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Assessing The Effects of Hip Surgery on Arrhythmias in Iraqi Patients

Dr. Mahdi Yasir Jabbar
M.B.Ch.B., D.G.S. \ (General Surgeon)
Iraqi Ministry of Health, Wasit Health Department, Wasit, Iraq.
doctormehdi2016@gmail.com

Dr. Mahdi Issa Ighrayyib
M.B.Ch.B., D.M. \ (Internal Medicine)
Iraqi Ministry of Health, Wasit Health Department, Al Zahraa Teaching Hospital, Wasit, Iraq. mahdialquraishi@gmail.com

Dr. Abdulhussein Muhan Shukban
M.B.Ch.B., D.G.S. \ (General Surgeon)
Iraqi Ministry of Health, Wasit Health Department, Wasit, Iraq.
abdulhussein64@yahoo.com

Abstract. Background: Hip fractures are a prevalent cause of morbidity and mortality among the elderly. Advanced age correlates with higher chances of experiencing complications, including arrhythmias, after undergoing hip surgery. Objective: Our study primarily aimed to evaluate the impact of hip surgery on arrhythmias in Iraqi patients. Patients and methods: Our paper was conducted as a retrospective study aimed at investigating the impact of hip surgery on Iraqi patients with arrhythmias. We collected data from 93 cases, which were gathered from different hospitals in Iraq between 24th June 2022 and 18th May 2022. The study involved the input of clinical demographic outcomes of patients aged between 25 and 50, comprising both male and female genders. The BMI rates of patients with arrhythmias were classified into three sections: 18.5-24.9, 25-29.9, and above 30.

Clinical outcomes of the collected data were analysed using SPSS version 22.0. Results and discussion: Our study found that age has a significant impact on patients who suffer from arrhythmias. Where it was found that 43% percentage of patients with ages 40-50 years got surgery of hip and suffered to arrhythmias in comparison with patients with ages under those 40 years 32%. %). According to the BMI rate, the clinical outcomes were identified. The BMI rate of the patients that had almost of patients with a BMI above 30 got 40 (43.01%), but patients with (25-29.9) showed 30 (32.26%). Our data was identified prevalent preoperative underlying pathologies for patients, which

found almost half of patients with hypertension with 43%. Conducting length of stay of patients with arrhythmias in hospital for 14 days where outcomes were enrolled length of stay was found seven patients during last 14 days while 38 patients have processed during first two days. Conclusions: our results showed that tachyarrhythmia was one of the main factors that had an impact on patients with arrhythmia. Hypertension was a major risk factor in patients with acute myocardial infarction. Mortality rate has a negative correlation with hypertension, where the rise of hypertension during surgery may lead to the loss of patients who have arrhythmias.

Keywords: Tachyarrhythmia, Hip fractures, Mortality rate, and Arrhythmias.

Introduction

Hip fractures are a common source of morbidity and death in the elderly. Hip surgery which may involve fracture surgery or total hip replacement and poses a risk of complications [1]. Hip surgery refers to surgical procedures performed on the hip joint to repair or replace damaged hip bones and tissues. This type of surgery is commonly performed to relieve pain, improve mobility, and enhance the quality of life for individuals with hip problems. [2-5]

Advanced age is associated with an increased risk of adverse events and, including arrhythmias, after hip surgery [6]. Also, it found that patients aged 80 and older had a higher chance of experiencing major adverse events after revision of total hip arthroplasty compared to younger patients. Some studies confirmed that newly diagnosed atrial fibrillation (AF) after hip fracture repair was predictive of one-year mortality in elderly patients [7]. Furthermore, hip fracture repair and history of stroke were strong predictors of postoperative stroke in patients who underwent hip surgery. [8]

Hip fracture is a serious medical disorder with serious consequences as well as including death [9]. According to the International Osteoporosis Foundation, the prevalence of hip fractures is predicted to rise owing to an aging population globally [10-13]. There were 1.6 million cases of hip fractures worldwide in 2000, and this figure is expected to rise to 4.5-6.3 million by 2050 [14]. Studies have reported that people with hip fractures have a one-year mortality rate of up to 20-24%, and the risk of death persists for up to 5 years. In terms of functional results, 40% of patients with hip fractures were incapable of walking independently, where 60% needed help, and 33% were completely dependent or in a nursing home one year following hip fracture [15].

Preoperative assessment of cardiac function in hip fracture patients may lead to delayed therapy. Recent studies have indicated that the timeframe between injury and surgical fixation has significant effects on hip fracture mortality and morbidity [16]. Several literatures have outlined specific criteria for assessing heart function in patients undergoing noncardiac surgery in the preoperative phase. Nevertheless, current practice standards lack precision. Preoperative cardiac screening of patients with hip fractures delays operative therapy, where the benefit of the screening must be assessed against the harm caused by the delayed treatment [17]. The incidence of arrhythmias in patients who have undergone hip surgery varies depending on the study. According to a study published in 2016 [18], the incidence of perioperative atrial arrhythmia (PAA) within seven days of hip fracture surgery was 7.5% [19]. Also, the incidence of newly diagnosed AF among patients initially in sinus rhythm undergoing hip fracture repair was 3.7%, and that this was associated with increased one-year mortality [20].

Patients and methods

Our paper was presented as a retrospective study which interested to study and assess the effect of hip surgery on Iraqi patients with arrhythmias who, include 93 cases collected from Baghdad-Iraq hospitals which present between 24th June 2022 to 18th May 2022. Our study was entered data of clinical and demographic outcomes into patients with ages between 25 and 50 years for both gender males and females. Our rate BMI of patients with arrhythmias were classified into three sections which (18.5-24.9), (25-29.9), and Above 30. Data collected were analysed clinical outcomes using (SPSS) version 22.0.

To build up of methodology, clinical demographic data were conducted outcomes of patients with arrhythmias that include age, sex, BMI, and clinical operative of underlying pathologies. Also, clinical operative outcomes were detected in patients suffering from life-threatening arrhythmias that include Arrhythmias, arrhythmia-specific parameters involved in Heart Block, and Fast atrial fibrillation.

Furthermore, our study was analysed the rate of patients in correlation with length of stay in days in the hospital, which include time ranged for 15 days. Besides to that, data was determined on blood pressure used during surgery where it involved two kinds of blood pressure which are systolic blood pressure (SBP) and diastolic blood pressure (DBP), and ASA classification have I, II, and III, as well as outcomes of patients with arrhythmias, were distributed anaesthesia used during surgery that include general anaesthesia and regional anaesthesia. In addition, our clinical outcomes were determined by the post-operative mortality of patients for 25 months.

Results

***Table 1**: Distribution of hip surgery patients with arrhythmias based on ages.*

Ages	Number of patients: 93	Percentage (%)
25-30	23	24.73%
35-40	30	32.26%
45-50	40	43.01%

***Table 2**: Distribution of hip surgery patients with arrhythmias based on sex.*

SEX	NUMBER OF PATIENTS: 93	PERCENTAGE (%)
MALES	63	67.74%
FEMALES	30	32.26%

***Table 3**: Distribution of hip surgery patients with arrhythmias based on BMI.*

Classifications of BMI	Number of patients: 93	Percentage (%)
18.5-24.9	23	24.73%
25-29.9	30	32.26%
Above 30	40	43.01%

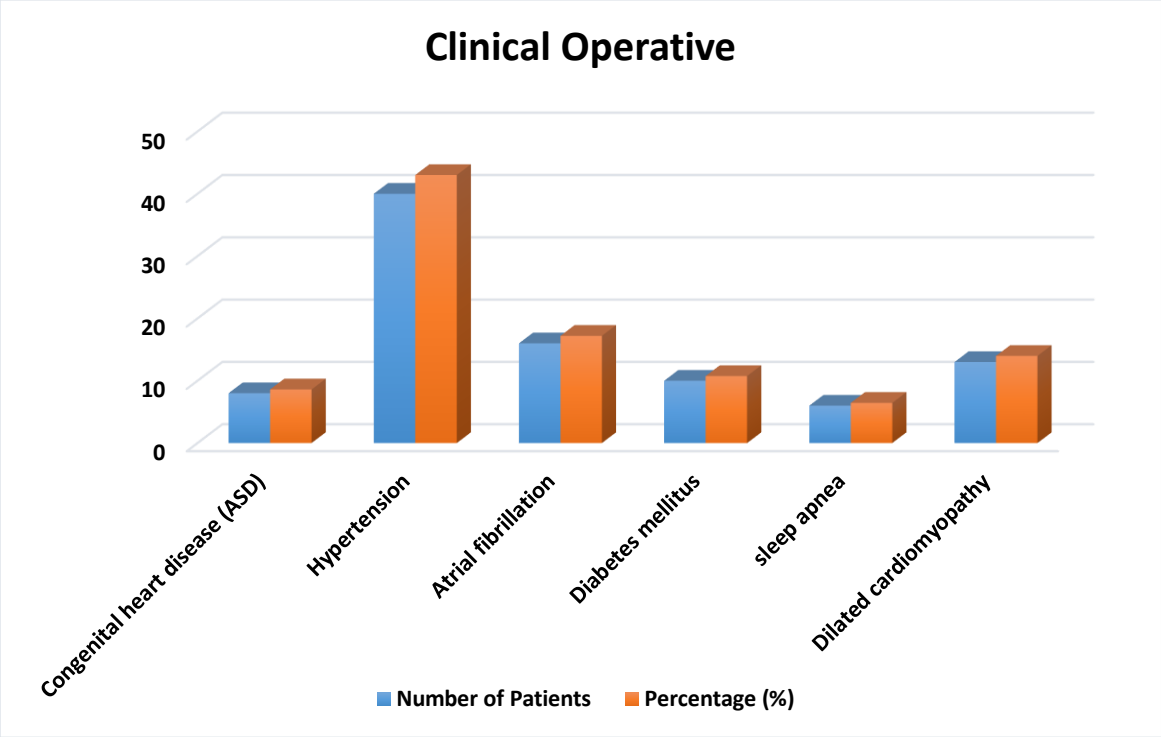

***Figure 1**: Identify prevalent preoperative underlying pathologies in patients with arrhythmias.*

***Table 4**: Investigate the outcomes of patients suffering from life-threatening arrhythmias.*

Parameters	*Frequency, No. 93*	*Percentage (%)*
Arrhythmias	**44**	**47.31%**
Bradyarrhythmia	12	27.27%

Tachyarrhythmia	32	72.73%
Arrhythmia specific parameters	**49**	**52.69%**
Heart Block	**10**	**22.73%**
Mobitz II AV-Block	2	2.15%
Complete AV-Block	8	8.60%
Fast atrial fibrillation	**13**	**29.55%**
Atrial fibrillation with other arrhythmias	7	53.85%
Atrial fibrillation	6	46.15%
Fast atrial flutter	***6***	***13.64%***
Supraventricular tachycardia	***6***	***13.64%***
Ventricular tachycardia	***8***	***18.18%***
Ventricular fibrillation	***6***	***13.64%***

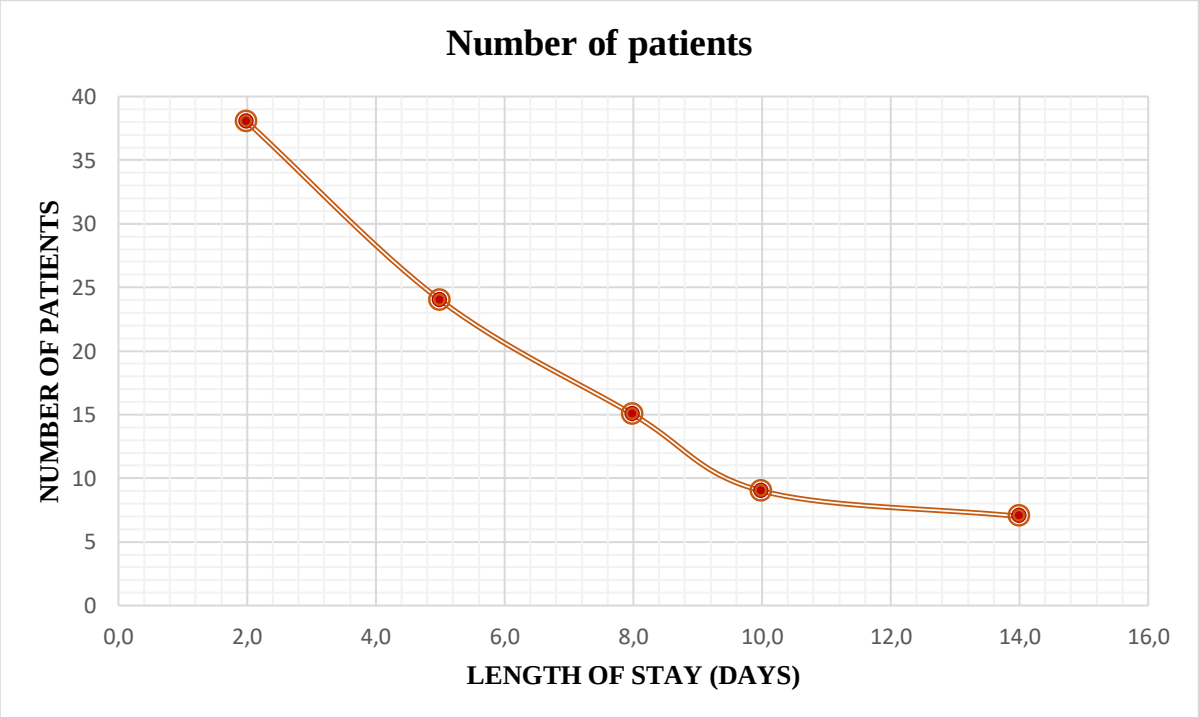

***Figure 2**: Conducting length of stay of patients with arrhythmias in hospital.*

***Table 5**: Clinical outcomes of patients with arrhythmias during surgery.*

Variables	*Patients, mean (93)*	*SD*
Blood pressure (BP)	**Mean± SD**	**Mean± SD**
Systolic blood pressure (SBP)	144.23	14.76
Diastolic blood pressure (DBP)	107.55	12.48
ASA	**N (%)**	**N (%)**
I	17	18.28%
II	36	38.71%
III	40	43.01%
Anaesthesia is used during surgery.	**N (%)**	**N (%)**
General anaesthesia	65	69.89%
Regional anaesthesia	28	30.11%

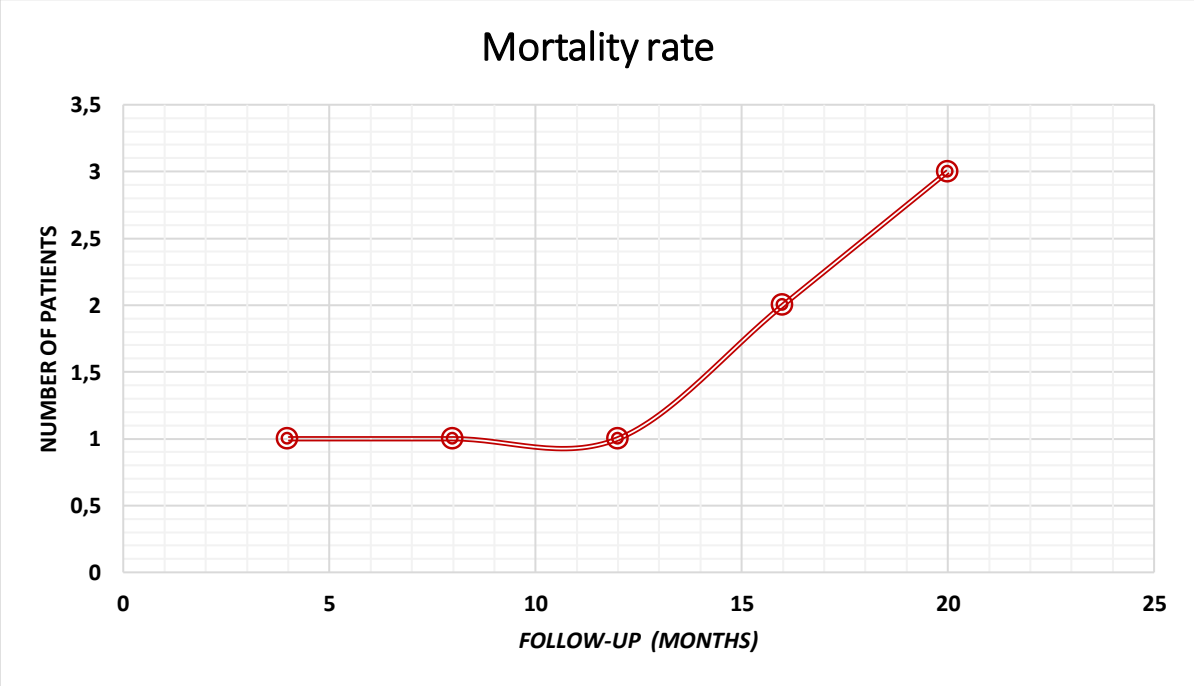

***Figure 3**: Post-operative mortality of patients.*

Discussion

In this study, collected data was analysed to study the impact of hip surgery on patients with arrhythmias during and postoperative, which was carried out in 93 cases for ages between 25-50 years. To follow that, our study found that age has a significant impact on patients who suffer from arrhythmias, where it was found that 43% percentage of patients with ages 40-50 years got surgery of hip and suffered to arrhythmias in comparison with patients with ages under those 40 years 32%. Also, clinical demographic results were enrolled that males had more cases, with 63 (67.74%), while females conducted an operative with 30 (32.26%). According to the BMI rate, the clinical outcomes were identified. The BMI rate of the patients that had almost of patients with a BMI above 30 got 40 (43.01%), but patients with (25-29.9) showed 30 (32.26%).

To progress the clinical and operative results, our data was identified prevalent preoperative underlying pathologies for patients, which found almost half of patients with hypertension with 43%, while atrial fibrillation (17.2%) and dilated cardiomyopathy (13.98%).

In addition, our results detected outcomes in patients with life-threatening arrhythmias, including tachyarrhythmia in 72.73% and bradyarrhythmia in 27.27%. In addition, rapid atrial fibrillation progressed in 46.15%, atrial fibrillation with other arrhythmias progressed in 53.85%, and supraventricular tachycardia progressed in 13.64%. Besides to that, data was Conducting the length of stay of patients with arrhythmias in the hospital for 14 days, where outcomes were enrolled. The length of stay was found in seven patients during the last 14 days, while 38 patients have processed during the first two days.

To further of outcomes, our data was examined a total of patients who conduct blood pressure after operations which found systolic blood pressure (SBP) has (144.23 ± 14.76) and diastolic blood pressure (DBP) has (107.55 ± 12.48) as well as results of anaesthesia used during surgery were defined patients who conducted surgery with general anaesthesia resulted in 69.89% while patients who conducted surgery with regional anaesthesia 30.11%.

According to the literature review, although atrial fibrillation and premature ventricular complex were common types. However, the percentage of Iraqi patients with hypertension were 16.3% had arrhythmia [21]. In similarly, another Iraqi study was found hypertension as a major risk factor on patients who have an acute myocardial infarction (AMI), which confirmed that arrhythmias were the most common complication of AMI in Iraq, accounting for 44.8% of patients [22].

According to a study published in 2022, results were provided on the prevalence of arrhythmias in Iraq, where it was found that the overall prevalence of arrhythmias increased with age and was higher in men than in women and that premature atrial and ventricular contractions and prolongation of the QT interval were more common in women. These findings also noted that obesity is common in Iraqi patients undergoing orthopaedic surgery in general and that older age was associated with overweight and obesity in Iraqi women [23].

As a result, some studies have discussed that patients treated non-operatively for hip fractures had a high mortality rate, with 74.4% of patients dying within 12 months [24]. Other factors associated with mortality after hip fracture surgery included increasing age, high ASA score, coronary artery disease, congestive heart failure, Alzheimer's disease, Parkinson's disease, malignancy, cementation, and perioperative complications such as hypotension. [25]

Conclusion

In conclusion, our results showed that tachyarrhythmia was one of the main factors that had an impact on patients with arrhythmia. Moreover, our study agrees that the rate prevalence of arrhythmias increased with age and was higher in men than in women. Hypertension was a major risk factor in patients with acute myocardial infarction. Although atrial fibrillation was a common factor that effect on patients with arrhythmias. However, the mortality rate has a negative correlation with hypertension, where the rise of hypertension during surgery may lead to the loss of patients who have arrhythmias. Due to that, outcomes were enrolled length of stay was found in 7 patients during last 14 days while 38 patients have processed during first two days.

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