

Knowledge and adherence to National Institute of Clinical Excellence 2020, dyslipidaemia management guidelines and its associations among medical officers in Gampaha district, Sri Lanka: a descriptive study

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Abstract

Introduction: Dyslipidaemia is an important risk factor for cardiovascular diseases(CVD) and optimal management helps prevent CVD burden in a country. Knowledge of medical officers(MOs) on dyslipidaemia management is critical in this regard. We assessed knowledge and adherence of MOs of Gampaha district to the National Institute of Clinical Excellence (NICE) guideline 2020 on management of dyslipidaemia.

Methods: We conducted a cross-sectional study at five secondary/tertiary-care hospitals in Gampaha District in January 2022. Knowledge and adherence were studied using a self-administered questionnaire consisting of 25 multiple-choice questions. Each question was scored "1" and the cumulative score was converted to 100. A score >80 was considered "good knowledge and adherence" and its associations were studied using logistic regression.

Results: A total of 413 MOs (63.4% females, mean age 45±7.6 years) participated in the study. Of them, 73.1% had worked in a medical ward previously. The mean knowledge and adherence score was 77±9.3. Only 30% had a score >80. Good knowledge and adherence was significantly associated with being <45 years(p=.004) in age, having work experience in a medical ward(p<.001), having post-graduate training(p<.001), working in a tertiary care hospital(p=.007), and involved in private practice(p=.002). There was no significant association with attendance at continuing medical education programmes (p=.320) or the duration of service(p=.120).

Conclusions: Only a third of MOs of Gampaha district had good Knowledge and adherence to NICE-2020 dyslipidaemia guidelines. Knowledge and adherence to the guideline was better in MOs who are young, in postgraduate training, with previous experience in medical wards, working in tertiary care hospitals or engaged in private practice.

Key words: Statins, dyslipidaemia, cardiovascular disease, NICE guidelines, lipid-lowering medication



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Introduction

Dyslipidaemia is an important modifiable risk factor for atherosclerotic cardiovascular diseases (CVD) including coronary heart disease, stroke, and peripheral vascular disease. Reduction of LDL cholesterol by 1 mmol/L is associated with a 22% reduction of major adverse cardiovascular events. (1,2) Ischemic heart disease is the commonest cause of hospital deaths in Sri Lanka accounting for 22% (37 per 100,000 population) deaths in 2019.(3) Around 77% of Sri Lankan adults have some form of dyslipidaemia.(4) Therefore, control of dyslipidaemia is paramount in reducing the CVD burden of the country which will cut down healthcare costs.

There is an unmet need for the control of dyslipidaemia in the world. The underutilization of lipid-lowering therapies in general, and in particular the relatively low usage of high-intensity statins among patients with uncontrolled LDL-C is reported in the United States of America.(5) Lipid control among patients with previous CVD is reported to be low in the United Kingdom.(6) There is no data on the state of lipid goal achievement of Sri Lankans.

Dyslipidaemia management guidelines are frequently updated with different authorities worldwide releasing different guidelines but with minimal changes across guidelines.(6–8) The latest national dyslipidaemia guideline was released in 2023 (9) and the one before was in 2005.(10)

Dyslipidaemia is largely symptomless until they develop a CVD. Therefore, individuals with dyslipidaemia can present to any medical service, i.e.: primary, secondary, tertiary healthcare services in the state or private sector. Identifying them then and there and treating them would be helpful. Therefore, up-to-date knowledge in the diagnosis and management of dyslipidaemia among medical officers is important in both primary and secondary prevention of CVDs. The degree of knowledge and adherence to dyslipidaemia management guidelines among Sri Lankan medical officers is not reported. Moreover, it is reported that there is a high rate of non-adherence to clinical guidelines in developing countries.(11)

Therefore, we aimed to study the knowledge on dyslipidemia guidelines and adherence among medical officers in Gampaha, Sri Lanka.

Methods

We conducted a cross-sectional hospital-based study of doctors working in five state sector hospitals (secondary and tertiary care hospitals) of Gampaha District, Sri Lanka from 1st to 31st of January 2022. The study sites were Colombo North Teaching Hospital, Ragama, District General Hospital Gampaha, District General Hospital Negombo, Base Hospital Wathupitiwala, and Base Hospital Kiribathgoda. We studied the knowledge and adherence of medical officers to the 2020 dyslipidaemia management guideline of the National Institute for Health and Care Excellence, United Kingdom, which was the latest and most familiar guideline at the time the study was conducted.(8) All the medical officers working at medical wards, outpatient clinics, emergency rooms, and outpatient departments of the five hospitals during the study period were included in the study. Data was collected using a self-administered questionnaire distributed as a hard copy or soft copy depending on the preference of the medical officers. Ethical approval for the study was obtained from the Ethics Review Committee of the Faculty of Medicine, University of Kelaniya. Responding to the questionnaire was completely voluntary and was anonymised.

The questionnaire consisted of 3 sections with 25 close-ended questions checking the knowledge and adherence to basic principles in dyslipidaemia treatment, follow-up, and management of adverse drug reactions. Each question was scored “1” and the cumulative score was converted to a percentage. A score of more than 80% was considered as having “good knowledge and adherence” and the association of it was studied using binary logistic regression. We defined MOs with age < 45 years as being young as normally Sri Lankan doctors start internship training around the age of 27 years and retire around the age of 63 years. Data were analysed using SPSS version 22. The significance level was set at $p < .05$.

Results

A total of 413 medical officers, mean age 45 ± 7.6 years, female 262 (63.4%) participated in the study. The baseline characteristics of the study population are shown in Table 1.

We studied the knowledge and adherence to basic principles in dyslipidaemia management using the 2020 NICE guideline as a reference (Table 2).

Table 1 - Baseline characteristics of medical officers

	n (%) (n = 413)
Study site	
Colombo North Teaching Hospital, Ragama	157 (38.0)
District General Hospital Gampaha	76 (18.4)
District General Hospital Negombo	77 (18.6)
Base Hospital Kiribathgoda	51 (12.3)
Base Hospital Wathupitiwala	52 (12.6)
Mean age (SD), years	45 (7.6)
Gender	
Female	262 (63.4)
Mean duration in clinical practice as a medical officer (SD) year	18 (7.3)
Previous work experience in a medical ward present	302 (73.1)
Engagement in postgraduate training	232 (56.2)
Engagement in part time private practice	282 (68.3)
Participation in Continuous Medical Education during last 6 months	165 (40)

Table 2 - Knowledge and practices related to dyslipidaemia management according to 2020 NICE guideline

Knowledge and adherence practices studied	Correct/yes (n = 413) n (%)
Knowledge on basic principles of the management of dyslipidaemia	
1 The LDL-C goal in primary prevention of CVD is <100 mg/dL.	318 (77.0)
2 The LDL-C goal in secondary prevention of CVD is <70 mg/dL.	339 (82.1)
3 Statin is the first-line medication for treatment of hypercholesterolemia.	412 (99.8)
4 Statin is the first-line medication for treatment of moderate hypertriglyceridemia.	387 (93.7)
5 The starting dose of atorvastatin for primary prevention of CVD is 20mg.	361 (87.4)
6 The starting dose of atorvastatin for secondary prevention of CVD is 40mg.	356 (86.2)
7 The starting dose of atorvastatin for secondary prevention of CVD in CKD patients is 20mg	399 (96.6)
8 The main reason to starting rosuvastatin instead of atorvastatin is intolerance for atorvastatin	339 (82.1)

Table 2 - Knowledge and practices related to dyslipidaemia management according to 2020 NICE guideline continued

9	Statins should be continued in the same dose following reaching treatment goals	322 (78.8)
10	Statin is not indicated if LDL-C <190 mg/dL inpatients with low CVD risk and without CVD/CVD equivalents	309 (74.8)
11	Statin is recommended in patients with high CVD risk even without LDL-C <190 mg/dL for primary prevention of CVD	398 (96.4)
12	The LDL-C goal in a patient with type II DM and CVD is <70 mg/dL	360 (87.2)
13	Statin prescription for primary prevention of CVD in patients with type 2 diabetes also depends on their calculated CVD risk	392 (94.9)
Clinical practices of medical officers in dyslipidaemia management		
14	Calculate 10-year CVD risk before prescribing statins	350 (84.7)
15	Advise on diet control and statin prescription together for control of dyslipidaemia	413 (100)
16	Advise on physical exercise and statin prescription together for control of dyslipidaemia	408 (98.8)
17	Repeat the lipid profile within 6 to 12 weeks after initiating statin therapy	411 (99.5)
18	Assess transaminase levels before initiating statins	408 (98.8)
19	Does not routinely assess CPK levels before initiating statins	313 (75.8)
20	Assess CPK only if patients are symptomatic	405 (98.1)
21	Routinely do a TSH in all with hyperlipidaemia	229 (55.4)
22	Use fibrates when statin monotherapy is unable to control triglycerides	371 (89.8)
23	Statins will be stopped if a patient present with vomiting, loss of appetite, and yellowish discoloration of the eyes	315 (76.3)
24	Statins will not be stopped in an asymptomatic patient with mildly raised CPK 4 times above upper limit of normal	321 (77.7)
25	Management of statin intolerance	
	Refer to a physician	251 (60.8)
	Give a lower dose of atorvastatin	108 (26.2)
	Give rosuvastatin	24 (5.8)
	Start fish oil	24 (5.8)
	Give fibrates	6 (1.5)

CKD; chronic kidney disease, CPK; creatinine phosphokinase, CVD; cardiovascular disease, DM; diabetes mellitus, IHD; ischemic heart disease, LDL-C low-density lipoprotein cholesterol, TSH; thyroid stimulating hormone

Table 3 - Factors associated with good knowledge and adherence to the 2020 NICE dyslipidaemia guidelines among medical officers in Gampaha, Sri Lanka

Variable study sample =413	Knowledge and adherence		p-value
	Poor(n = 289)	Good(n = 124)	
Age < 45 years	125	73	.004
Working in a tertiary care hospital	206	104	.007
Previous experience in a medical ward	178	124	<.001
Having or currently in a training for postgraduate qualifications	144	88	<.001
Involved in private practice	184	98	.002
Service years	-	-	.120
Gender (Female)	182	80	.766
Participation in continuous medical education programmes	120	45	.320

The median score for knowledge and adherence to the dyslipidaemia guideline was 80.00 (range 44 to 92 marks) and the mean score was $77 \pm 9.3\%$ (95% CI 76.10 - 77.89). Good knowledge and adherence to guidelines (i.e., > 80%) was seen in 124 (30%) medical officers.

Factors associated with good knowledge and adherence are shown in table 3. Good knowledge and adherence to the guideline was significantly associated with being less than 45 years in age, having work experience in a medical ward, having post-graduate training, working in a tertiary care hospital, and being involved in a private practice. There was no significant association between good knowledge and adherence to guidelines and attendance at continuing medical education programmes or the duration of service in years.

Discussion

We observed that the knowledge and adherence to NICE-2020 dyslipidaemia guidelines was inadequate and needs to be improved among medical officers of the Gampaha district. Additionally, we observed that the knowledge and adherence to the guideline was better among MOs of younger age, in postgraduate training, with experience in working in medical wards, at tertiary care hospitals or engaged in private practice. This is the first study reporting

dyslipidaemia guideline knowledge and adherence of Sri Lankan medical officers. Good knowledge and adherence to current/latest management guidelines is important in achieving lipid control among Sri Lankans. This helps not only to improve dyslipidaemia control but also to avoid unnecessary treatment causing unnecessary cost, side-effects or pill burden reducing medication compliance.

One important possibility for inadequate knowledge and adherence could be not having regular updates in national guidelines in Sri Lanka. There had not been an update from 2005 to 2023. Clinical practice guidelines are designed to synthesise and disseminate the best available evidence to guide clinical practice. The goal is to increase high-quality care while decreasing inappropriate interventions. (12) Regular updates, circulars, posters with simplified palatable flow charts distributed by the Ministry of health would help to improve guideline knowledge and adherence among doctors. Other reasons for reduced adherence would be lack of knowledge, following different guidelines due to a lack of consensus of guidelines in the county, lack of passion and self-motivation to go for treatment goals or mere inertia of medical officers.

Good adherence among those having experience in working in medical wards, teaching hospitals and in postgraduate training is self-explanatory as they do

get exposed to new and changing knowledge as demonstrated by previous studies.(13,14) Giving all doctors the opportunity to work in a medical ward and encouraging them to enrol in postgraduate studies may increase knowledge and adherence to guidelines.

However, the fact that attendance at CME was not associated with good adherence was not expected. This brings up an important point that just doing CME programmes may not help improve adherence to dyslipidaemia or any guideline and we may need to think of changing the way the knowledge is delivered, probably may need to have workshops with some interaction than just hosting lectures. The other important point identified in the study is that the doctors who do private practice have good knowledge and adherence to guidelines. Maybe they were enthusiastic to learn and practise up-to-date medicine as it gives personal benefit to the medical officer as well. This suggests we need to promote the enthusiasm of doctors to update their knowledge. Introducing an appraisal system for all doctors may encourage them to attend and update their knowledge.

Despite doctors reporting to use dyslipidaemia guidelines and having updated knowledge, their adherence to guideline in clinical practice has shown to be low in literature (15,16) and this could be due to several reasons including rising healthcare costs, increased demand for care, variations in service delivery among providers, hospitals, and geographical regions and the intrinsic desire of healthcare professionals to offer, and of patients to receive, the best care possible.(17) These are some important aspects in the translation of knowledge into clinical practice.

Limitations

There are few limitations of this study. Our sample was from Gampaha district and did not cover hospitals lower than secondary care hospitals. Therefore, this study may not exactly depict the situation of all first contact doctors in the state sector of Sri Lanka. However, this gives an estimate, and we could expect a lesser degree of adherence when in primary care hospitals. Furthermore, there is a possible bias of not capturing data of doctors who were not interested in filling out the questionnaire since we used a voluntary self-administered questionnaire. We used the NICE 2020 guideline as our reference as there was no updated national guideline at the time the study was done after 2005.

NICE 2020 guideline was specifically selected than the AHA 2018 or ESC 2019 guidelines as Sri Lankan healthcare system is mostly adhering to National Institute for Clinical Excellence (NICE) guidelines which consider cost-effectivity as well in recommendations which suits Sri Lanka being a low-middle-income country. However, doctors may not have been aware of this guideline unless they are very keen on the continuously changing guidelines, but we assessed the actual awareness of the doctors according to evidence-based practice at the time the study was done.

Conclusion

Knowledge and adherence to NICE-2020 dyslipidaemia guidelines was inadequate among MOs of the Gampaha district. However, the knowledge and adherence to guidelines was better in MOs who are young, in postgraduate training, with previous experience in medical wards, working in tertiary care hospitals or engaged in private practice.

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Authors' contribution

AnA, AkA, AE, SA, ShA and CM All authors contributed to the conceptualization and design of the study. AnA, AkA, AE, SA, and ShA contributed to the acquisition of data. KF conducted the data analysis. KF and CM contributed to data interpretation and writing the manuscript. All authors read and approved the final manuscript.

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Declarations

Ethics approval and consent to participate

Ethics approval for the current study was granted by the Ethics review committee of Faculty of Medicine, University of Kelaniya

Conflict of interest

None

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