The Effect of Age with Other Risk Factors and on Clinical Presentations of Patients with Atrial Fibrillation

تأثير العمر مع عوامل الاختطار الأخرى على الأعراض السريرية لمرضى الارتجاف الأذيني

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الخلاصة :

خلفية البحث: الإرجاف الأذيني هو تسارع لانظمي فوق البطيني، يتميز بتنشيط أذيني غير منسق ويكون متبوعا بتدهور الوظيفة الميكانيكية للأذينين

الهدف : دراسة تأثير العمر على عوامل الخطورة الأخرى وعلى الأعراض السريرية لمرضى الإرجاف الأذيني

المنهجية : هذه دراسة مقطعيه وصفيه أجريت في مركز إبن البيطار لأمراض القلب للمدة من الثاني من كانون الأول 2012 إلى الأول من نيسان 2012. تضمنت هذه الدراسة البالغين من العمر 18 سنة فما فوق من كلا الجنسين لمرضى يعانون من الإرجاف الأذيني الذين يراجعون المستشفى المختارة لأي شكوى كانت لديهم.

النتائج: مامجموعه 191 مريضا تبين أن 51.3% منهم ذكورا و 48.7% إناثا. وكانت نسبة المصابين بارتفاع ضغط الدم 48.7% وبقصور الشرايين التاجية 24.1% وبداء السكري 19.9% وبتشوهات القلب الخلقيه 2.6% و بإمراض الرئتين 5.2%.78.5% من المرضى كانوا يشتكون من الخفقان و 8.4% كانوا يعانون من الدوخه مع قيمة احصائيه مهمة للمرضى الذين هم دون الأربعين عاما من العمر. وأظهرت النتائج أيضا إن 99 مريضا (51.8%) كانوا بحاله غير مستقرة (أما يعانون من ذبحة صدريه أو هبوط في ضغط الدم أو وذمه رئوية). وكان انخفاض ضغط الدم أكثر تكرارا في المرضى تحت 65 سنه من العمر. وبواسطة الفحص الشعاعي تبين إن 45.5% من المرضى كان لديهم تضخما في القلب والذي كان أكثر تكرارا للمرضى تحت 65 عاما. أما فحص القلب بواسطة صدى القلب (الإيكو) فقد أظهر ان8. 72% من المرضى كان لديهم توسع في الأذين الأيسر و 45% كان لديهم قصور في وظيفة القلب الإنبساطيه.

الاستنتاج: إن حدوث الإرتجاف الأذيني له علاقة مهمة مع العمر ومع الجنس. وان العمر له تأثير مهم أيضا على بعض عوامل الخطورة وبعض المظاهر ألسريريه للإرتجاف الأذيني.

Abstract

Background: Atrial fibrillation(AF) is a supraventricular tachyarrhythmia characterized by uncoordinated atrial activation with consequent deterioration of atrial mechanical function.

Aims: To demonstrate the effect of the age on other risk factors of atrial fibrillation and the way of presentation of patient with atrial fibrillation.

Methods: This is a descriptive cross sectional study carried out at Ibn-Al-Bitar Cardiac Center from 2nd of January 2012 to the 1st of April 2012.The study included all adults 18 years and above of both sexes with atrial fibrillation who attended the selected hospital for any complaint**.**

Results: A total of 191 patients, about ninety eight patients(51.3%) were male and ninety three patients (48.7%)were female. 48.7% were hypertensive, 24.1% had ischemic heart disease.19.9% had diabetes mellitus .2.6% had congenital heart disease, and 5.2% had pulmonary diseases. 78.5% were complaining from palpitation and 8.4% from dizziness with a significant p value in patients below 40years(p=0.007,0.025)respectively.Ninety nine patients(51.8%) were hemodynamically unstable and presented with (angina, and or hypotension, and or pulmonary edema).Hypotension was more frequent in patients below 65 years with a significant p value(p = 0.000). On radiological examination ,45.5% had cardiomegaly which was more frequent in patients below 65years with a significant p value (p = 0.035). On echocardiographic examination ,72.8% had dilated left atrium (left atrial dimension above 40 mm)with a significant p value (p = 0.000). 45% had diastolic dysfunction with a significant p value (p = 0.000),23% had segmental wall motion abnormality with a significant p value (p= 0.001).

Conclusion: The incidence of atrial fibrillation is age and gender related and it has an important effect on certain risk factors and certain clinical parameters.

Key word: Atrial fibrillation; Effect of age;Risk factors;Presentation.

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INTRODUCTION

Atrial fibrillation (AF): is a supra ventricular tachyarrhythmia characterized by uncoordinated atrial activation with consequent deterioration of atrial mechanical function.(1) AF is the most common arrhythmia in clinical practice ,accounting for approximately one third of hospitalization for cardiac rhythm disturbances.(2) During the past 20 years ,there has been 66% increase in-hospital admissions for AF[3,4,5] due to a combination of factors including the aging of the population, a rising prevalence of chronic heart diseases and more frequent diagnosis through the use of ambulatory monitoring devices.AF is an extremely costly public health problem.[6,7] The estimated prevalence of AF is 0.4% to 1% in the general population, increasing with age .[8,9] The age adjusted prevalence of AF is higher in men [10,11], in whom the prevalence has more than doubled from the 1970s to 1990s while the prevalence in women has remained unchanged.[12] The median age of AF patients is about 75 year. Approximately 70%are between (65-85)years old.[8,13,14]

METHODOLOGY

This is a descriptive cross-sectional study to identify the effect of age on other risk factors of Atrial Fibrillation and the type of clinical presentation in patients with AF who attended to Ibn –Al-Bitar Cardiac Center in Baghdad city. This study was conducted from the second of Jan. 2012 to the first of April 2012. This study was conducted in Ibn-Al-Bitar Cardiac Center in Baghdad city. This center provided specialized health care services to all attendees from all Iraqi governorates. The sampling design was a non-probability convenient sample. The study population included all adult 18 years and above male and female individuals who attended the selected hospital for any complaint depending on the following selection criteria: 1.Age 18 years and above of both sexes. 2.All subjects were from Iraq. 3.All of the patients had AF. 4.All of the them accepted to participitate, and to have an interview. The subjects included in the study were interviewed according to a questionnaire , the questionnaires were filled by the researcher

through direct interview with the study population It included questions needed to gather information on certain socio – demographic variables (like age ,and sex), history of risk factors for AF (as hypertension, smoking , alcohol drinking, family history of AF,DM ,congenital heart disease ,coronary artery disease, pulmonary disease, thyroid disease). This questionnaire included also measurement of blood pressure , and anthropometric measurements (like Weight , Height and BMI). All the patients were subjected to all of the following investigations : electrocardiography; echocardiography ;chest X-ray and thyroid hormones estimation. Some of the patients were subjected to cardiac catheterization.

Statistical analysis

Statistical package for social sciences version 18(SPSSv.18) was used for data input and analysis. Chi square test for goodness of fit was used to test the significance of observed distribution (trend). Chi square test for independence was used to test the significance of association between discrete variables as appropriate, and in tables where expected values did not meet optimal operation of the test; condensation were done for the sake of statistical analysis.The statistical analysis applied at level of significance $\alpha = 0.05$ ($P \leq 0.05$).

RESULTS

A total of 191 patients were approached to be enrolled in the study .ninety eight patients(51.3%) were male ,and ninety three patients(48.7%)were female. The more frequent age group for both sexes was between(40-65Y). The least age group was <40Y;(21 patients).Fourteen patients(66.7%)below 40Y,were male while 39 patients(59.1%) above 65Y, were female. There was a small trend towards more male below 65Y, and more female above 65Y, but without significant p value. Twenty eight patients(14.7%) of the study population were smokers and 4 patients(2.1%) were ex-smokers, nineteen patients(18.3%) of the smokers were between (40-65Y.).Three is a significant p value(p=0.041) towards non smokers in all age groups. Six patients(3.1%)had a history of alcohol intake. Fifty four patients(28.3%)were obese with a BMI >30.Nine patients(4.7%) had a positive family history of AF.(table 1)

Table 1: Distribution of study sample according to initial and basic clinical characteristics.

Variables		Age Group (year)			Total	
		< 40	40 - 65	> 65		
		N= 21	N= 104	N= 66	N= 191	P Value
		100.0%	100.0%	100.0%	100.0%	
Sex						
• Male	N	14	57	27	98	
	%	66.7%	54.8%	40.9%	51.3%	
• Female	N	7	47	39	93	0.069

	%	33.3%	45.2%	59.1%	48.7%	
Smoking Status						
• Smoker	N	5	19	4	28	
	%	23.8%	18.3%	6.1%	14.7%	
• Non-smoker	N	16	82	61	159	**0.041***
	%	76.2%	78.8%	92.4%	83.2%	
• Ex-smoker	N	0	3	1	4	
	%	0.0%	2.9%	1.5%	2.1%	
Positive History of Alcohol Drinking	N	0	4	2	6	0.949
	%	0.0%	3.8%	3.0%	3.1%	
Obesity	N	6	30	18	54	0.975
	%	28.6%	28.8%	27.3%	28.3%	
Positive Family History of AF	N	2	4	3	9	0.532
	%	9.5%	3.8%	4.5%	4.7%	

*after combining ex-smokers with non-smokers.

Most of the patients (54.45%) fall in the age group between 40-65Y;(34.55%) of patients were >65Y.and (10.99%) of patients were <40Y. Ninety three patients(48.7%) were hypertensive. Hypertension was more common in patients above 40 Y.with significant p value(p=0.000) and 46 patients(24.1%) had ischemic heart disease;21patients(11%) had angina while the remaining 25 patients (13.1%) had MI. Ischemic heart disease was more frequent in patients above 40Y.,with a significant p value (p=0.012). Thirty eight patients(19.9%) were diabetics. Five patients(2.6%) had congenital heart disease. Of those patients with congenital heart disease ,3 patients were below 40Y.,and 2 patients were between (40-65Y.).Ten patients (5.2%) had pulmonary diseases,4 patients had chronic bronchitis,4 patients had asthma, one patient had bronchiectasis , and one patient had fibrosing alveolitis.(Table 2).

Table 2:distribution of patients according to risk factors

		Age Group (year)			**Total**	
		< 40	**40 - 65**	**> 65**		
Risk Factors		**N = 21**	**N= 104**	**N= 66**	**191**	**P Value**
		100.0%	**100.0%**	**100.0%**	**100.0%**	
Hypertensive	N	1	45	47	93	**0.000**
	%	4.8%	43.3%	71.2%	48.7%	
History of IHD						
• Angina	N	0	10	11	21	
	%	0.0%	9.6%	16.7%	11.0%	
• MI	N	1	10	14	25	**0.012**
	%	4.8%	9.6%	21.2%	13.1%	
• None	N	20	84	41	145	

	%	95.2%	80.8%	62.1%	75.9%	
Diabetic	N	1	21	16	38	0.149
	%	4.8%	20.2%	24.2%	19.9%	
Congenital heart disease						
• Present						
	N	3	2	0	5	
	%	14.3%	1.9%	0.0%	2.6%	0.136[A]
• Absent	N	18	102	66	186	
	%	85.7%	98.1%	100.0%	97.4%	
Types of Pulmonary Disease Found in AF Patients						
• Chronic Bronchitis	N	0	2	2	4	
	%	0.0%	1.9%	3.0%	2.1%	
• Asthma	N	0	2	2	4	
	%	0.0%	1.9%	3.0%	2.1%	
• Bronchiectasis	N	0	0	1	1	0.328[B]
	%	0.0%	0.0%	1.5%	0.5%	
• Fibrosing Alveolitis	N	0	1	0	1	
	%	0.0%	1.0%	0.0%	0.5%	
Total with Pulmonary Disease	N	0	5	5	10	
	%	0.0%	4.9%	7.6%	5.2%	

[A] for age < 40year & age ≥40 year against presence or absence of congenital heart disease.

[B] for age < 40year & age ≥40 year against with and without pulmonary disease.

One hundred fifty patients(78.5%)were complaining from palpitation which was more common in patients below 65Y.,wih a significant p value (p = 0.007) , 116 patients(60.7%) had dyspnea, 16 patients(8.4%) had dizziness which was more in patients below 40Y.,with a significant p value (p = 0.025), 23 patients(12%) were suffering from fatigue, and only 5 patients(2.6%) had syncope. Twenty two patients(11.5%) were presented with thromboembolic event(stroke).(Table 3).

Table 3:distribution of cases according to the clinical presentation

Clinical Presentation		**Age Group (year)**			**Total**	
		< 40	**40 - 65**	**> 65**		
		N= 21	**N= 104**	**N= 66**	**N= 191**	**P Value**
		100.0%	**100.0%**	**100.0%**	**100.0%**	
Palpitation	N	20	86	44	150	**0.007**
	%	95.2%	82.7%	66.7%	78.5%	
Dyspnea	N	9	66	41	116	0.203
	%	42.9%	63.5%	62.1%	60.7%	
Dizziness	N	5	7	4	16	**0.025**
	%	23.8%	6.7%	6.1%	8.4%	

Fatigue	N	3	9	11	23	0.278
	%	14.3%	8.7%	16.7%	12.0%	
Syncope	N	0	2	3	5	0.225
	%	0.0%	1.9%	4.5%	2.6%	
Thromboembolic Event	N	2	10	10	22	0.520
	%	9.5%	9.6%	15.2%	11.5%	

Ninety nine patients(51.8%) of the study population were hemodynamically unstable.Sixteen patients(16.2%) presented with angina, 10 patients (10.1%) had got hypotension with a significant p value in patients below40Y.(p= 0.000),63 patients(63.6%) presented with pulmonary edema, 2 patients(2%)had angina, hypotension ,and pulmonary edema at the time of presentation. Five patients (5.1% patients) had angina ,and pulmonary edema, and 2 patients (2%) had pulmonary edema ,and hypotension. One patient (1%) had angina ,and hypotension.(table 4).

Table 4 : Distribution of Hemodynamically unstable patients with AF according to the underlying cause of hemodynamic instability.

		Age Group (year)			**Total**	
		< 40	**40 - 65**	**> 65**		
		N= 7	**N= 58**	**N= 34**	**N= 99**	**P**
		100.0%	**100.0%**	**100.0%**	**100.0%**	**Value**
Angina	N	0	12	4	16	0.258
	%	0.0%	20.7%	11.8%	16.2%	
Hypotension	N	4	5	1	10	**0.000**
	%	57.1%	8.6%	2.9%	10.1%	
Pulmonary Edema	N	3	36	24	63	0.354
	%	42.9%	62.1%	70.6%	63.6%	
Angina, Hypotension & Pulmonary Edema	N	0	1	1	2	0.854
	%	0.0%	1.7%	2.9%	2.0%	
Angina & Pulmonary Edema	N	0	1	4	5	0.086
	%	0.0%	1.7%	11.8%	5.1%	
Hypotension & Pulmonary Edema	N	0	2	0	2	---*
	%	0.0%	3.4%	0.0%	2.0%	
Angina & Hypotension	N	0	1	0	1	---*
	%	0.0%	1.7%	0.0%	1.0%	

*cannot be calculated due to small sized cells..

All the patients were sent for ECG and their AF was confirmed with this investigatory tool. One hundred fifty five patients(81.2%) had no ischemic changes, and 18.8% had ischemic changes ;19 patients(10%)had Q wave on ECG, 14 patients(7.3%) had ST depression, 2 patients (1%) had T wave inversion, and 1 patient(0.5%) had ST elevation. One hundred seventy seven patients(92.7%) had no chamber enlargement, and only11 patients(5.8%) had LVH ,and 3 patients(1.6%) had RV hypertrophy. One hundred seventy five patients(91.6%) had no conduction defect while 9 patients(4.7%) had LBBB , 6 patients(3.1%) had RBBB ,and only 1 patient(0.5%) had LAHB. Five patients(2.6%) had WPW, one patient(0.5%) had short QT syndrome ,and one patient(0.5%) had Brugada syndrome.

Chest X-ray was done for all patients of the study ; 87 patients(45.5%) had cardiomegaly which was more in patients above 40Y.,with a significant P value(p=0.035),72patients(37.7%) had pulmonary edema, and one patient(0.5%) had pericardial calcification .

All of the patients in the study were subjected to echocardiogrphic examination. 60 patients (31.4%) had reduced LVEF(LVEF <50%), 39 patients(20.4%) had dilated RA and 139 patients(72.8%) had dilated LA with a significant p value (p= 0.000)for all age groups) . Seventy patients(36.6%) had dilated LV which was more frequent in patients above40Y.,

with a significant p value(p=0.005) , 51 patients(26.7%) had dilated RV, and one patient (0.5%) had atrophied RV with a significant p value (p = 0.003), after condensing the echocardiogrphic findings into normal and abnormal. Seventy three patients(38.2%)had mitral valve disease, 36 patients(18.8%) had MR, 28 patients(14.7%) had MS, 5 patients(2.6%) had MS-MR, 3 patients(1.6%) had MVP-MR, and one patient(0.5%) had MVP with a significant p value (p = 0.048) after condensing the echocardiogrphic findings into mitral valve disease was present or not. Twenty six patients(13.5%)had aortic valve disease; 23 patients(12%) had AR. 2 patients(1%) had AS, and one patient(0.5%)had AS-AR with a significant p value (p = 0.043) after condensing the echocardiogrphic findings into aortic valve disease was present or not. Seventeen patients(8.9%) had TR ,one patient (0.5%) had TS. Eighty six patients(45%) had diastolic dysfunction which was more frequent in patients above 40Y.,with a significant p value (p =0.000). Forty four patients(23%) had segmental wall motion abnormality which was more frequent in patients above 40Y.,with a significant p value (p = 0.001). Eleven patients(5.8%) had concentric LVH. Twenty two patients (11%) had DCM, 3 patients (1.6%) had RCM , 2 patients (1%) had ARVC, and one patient (0.5%) had HCM . All 0f the study population subjected to thyroid hormones estimation; 3 patients(1.6%) had hyperthyroidism, and 3 patients (1.6%) had hypothyroidism without a significant p value. Fifty three patients(27.7%) were subjected to cardiac catheterization ; 25 patients(47.2%) had impaired LV function , 17 patients (32.1%) had MR, 15 patients(28.3%) had CAD, 9 patients (17%) had AR , 3 patients (5.7%) had AS.

Table 5 :Distribution of patients with AF without risk factors

Age group (years)

Sex	<40	40-65	>65	Total
Male	1	1	1	3
Female	0	4	2	6

Table (5) shows that only 9 out of 191 patients have no risk factors 3 of them were male and , 6 of them were female, 1 male in each age group while 4 female between 40- 65 Y. ,and 2 above 65 Y.

DISCUSSION

In this study ,the number of patients with AF was increasing by about 2 folds with each decade.This result goes with Framingham study.(11) The number of men and women with AF was almost equal , but it was frequent in men below 65Y.,while above 65Y. it was more in women,this result is comparable with Copenhagen city heart study.[12]

In this study about 16.8% of the patients had a positive history of smoking . In Rotterdam study, cigarette smoking is associated with increased risk of AF.(15) We also found that non-smoker significantly constituted the majority among each group of AF patients,this is because of other prevailing risk factors predisposing for AF in cohort of patients included in this study.

Only 3.1% of the study population gave a history of alcohol consumption which was much lower than that registered in European and north American study; the explanation for this either patient denial or the population of the study being Muslims and the amount of alcohol intake is less than that of the European and American patients. [16]

28.3% of the study population were obese with a BMI > 30,and the age has no significant effect on the incidence of AF in obese patients.Wang TJ et al found in his study that there was an age –adjusted rate for AF increased across the three BMI categories in men and women. [17] Similar finding was found in Danish,Diet,Cancer,and Health study. [18]

Nine patients(4.7%) of the study population had a family history of AF, 5 of them had a positive history of familial cardiomyopathies and only 4 patients had no family history of

cardiomyopathy, but still the results of this study was below the European and north American registries due to shortage of diagnosing the molecular defect and specific chromosomal loci linked to familial AF.[19,20,21]

Hypertension was a significant predictor for the development of AF and was the most common association with AF and present in 48.7% of cases ,the majority of patients were above 40Y. of age this finding coincides with West Birmingham AF project which found 37% of patients with AF had hypertension[22], and in Euro Heart Survey on AF in which hypertension was the most prevalent clinical association.[23]

In this study ischemic heart disease was the second most common association with AF (24.1%), and all cases except one were above the age of 40Y.,this is because the study was done in a tertiary center ,This result coincides with West Birmingham AF Project which found that 29% of patients with AF had associated ischemic heart disease.[22]

Diabetes was associated with higher risk of developing AF , and the risk was higher with longer duration of DM , and worse glycemic control.[24] In the current study 19.9% were diabetics which is a comparable result to Sascha et al study in 2010 which was found to be (17.9%).[24]

2.6% of the study population had congenital heart disease which was less than registered in Bouchardy et al study in 2009 which was (9%).In Bouchardy et al study there was an increasing incidence of AF with increasing age , while the reverse in the current study is true probably due to the patients with congenital heart disease were shortly lived in Iraq because they had not undergone appropriate surgical treatment. [25]

Impairment of pulmonary function such as in COPD , and fibrosing lung diseases is an independent risk factor for AF which is documented by Takahata study done by Yoko et al in 2011, and Copenhagen city heart study (2003) ,in these two studies there was an increasing incidence of AF with increasing age ,and increasing severity of pulmonary function impairment. In this study only 5.2% of the patients had pulmonary diseases which is less than in the previous two studies ,the probable explanation for that was younger age group in the current study.[26,27]

In this study palpitation was the commonest complaint and constitutes around 78.5% (more frequent in patients below 65Y.) with significant P value, while in Salih A. Bin Salih et al study it was the second common presentation and constitute around 24.5%.[28] Dyspnea present in 60.7% in the current study which is comparable to the Salih A. Bin Salih et al study where it was present in 59.3%.[28] Dizziness was present in 8.4% of the population in this study which was more frequent in population below 40Y. with significant P value while syncope present in only 2.6% with no difference in all age groups ;collectively dizziness and syncope constitute 11% as a presenting features while in Salih A. Bin Salih et al study both constitute 6.25% as a presenting features.[28]

In this study the occurrence of angina was 16.2% of the pastients.This was comparable to Salih A. Bin Salih et al study in which angina was present in 13.4%. pulmonary edema was found in 63.6% of patients in the current study which is more than what was registered in in Salih A. Bin Salih et al which was found to be 26.25% of patients, the explanations for this difference were in this study more cases with cardiomegaly on chest radiograph and reduced left ventricular ejection fraction on Echocardiography in comparison with Salih A. Bin Salih et al study .[28]

In this study the patients who where <40Y. were poorly tolerating AF because the majority had an underlying cardiac disease ,six with mitral valve disease ,three with WPW syndrome ,three with congenital heart disease ,two with aortic valve disease , one with MI and one

withrestrictive cardiomyopathy therefore hypotension was more evident in patients below 40Y. with significant P value , and till now there is no registered study to compare with.

The presence of ischemic changes on ECG constitute 18.8% of patients included in the study,this result was comparable to Salih A. Bin Salih et al study (19.8%).[28] Left ventricular hypertrophy (LVH) was present in 5.8% of patients in the this study ,while in Salih A. Bin Salih et al study it was present in 11.2%.This difference probably because of more hypertensive patients in Salih A. Bin Salih et al study , than in this study .(28)

In this study the presence of cardiomegaly and pulmonary congestion on chest radiograph was found in 45.5%and 37.7% respectively while it was 12.4% and 16.9% respectively in Salih A. Bin Salih et al study, this difference occurred because the population in the current study had more LV dysfunction than in Salih A. Bin Salih et al study (31.4% versus 27.4%).[28)

On echocardiographic examination the presence of dilated LV in this study was 36.6% of patient and left ventricular ejection fraction (LVEF) was reduced in 31.4% of patients , while in one study dilated LV and reduced LVEF was found to be 17.5% and 31.5 respectively.(28) In the current study dilated RV was found in 38.2% of the patients;this is due to pulmonary hypertension secondary to significant mitral valve disease. In this study 38.2% of the patients had mitral valve disease and 13.5% had aortic valve disease while in Sultan et al study, and Salih A.Bin Salih et al study only 23.6% of the patients had either mitral or aortic valve disease or combined ;this difference is probably due to high prevalence of rheumatic heart disease in Iraqi population. [28,29] Echocardiographic finding of diastolic dysfunction as evidence of hypertension and ischemic heart disease was significantly more in patients above the age of 40;.this is also documented by West Birmingham AF Project (1997).[22] Segmental wall motion abnormality as a usual echocardiographic finding in patients with ischemic heart disease with a significant P value in patients above 40 years, this result was comparable to West Birmingham AF Project (1997).[22]

In this study,15.2% of the patient had cardiomyopathy which either dilated cardiomyopathy (DCM),hypertrophic cardiomyopathy(HCM) ,restrictive cardiomyopathy(RCM) or, arrythmogenic right ventricular cardiomyopathy(ARVC) while in Salih A.Bin Salih et al study only 5.8% had either DCM or HCM and there was neither RCM nor ARVC ,this is probably due to small number of patients included in this study and also the patients with cardiomyopathy in this study had a strong family history of the same illness .[28]

Thyrotoxicosis was a well known risk factor for AF, only 1.6% of the study population had a high levels of the thyroid hormones and only one with overt hyperthyroidism and the other two with subclinical hyperthyroidism, this finding was comparable with Rotterdam study.[30] Hypothyroidism is not a risk factor for AF and the incidence of AF in hypothyroid patients is just like the population with normal thyroid hormones unless there is hypertension or ischemic heart disease as a complication of hypothyroidism which increase the incidence of AF.[31]

In conclusion,the incidence of AF is age and gender related and results in a very substantial life time risk.Age has an important effect on certain risk factors and certain clinical parameters.

CONCLUSION:

The incidence of atrial fibrillation is age and gender related and it has an important effect on certain risk factors and certain clinical parameters

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