practice and attitudes	Number of Physicians (%)				P-value
	NNUH	MOH	Private	Total	
<b>I consider aspirin for all patients with vascular diseases.</b>					
Agree	4 (50)	8 (73)	10 (53)	22 (58)	0.700
Disagree	3 (38)	2 (18)	8 (42)	13 (34)	
<b>I record in the patient records whether I have advised them about aspirin.</b>					
Agree	6 (75)	9 (82)	16 (84)	31 (82)	0.782
Disagree	1 (13)	2 (18)	2 (11)	5 (13)	
<b>I prescribe aspirin to patients with ischemic heart disease by using my repeat prescribing system*.</b>					
Agree	4 (50)	10 (91)	7 (37)	21 (55)	0.066
Disagree	2 (25)	1 (9)	5 (26)	8 (21)	
<b>I often prescribe aspirin with prophylactic anti-ulcer medication.</b>					
Agree	4 (50)	7 (64)	13 (68)	24 (63)	0.713
Disagree	4 (50)	3 (27)	5 (26)	12 (32)	
<b>I feel that nurse practitioners are aware of the role of aspirin in the patient with vascular disease.</b>					
Agree	3 (38)	8 (73)	11 (58)	22 (58)	0.597
Disagree	3 (38)	2 (18)	6 (32)	11 (29)	
<b>I mainly prescribe aspirin with NSAIDs (over the counter).</b>					
Agree	3 (38)	8 (73)	11 (58)	22 (58)	0.597
Disagree	3 (38)	2 (18)	6 (32)	11 (29)	
<b>Most of my patients receive their aspirin on prescription.</b>					
Agree	3 (38)	8 (73)	11 (58)	22 (58)	0.597
Disagree	3 (38)	2 (18)	6 (32)	11 (29)	
<b>Patients without vascular disease ask me if they should be taking aspirin daily.</b>					
Agree	3 (38)	8 (73)	11 (58)	22 (58)	0.597
Disagree	3 (38)	2 (18)	6 (32)	11 (29)	

\*repeat prescribing system is a system that allows patients to get the medicines they need to take on a regular basis without needing to see the physician.  
NNUH: An-Najah National University; MOH: Ministry Of Health.

aspirin prescription, 82% of MOH physicians agreed that patients received their aspirin upon prescription.

## Discussion

Long-term aspirin therapy is of definite value for patients who are at risk for developing CVD.<sup>2</sup> Antiplatelet therapy reduces the risk of serious vascular events for all patients with coronary or peripheral arterial disease, and those at high risk of embolism by about 25%.<sup>5</sup> Guidelines from the United States Prevention Services Task Force (USPSTF) suggest that in men at risk for coronary disease, and lacking contraindications to aspirin use, the benefit of aspirin outweighs the harm.<sup>3</sup>

Several studies have reported different rates of prescribing aspirin. In the present study, the majority of Palestinian internists (90%) prescribe aspirin for patients with vascular disease. There was not a statistically significant difference in the prescribing practices based on place of work. In a previous study done by the WHO in 2005, it was noted that about 81% of CVD patients of the lower and middle socioeconomic status received aspirin.<sup>12</sup> The highest intake of aspirin (85%) was among patients with a recent MI.<sup>9</sup> According to a study conducted in 15 European countries, 90% of patients with coronary heart disease use aspirin.<sup>13</sup>

The presence of another disease in addition to CVD, even when it is not a contraindication to use aspirin, leads physicians to prescribe aspirin less frequently – possibly because of the fear of further complications. This decision may be due to the lack of guidelines and this is in agreement with a previous study.<sup>11</sup> Another possible reason for not prescribing aspirin is gastrointestinal and other potential side effects.<sup>2</sup> A meta-analysis suggests that long-term aspirin therapy, even at a low dose, increases the risk of gastrointestinal bleeding.<sup>11</sup> Other complicating factors, such as asthma and bleeding disorders, were also associated with increased aspirin use.

For patients without CVDs, but with one or more risk factors, the prescription of aspirin as primary prevention was reported by 61% to 79% of Palestinian physicians depending on the number and nature of risk factors. A similar study by Al Omari et al. showed that the prophylactic use of aspirin ranged from 85% to 95%.<sup>2</sup> In contrast, a study from the UK reported that the prescription of aspirin for patients at risk of CVDs ranged from 17% to 54%.<sup>11</sup> For patients with NIDDM, 66% of physicians in Nablus advised daily aspirin intake. Conversely, in Jordan and the UK, 85% and 17% of physicians recommended aspirin for NIDDM patients, respectively.<sup>2,11</sup> It is noteworthy that the USPSTF, and the American Heart Association, recommend the use of aspirin for healthy people, between the age of 50 and 59, at risk of CVDs (14).

The dose and formulation of aspirin is a concern for physicians who want to prescribe aspirin for patients with CVDs. Approximately 11% of physicians reported that they were confused about the appropriate dose. More than half (66%) of the physicians prescribe 100 mg aspirin. Only 16% of our participants prescribe 75 mg, which is significantly lower than the percentage (47%) in previous studies.<sup>2,11</sup> This study has some limitations since it is the first of its kind from Palestine and was conducted at only one city (Nablus). Secondly, all information was based on a self-reporting questionnaire, which may not necessarily reflect the actual behaviors.

## Conclusions

Although aspirin has some negative side effects, the majority of Palestinian internists preferred the use of aspirin in primary prevention of CVDs. Physicians tend to prescribe aspirin less frequently when a patient suffers from other diseases in addition to CVDs. Finally, we concluded that Palestinian physicians should be provided with approved guidelines to enhance their prescription patterns.

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