Doctors' Adherence to the Guidelines in Managing Patients in the Coronary Care Unit

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ABSTRACT

Background: Cardiovascular diseases (CVDs) are the leading cause of death worldwide. While lifestyle changes contribute to their prevalence, regional differences exist. Arrhythmias and acute coronary syndromes (ACS) pose significant burdens on healthcare systems, necessitating specialized care and interventions. Thus, the adherence to the international guidelines plays an important role in patients' management and improving the outcomes. Aim of the study is assessing doctors' adherence to guidelines for patients' management in the cardiac care unit in Mosul City.

Methods: A case series study was conducted in three main hospitals (Ibn Sina, Al-Salam, and AL-Mosul General Hospitals) that contain CCU in Mosul City. The participants were chosen by using a nonprobability judgmental sampling strategy. This approach ensured the inclusion of all participants who met the study criteria resulting in a total of 53 doctors working in the CCU of the mentioned hospitals. Face-to-face interviews were conducted during working hours with no exclusion criteria. Between December 2023 and February 2024, data were gathered using a questionnaire form that was developed based on international guidelines and approved by a pilot study. The study utilized statistical analysis with SPSS, using descriptive statistics and the Fisher exact /Chi-square test to measure the associations between variables at a significance level of $p \leq 0.05$.

Results: In the CCU, respecting patients' autonomy by physicians revealed a significant difference between different degrees of specialty being better among sub-seniors (94.7%) and lowest (50%) for senior doctors. Resident doctors revealed high response in initiating high-quality CPR (70.8%) and educating about self-care and arrhythmia medications (83.3%), while senior doctors fall behind in providing privacy and considering early invasive strategies for ACS (only 50% for each).

Conclusion: This study revealed a good commitment of physicians toward many aspects of patients' management in the CCU and defects in others. These findings underscore the necessity for standardized guidelines and on-going professional development to ensure high-quality and consistent care for cardiac patients.

Keywords: Guidelines, nurses, cardiovascular diseases, coronary care unit.

التزام الاطباء بالإرشادات في علاج المرضى في وحدة العناية القلبية

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الخلاصة

الخلفية : أمراض القلب والأوعية الدموية هي السبب الرئيسي للوفاة في جميع أنحاء العالم. وبينما تساهم تغييرات نمط الحياة في انتشارها، توجد اختلافات إقليمية. يشكل عدم انتظام ضربات القلب ومتلازمات الشريان التاجي الحادة أعباء كبيرة على أنظمة الرعاية الصحية، مما يستلزم رعاية وتدخلات متخصصة. وبالتالي، فإن الالتزام بالمعايير الدولية للعلاج يلعب دورًا مهمًا في علاج المرضى وتحسين النتائج. الهدف من الدراسة هو تقييم التزام الأطباء بالمعايير الدولية لعلاج المرضى في وحدة العناية القلبية في مدينة الموصل .

الطرق : أجريت دراسة سلسلة حالات في ثلاثة مستشفيات رئيسية (ابن سينا، السلام، والموصل العام) التي تحتوي على وحدة العناية القلبية المركزة في مدينة الموصل, اذ تم اختيار المشاركين باستخدام استراتيجية أخذ العينات الحكمية غير الاحتمالية والتي تضمن إدراج جميع المشاركين الذين استوفوا معايير الدراسة مما أدى إلى وجود إجمالي ٥٣ طبيبًا يعملون في المستشفيات

المذكورة. أجريت المقابلات وجهاً لوجه خلال ساعات العمل دون أي معايير للاستبعاد. وفي الفترة ما بين ديسمبر ٢٠٢٣ وفبراير ٢٠٢٤، تم جمع البيانات باستخدام نموذج استبيان تم تطويره بناءً على المعايير العالمية وتمت تجربته والتحقق من فاعليته من خلال دراسة تجريبية. استخدمت الدراسة التحليل الإحصائي لبرنامجSPSS ، وذلك باستخدام الإحصاء الوصفي واختبار فيشر الدقيق / مربع كاي لقياس الارتباطات بين المتغيرات عند مستوى دلالة معنوية اقل او مساوٍ ل ٠.٠٥ .

النتائج : كشفت الدراسة في وحدة العناية المركزة عن مدى احترام استقلالية المرضى من قبل الأطباء, وقد ظهر فرق كبير بين درجات التخصص المختلفة حيث كانت الأفضل بين طلبة البورد (٩٤.٧٪) والأدنى (٥٠٪) بين الاخصائيين. وكذلك كشف الأطباء المقيمون عن تطبيق جيد لعملية الإنعاش القلبي الرئوي (٧٠.٨٪), بالإضافة الى تثقيف المرضى حول الرعاية الذاتية وطرق استخدام أدوية عدم انتظام ضربات القلب (٨٣.٣٪)، في حين فشل الاخصائيون في توفير الخصوصية للمريض والنظر في استراتيجيات التدخل المبكر (فقط ٥٠% لكل منهم) .

الاستنتاج : لقد كان هنالك التزام جيد للأطباء تجاه العديد من جوانب علاج المرضى في وحدة العناية القلبية المركزة و إخفاقات في جوانب اخرى. وعليه, تؤكد هذه الدراسة على ضرورة تكوين معايير وطنية مشابهة للمعايير العالمية في علاج مرضى القلب بالإضافة الى التطوير المهني المستمر لضمان رعاية عالية الجودة لمرضى القلب.

الكلمات المفتاحية : المبادئ التوجيهية، الممرضون، أمراض القلب والأوعية الدموية، وحدة العناية التاجية.

INTRODUCTION

Heart diseases represent one of the most prevalent medical problems worldwide with many consequences [1]. According to the World Health Organization (WHO) in 2019, cardiovascular diseases (CVDs) caused around 17.9 million deaths globally, making them the leading cause of death [2]. These diseases include strokes, coronary artery diseases, and heart failure, contributing to over 30% of deaths worldwide [2].

Beyond the health consequences, CVDs place a heavy financial burden on individuals and communities due to the costs associated with hospitalizations, treatment, medications, and medical services [3].

Additionally, factors like premature death and reduced productivity due to disability exacerbate the social effect [3].

Although CVDs are a global issue, regional differences in prevalence are noticed. While wealthier nations experience higher rates of CVDs, low- and middle-income nations are also facing a growing burden due to changing lifestyles and risk factors [4]. Many risk factors for CVDs are modifiable, including unhealthy diet, smoking, obesity, physical inactivity, hypertension, diabetes, and high cholesterol [5]. Addressing these factors offers an opportunity to lessen the prevalence and impact of CVDs [5]. Primarily focus on prevention and improving the well-being of individuals who are affected by these conditions [6]. Health efforts, including lifestyle interventions and medical treatments, have a significant effect in reducing the burden of CVDs in most countries [7]. Thus, following the guidelines for treating those patients has a great impact on reducing the burden and improving patients' outcomes.

AIM

To evaluate clinical practice adherence to established guidelines for the management of patients in the CCU in Mosul City.

Methodology

The research proposal and access to research data received scientific and ethical approval from the Scientific Committee in the Department of Family and Community Medicine and the Higher Education Committee of the College of Medicine/ University of Mosul, following a seminar presentation on the topic. Approval was also obtained from specialized professors in the faculty of medicine, and the study received institutional review board approval from the Nineveh Health Directorate to conduct research in selected hospitals. All participants provided oral consent after being informed of the voluntary nature of participation, their right to withdraw at any time, and the study's objectives and benefits.

The study was conducted in three main hospitals containing CCU in Mosul City: Ibn Sina Teaching Hospital, Al-Salam Teaching Hospital, and Al-Mosul General Hospital. An observational descriptive case series design was employed, allowing for a comprehensive analysis of individual participants' information to generate hypotheses for further exploration and confirmation. A non-probability judgmental sampling technique was utilized in the study to collect the study sample. The study included all doctors working in the CCU of the mentioned hospitals (53 participants) who agreed to participate and met the study's criteria. Face-to-face interviews were conducted during working hours with no exclusion criteria.

The study utilized a questionnaire form to collect data on the awareness of healthcare providers regarding the treatment of cardiac patients in the CCU. Survey questions were derived from international guidelines and previous studies. The questionnaire underwent validation and linguistic adjustments through a pilot study involving 30 participants. Data were entered into Excel and analyzed using SPSS. Descriptive statistics were employed to represent data as numbers and percentages, with the Chi-square/Fisher exact test used to measure associations between variables at a significance level of $p \leq 0.05$.

RESULTS

Fifty-three physicians were enrolled in this research, 62.3% were males, 47.2% were in the age group (30_39 years), and 45.3% were resident doctors. About half of them (47.2%) have less than 5 years of practice, and most of them (99.1%) consistently update their medical information.

Table 1: General characteristics of doctors who are working in the CCU

General Characteristics	Doctor (n = 53)	
	No.	%
Age (years)		
< 30 years	19	35.8
30-39 year	25	47.2
≥ 40 years	9	17.0
Sex		
Male	33	62.3
Female	20	37.7
Degree of speciality		
Senior	10	18.9
Sub senior	19	35.8
Resident	24	45.3
Years of experience		
< 5 years	25	47.2
5-10 year	19	35.8
≥ 11 years	9	17.0
Updated information		
Yes	52	99.1
No	1	1.9

Table 2 offers a summary of the ethical considerations followed by physicians when dealing with patients in the CCU about their degree of specialties. Data indicate that doctors of different specialties had high medical performance rates to prevent harm and minimize risks. A significant difference (p=0.011) is noticed among doctors regarding patients' autonomy, being best among sub-senior doctors (94.7%) and least among senior doctors (50%), nearly the same result is demonstrated for ensuring the quality of care and safety for patients. Around two-thirds (60%) of seniors obtain patients' consent and provide emotional support. However, only 50% of them tend to provide privacy for their patients.

Table 2: Ethical consideration of doctors in dealing with patients in the CCU, (n = 53).

Ethical Topics	Degree of Speciality						
	Resident Doctor (n = 24)		Sub-senior Doctors (n = 19)		Senior Doctors (n = 10)		P-value*
	No.	%	No.	%	No.	%	
Respect the patient's autonomy	21	87.5	18	94.7	5	50.0	0.011
Obtain informed consent	20	83.3	18	94.7	6	60.0	0.058
Provide privacy	14	58.3	14	73.7	5	50.0	0.581
Communicate respectfully	23	95.8	17	89.5	10	100.0	0.462
Prevent harm and minimize risks	24	100.0	18	94.7	10	100.0	0.547
Ensure quality of care and safety	19	79.2	18	94.7	5	50.0	0.018
Accurately document all medical decisions	23	95.8	17	89.5	10	100.0	0.581
Provide emotional support	18	75.0	16	84.2	6	60.0	0.345
Average total responses	-	83.3	-	89.5	-	70.0	-

* Fishers' exact test.

Table 3 compares the management of acute coronary syndromes (ACS) according to the degree of specialty and shows a high response in providing medications promptly among all physicians regardless of their specialty. On the other hand, the proportions of considering early invasive strategy for high-risk patients are low: 33.3%, 42.1%, and 50% for residents, sub-seniors, and senior doctors respectively. The same low

proportions are seen for the use of glycoprotein inhibitors (33.3% for resident doctors, 42.1% for sub-senior doctors, and 30% for senior doctors). Referring patients to cardiac rehabilitation programs demonstrates the least results (only 10% for seniors, raised to 36.8% for sub-seniors, and the highest percent (50%) is for resident doctors).

Table 3: Doctors' adherence to the guidelines for managing acute coronary syndromes in the CCU, (n = 53).

Topics	Degree of Speciality						
	Resident Doctor (n = 24)		Sub-senior Doctors (n = 19)		Senior Doctors (n = 10)		P-value*
	No.	%	No.	%	No.	%	
Provide aspirin and other antiplatelet medications promptly	24	100.0	19	100.0	10	100.0	---
Prescribe nitro-glycerine and/or morphine for pain	24	100.0	18	94.7	9	90.0	0.295
Consider fibrinolytic if PCR is not available within 120 minutes	21	87.5	19	100.0	10	100.0	0.288
Monitor cardiac biomarkers	21	87.5	17	89.5	9	90.0	0.999
Consider an early invasive strategy for high-risk patients	8	33.3	8	42.1	5	50.0	0.579
Consider glycoprotein IIb/IIIa inhibitors in specific cases	8	33.3	8	42.1	3	30.0	0.806
Aim for normoglycemia with glycaemic control for diabetic patients	24	100.0	19	100.0	9	90.0	0.189
Encourage lifestyle modifications	21	87.5	17	89.5	9	90.0	0.999
Refer the patient to cardiac rehabilitation programs	12	50.0	7	36.8	1	10.0	0.107
Provide patients with formal discharge card instructions	20	83.3	15	78.9	9	90.0	0.803
Average total responses	-	75.0	-	78.9	-	70.0	-

* Fisher exact test.

Table 4 highlights the comparison of arrhythmias' management to the specialization degree and it reveals very good responses for prescribing anti-arrhythmic medications but variations in providing education about arrhythmias' medications and self-care with 83.3% for residents, 68.4% for sub-seniors, and 60% for senior doctors. The variation in responses regarding discussing the impact of lifestyle changes is 58.3% go to residents, 63,2% to sub-seniors, and 60% to senior doctors. Scheduling an ongoing appointment is the least action done by residents (45.8%) but a little bit better responses are seen for sub-senior and senior doctors (57.9% and 50% respectively).

Table 4: Doctors' adherence to the guidelines for managing arrhythmias in the CCU, (n = 53).

Topics	Degree of Speciality						
	Resident Doctor (n = 24)		Sub-senior Doctors (n = 19)		Senior Doctors (n = 10)		P-value*
	No.	%	No.	%	No.	%	
Prescribe anti-arrhythmic medications	23	95.8	19	100.0	10	100.0	0.999
Identify and treat underlying causes of arrhythmias	24	100.0	19	100.0	9	90.0	0.188
Educate about arrhythmia, medications, and self-care	20	83.3	13	68.4	6	60.0	0.277
Discuss the impact of lifestyle changes	14	58.3	12	63.2	6	60.0	0.999
Schedule ongoing arrhythmia appointment	11	45.8	11	57.9	5	50.0	0.768
Provide the patient with formal discharge card instructions	19	79.2	13	68.4	8	80.0	0.699
Average total responses	-	79.2	-	78.9	-	70.0	-

* Fisher exact test

DISCUSSION

Cardiovascular diseases emerge as the most significant medical concern because they account for more than 30% of deaths worldwide [8]. According to WHO in 2019 they accounted for nearly 17.9 million deaths, making them the first leading cause of mortality worldwide [9]. Adhering to the guidelines in managing patients enables healthcare providers to make informed decisions and deliver effective therapies to improve cardiac patients' well-being [10].

In the current study, adherence to respecting patients' autonomy was performed by only half of the senior doctors (50%), 94.7% for sub-seniors, and 87.5% for resident doctors, the same results were observed by Thompson et al [11] study among Mexican doctors in which the proportions were 58%, 97% and 89% for seniors, sub-seniors, and resident doctors respectively. This behavior may be explained by that senior doctors use their authority and experience to make their own decisions without taking patients' opinions. Providing privacy and ensuring quality of care were also performed by only half (50%) of senior doctors. The same results had been obtained from studies in Turkey (53%) [12], Iran (51%) [13], and China (55%) [14]. The improper provision of privacy and ensuring the quality of care for patients may be due to the insufficient staffing and resources at governmental hospitals, in addition to the absence of communication skills training programs at hospital levels.

The importance of early invasive strategy for high-risk patients in the current study displayed varying percentages with only one-third (33.3%) for residents, 42.1% for sub-seniors, and a half (50%) for senior doctors. Research conducted in California by Pelter and Michele [15] demonstrated similar results with 30%,40%, and 50% for residents, sub-seniors, and seniors respectively. Doctors may be hesitant to adopt highly invasive strategies because of the risks involved with such procedures.

Once more, the current study exhibited poor performance in the administration of glycoprotein inhibitors (GPIs) for special cases with only 33.3%, 42.1%, and 30% among residents, sub-seniors, and senior doctors respectively. A study conducted in USA by Soiza et al. [16] has shown approximately the same result. The low use of these medications may be attributed to the bleeding concerns.

Referring patients to cardiac rehabilitation programs showed the lowest result among seniors (only 10%), slightly increased among sub-seniors (36.8%), and better among resident doctors (50%). In contrast, research conducted in Brazil by Schon C. et al. [17] indicated that more than two-thirds of physicians refer their patients to rehabilitation programs following hospital discharge. The reason for this low response could be due to the limited access and availability of rehabilitation programs in our locality.

Arrhythmias can present as bradycardia, ventricular tachycardia, or atrial fibrillation. Their management is typically aims to control symptoms, reduce complications, and improve quality of life [18]. In the present study, patient's education about arrhythmias and self-care exhibited varying responses with a higher proportion (83.3%) for residents, (68.4%) for sub-seniors, and a least (60%) among senior doctors. A study conducted in Singapore by de Wit et al. [18] showed similar findings, the study suggests that there are opportunities to improve the care of arrhythmias by implementing effective health tools tailored for arrhythmias patients. The current study reveals variability in response regarding the discussion of lifestyle changes to control arrhythmia symptoms with 58.3%, 63.2%, and 60% for residents, sub-seniors, and senior doctors respectively. A similar trend was observed in a Sweden study by Amanda et al. [8] which illustrated that individuals with CVDs tended to exhibit more unhealthy habits. Experiencing cardiac issues often inspires people to improve their unhealthy habits to a better lifestyle to avoid the recurrence of their disease. Scheduling an ongoing appointment is the least action done by 45.8% of residents, 57.9% of sub-seniors, and 50% of seniors. These results were in line with a study in Germany by André et al. [19] where approximately half of physicians demonstrated that follow-up of patients through a structured program is better to understand the treatment and to adhere to the rehabilitation program accurately. The reason for this probably is that the patient's awareness of the importance of follow-up appointments is low.

CONCLUSION

This study reveals the challenges faced by physicians for the commitment to the guidelines in the CCU in Mosul City's hospitals. It highlights the differences in the ethical considerations and clinical practices among healthcare providers toward patients and emphasizes the critical need for standardized protocols which is essential to improve quality of care, save lives, and reduce the impact of heart diseases.

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