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DOCTORAL THESIS

THE ISSUE OF RESTITUTION AND MAINTENANCE OF  
SINUS RHYTHM IN ATRIAL FIBRILLATION

- ABSTRACT -

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## ABSTRACT

Atrial fibrillation is a heart disease which is an important public issue because of its association with morbidity and mortality rates at increasingly higher, here including long-term increase risk of stroke and heart failure. Independent of disease severity, atrial fibrillation is associated with impaired quality of life.

Atrial fibrillation the most common and known cardiac arrhythmia in most countries of the world, posing a serious risk for transient ischemic attack. Predisposing factors for developing atrial fibrillation are the causes that lead to the appearance of heart failure, mitral regurgitation and last but not least hypertension. Some classes of antihypertensive agents may decrease the risk of arrhythmias. The mechanism by which these antihypertensive drugs reduce the likelihood of

atrial fibrillation is unknown, although some studies suggest that these drugs interfere with the rennin-angiotensin system through which influence cardiac remodeling, who is believed that she would influence the maintenance of sinus rhythm after convulsion or the reappearance of recurrent atrial fibrillation. The risk of embolic complication is six times higher in patients with atrial fibrillation compared with patients with sinus rhythm. Approximately 15-20% of stroke cases occur in people with atrial fibrillation.

Despite the contradictions that exist in terms of effectiveness and adverse reactions that occur over time, antiarrhythmic therapy is generally used to prevent recurrence of atrial fibrillation. The likelihood of recurrence of the disease between 6 and 12 month is almost 50% with most medicines. An alternative to drug therapy has become lately catheter ablation who produces removing the source or trigger that cause atrial fibrillation. In recent years many studies have been the focus of studying the effectiveness of this type of treatment to existing treatments.

While the incidence of atrial fibrillation continues to grow, it is important to identify treatments that are safe, effective for this type of disease and also to improve patient symptoms and its daily life. Recommended treatments for the management of this arrhythmia are primarily geared toward the safety of the patients. The choice of which strategy to follow in the treatment of atrial fibrillation is not without controversy.

### **DEFINITION**

Atrial fibrillation is a supraventricular tachyarrhythmia characterized by ectopic electrical activation with consequent deterioration of cardiac function. The ECG is characterized by replacement of the "p" waves with rapid oscillations of different amplitudes associated with an irregular and rapid ventricular response when atrioventricular node is intact. [1]<sup>1</sup>.

Ventricular response depends on electrophysiological properties of atrioventricular node and other tissue management, sympathetic and vagal tone, the presence or absence of leadership and the pathways of drug action. Regular cardiac cycle is possible in the presence of atrioventricular block or AV junctional tachycardia. [1].

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<sup>1</sup> Guidelines for the management of atrial fibrillation. The Task Force for the Management of Atrial Fibrillation of the European Society of Cardiology (ESC). European Heart Journal. 2010; 31: 2369 – 2429.

## **EPIDEMIOLOGY**

Atrial fibrillation is the most common arrhythmia, approximately 1/3 of patients with arrhythmia have this disease. Supported data shows that atrial fibrillation is a 2 - to the frequency of cardiac arrhythmias. It is more common in men than in women and its prevalence increases with age. Atrial fibrillation is relatively rare under 50 years, but people over 65 years becomes progressively more frequent, because after 80 years to occur in 10% of subjects.

The prevalence of AF is estimated at 1-2% of the general population, about 2.2 million people in the U.S. and over 6 million in EU suffering from atrial fibrillation. According Framing Heart Study incidence of atrial fibrillation by age is divided as follows:

- under 50 years atrial fibrillation has a prevalence of 0.2%
- 50 - 60 years the prevalence is 1%
- 60 - 80 years the prevalence is 2-5%
- over 80 years the prevalence is 6-10%

The same study reported an annual increase with 0.1% of the incidence of atrial fibrillation. In particular the incidence increases to 20-40% after cardiac surgery. Mortality in patients with atrial fibrillation is 2 times higher compared to people with sinus rhythm. According to ESC prevalence of this disease can double in the next 50 years. In the past 20 years has been a 66% increase in hospitalizations for atrial fibrillation due to factors including: age population, increasing prevalence of chronic heart disease and more frequent diagnosis through use of ambulatory monitoring devices. Atrial fibrillation is a costly health problem which includes the cost of hospitalization  $\approx 52\%$   $\approx 23\%$  medication, consultation  $\approx 9\%$ , other investigations  $\approx 8\%$ , loss of work  $\approx 6\%$ , paramedical procedures  $\approx 2\%$ .

## **CLASSIFICATION**

Different classifications have been proposed for atrial fibrillation. One is based on the changes on the ECG. Another is based on endocardial and epicardial recording electrical activity. To be clinically useful classification should be based on a sufficient number of specific implications it has therapy.

According to ESC, clinically is distinguish five types of atrial fibrillation based on the presence and duration of this atrial arrhythmia [1]:

1. AF diagnosed for the first time - is considered first diagnosed atrial fibrillation in a patient regardless of the duration of arrhythmia and the presence and severity of symptoms of the disease.
2. Paroxysmal AF – the AF is ending by itself usually within 48 h. Although AF paroxysms may continue up to 7 days, and the time of 48h is clinically important because after this time is low probability of spontaneous conversion and anticoagulation should be considered .
3. Persistent atrial fibrillation – is the arrhythmia that occurs when an episode of AF lasts more than seven days, or is necessary to make a drug or electrical conversions.
4. Long-standing persistent atrial fibrillation - is AF that last more than a year and it is necessary to consider a heart rate control strategy.
5. Permanent atrial fibrillation - is considered when the arrhythmia is supported both by the patient and the physician. Therefore heart rate control interventions are not pursued in these patients. If adopted a therapeutic strategy to control heart rate is regarded as lasting persistent AF.

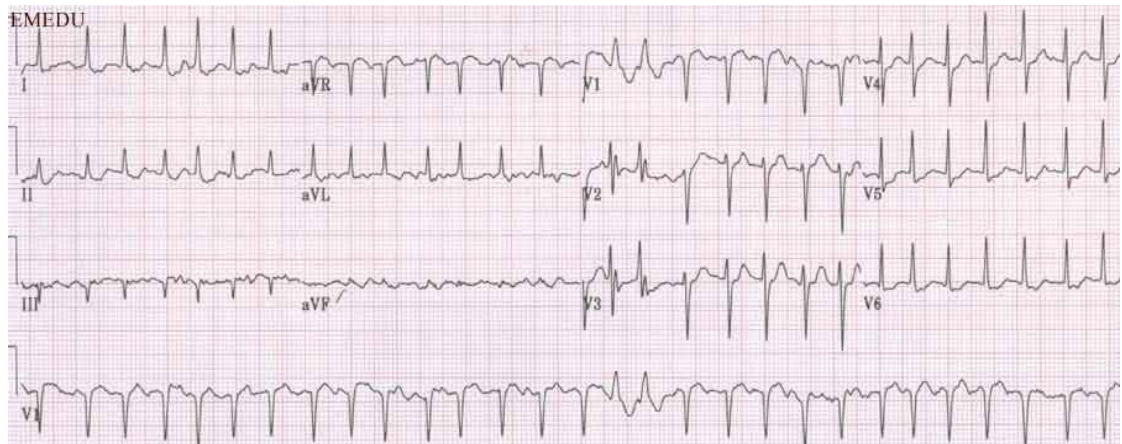
Secondary atrial fibrillation is the that who occur during illness. Sometimes it is used the term, isolated atrial fibrillation, who had different definitions over time, but generally this terminology applies to young individuals (under 60 years) without other cardiopulmonary disease or hyperthyroidism, with clinical or ultrasound evidence. These patients have a favorable prognosis with few developments to embolism or to death. In time this patients may evolve from isolated atrial fibrillation to other atrial fibrillation and with the discovery of other cardiac changes may due to this arrhythmia, like the left atrial hypertrophy, which can cause blood stasis at this level and thus increase the risk of embolism and death. The identification of different clinical risk factors for thromboembolism, stroke, transient ischemic, they had led to publication of the various models for calculate the risk belonging to these complications. Such a scheme is CHADS score that takes into account many factors that increase the risk of developing these complications: heart failure, hypertension, age, diabetes mellitus, history of stroke. Thus according to this score can appreciate the need for anticoagulation or antiplatelet therapy administration. [1].

## CAUSES OF ATRIAL FIBRILLATION

The causes of atrial fibrillation include: hypertension, coronary disease and acute myocardial infarction, symptomatic heart failure, heart valve disease (valvular disease), cardiomyopathy, myocarditis, rheumatic heart disease, congenital heart disease, pericarditis and endocarditis, Wolff-Parkinson syndrome -White, cardiac surgery, tachycardiomyopathy, thyroid dysfunction, diabetes, obesity.

## INVESTIGATIONS

Electrocardiography is the most effective method used to detect atrial fibrillation. ECG is recording the electrical activity of the heart. Usually with it is done the medical history, physical examination and a chest radiography. During the general examination can measure blood pressure to detect cases of hypertension.



If you suspect episodic atrial fibrillation, you can use a device that continuously records the heart rate, usually over a period of 24 hours. This process is known as an Holter electrocardiogram or ECG of 24 hours.

It can perform other tests that can determine if there is a valvular or myocardial. Exercise testing indicates whether or not impairment of coronary vessels. Echocardiogram brings many structural and functional information about the heart, it may reveal impairment of the valves, and also indicate whether or not heart failure or myocardial infarction. If in atrial

fibrillation is administered anticoagulation treatment, repeated tests are needed to assess the ability of blood coagulation (prothrombin time, INR, etc.).

### **THERAPY OF ATRIAL FIBRILLATION**

Restoring sinus rhythm can be achieved by pharmacological, electrical cardioversion and catheter ablation. Some studies claim that immediate cardioversion success largely depends on the duration of arrhythmia and if the atrial fibrillation is installed for more than 48 hours, cardioversion had increased the risk of developing stroke and for that reason the anticoagulant management it is necessary for two weeks prior to electrical cardioversion. If atrial fibrillation is installed less than 48 hours, for restoring sinus rhythm it is using cardioversion with drugs therapy or low-voltage electric shocks.

The presence of organic pathology affects cardioversion success, but it is widely accepted as a risk factor, but previous studies suggest that left atrial size reflects the duration of atrial fibrillation and does not influence the outcome of cardioversion and maintain sinus rhythm life if it does not exceed 60 mm.

The thesis is divided into eight chapters, divided into two parts:

- A general part in which is presented the definition, the epidemiology, classification, causes, pathophysiology, investigations, management, prognosis, treatment of atrial fibrillation
- A special personal contributions, it is investigated the efficiency of conversion of atrial fibrillation and the efficiency of the treatment of patients after conversion and the implications of ultrasound parameters in the prognostic of atrial fibrillation.

### **THE AIM OF THE THESIS**

A study performed in Cardiology Clinic of Sibiu Emergency Hospital, aimed at studying the evolution of atrial fibrillation after conversion and assessing the effectiveness of restoring and maintaining sinus rhythm in two treatment modalities: electrical conversion and pharmacological conversion.

Exploration targets in this study were:

- assessment of the effectiveness of each treatment in part in restoring sinus rhythm in patients with atrial fibrillation
- assessment of the duration of sinus rhythm maintenance for each type of treatment



- assessing the effect of preventing recurrence of atrial fibrillation after conversion as a result of treatment

- studying the dynamics of myocardial contractile function of atrium after conversion

This is an prospective study aimed at 320 patients diagnosed with atrial fibrillation in the period 2009 – 2010 in the Cardiology Clinic of Sibiu Emergency Hospital, both men and women, regardless of age, with paroxysmal atrial fibrillation and persistent atrial fibrillation, in the presence of ischemic heart disease, hypertension and dilated cardiomyopathy, and having left atrium size less than 60 mm and duration of atrial fibrillation over 48 hours.

Inclusion criteria:

- patients with paroxysmal atrial fibrillation or persistent atrial fibrillation in the presence of ischemic heart disease, hypertension or dilated cardiomyopathy and who have left atrium size less than 60 mm and duration of atrial fibrillation over 48 hours in the absence of cardiac valvulopathy.

Exclusion criteria:

- patients with left atrium size over 60 mm
- patients with thyroid dysfunction
- congenital heart diseases
- cardiac tumors
- patients with cardiac valvulopathy

Restoring sinus rhythm by electrical conversion was obtained by external electrical shock after two weeks of oral anticoagulation in the case of atrial fibrillation older than 48 hours, which will be continued after electrical conversion. The electrical conversion was performed by administering electrical shock of 100 – 200 J, maximum 3 consecutive shocks according to protocol.

For the pharmacological conversion we used Amiodarone, initially 450 mg in 500 ml glucose infusion (the average loading dose of 5 mg/kg body), then 300 mg Amiodarone in infusion if we don't get the conversion to sinus rhythm after the first conversion attempt from pharmacological conversion. Patients who recovered sinus rhythm were divided into several groups:

- patients who have received post conversion Amiodarone 200 mg/day
- patients who have received post conversion Amiodarone 200mg/day + Bisoprolol 5 mg/day

- patients who have received post conversion Amiodarone + Converting enzyme inhibitor
- patients who were treated post conversion with Amiodarone 200mg/day + Bisoprolol 5 mg/day + Converting enzyme inhibitor

Ultrasound assessment carried out by performing an ultrasound heart parasternale in 4 rooms, showed the influence it has the value of atria size and the influence of left atrial reservoir function and size of pulmonary veins in maintaining sinus rhythm.

General characteristics of patients studied are represented in the following tables.

Variabila		SEX		Total	p Likelihood ratio
		f	m		
GRV	≤ 50	16	28	44	0,719
		12.2%	16.5%	14.6%	
	51 ÷ 60	38	43	81	
		29.0%	25.3%	26.9%	
	61 ÷ 70	34	45	79	
		26.0%	26.5%	26.2%	
	> 70	43	54	97	
		32.8%	31.8%	32.2%	
Total		131	170	301	
TIPUL FiA	PAROX	75	98	173	0,945
		57.3%	57.6%	57.5%	
	PERS	56	72	128	
		42.7%	42.4%	42.5%	
Total		131	170	301	
TIP CON- VERSIE	E	48	60	108	0,809
		36.6%	35.3%	35.9%	
	M	83	110	193	
		63.4%	64.7%	64.1%	
Total		131	170	301	

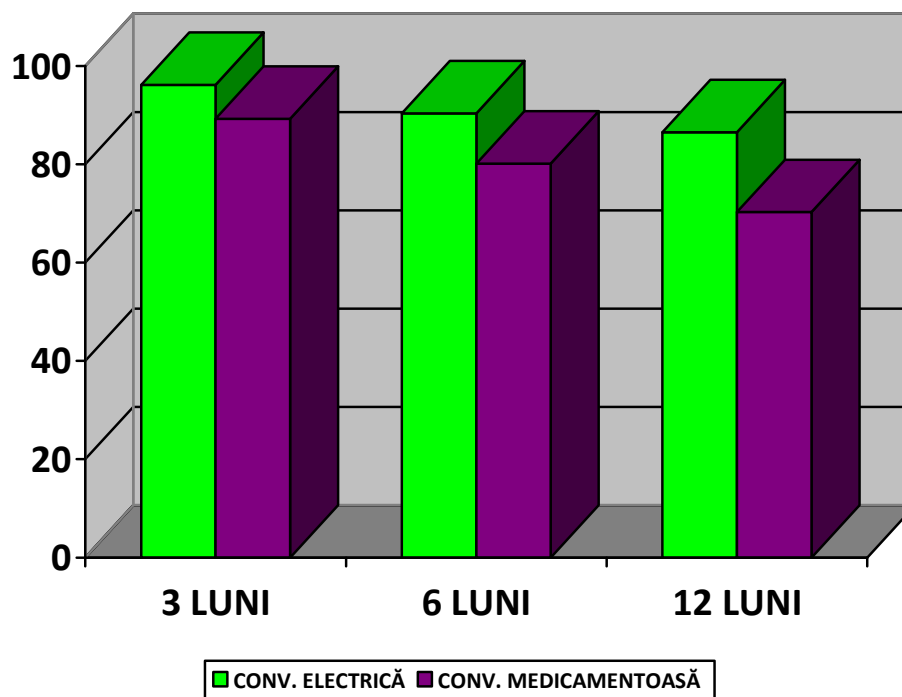
**Tabel II.5.1 Cracteristicile pacienților pe sexe.**

Variabilă		TIPUL FIA		Total	p Likelihood ratio
		PAROX	PERS		
TIP CON- VERSIE	E	52	56	108	0,015*
		30.1%	43.8%	35.9%	
	M	121	72	193	
		69.9%	56.3%	64.1%	
Total		173	128	301	
RECIDIVA	Da	43	49	92	0,013*
		46.7%	53.3%	100.0%	
	Nu	130	79	209	
		62.2%	37.8%	100.0%	
Total		173	128	301	
BOLI ASO- CIATE	CIC	60	56	116	0,048*
		51.7%	48.3%	100.0%	
	DIS	55	25	80	
		68.8%	31.3%	100.0%	
HTA	58	47	105		
	55.2%	44.8%	100.0%		
Total		173	128	301	

**Tabel II.5.2 Caracteristicile pacienților în funcție de tipul fibrilației atriale**

### **RESTORING AND MAINTAINING SINUS RHYTHM IN PAROXYSMAL ATRIAL FIBRILLATION**

Of the 173 patients who constitute the group of patients with paroxysmal atrial fibrillation, 52 cases (30.06%) received electrical cardioversion to sinus rhythm, 121 cases (69.94%) were converted to sinus rhythm pharmacologically. Patients who failed to convert to sinus rhythm and were diagnosed with paroxysmal atrial fibrillation were 6 patients in the total number of 19 cases that could not convert. Following the analysis found that all patients who received electrical cardioversion to restore sinus rhythm and those who received drug converting 6 cases were converted, 3 of which were male and 3 female. Notice that there is no significant difference regarding sex for failure paroxysmal atrial fibrillation converted to sinus rhythm.



**Fig.III.2.2 THE RATE OF MAINTAINING SR IN PAROXYSMAL ATRIAL FIBTILLATION**

The rate of maintaining sinus rhythm to controls at 3 months, 6 months, 12 months was higher for electrical conversion of paroxysmal atrial fibrillation to sinus rhythm compared with pharmacological conversion of the cardiac arrhythmias. Significant difference was observed when the control at 12 months after conversion of the disease.

The most common illness seen in our study in patients with paroxysmal atrial fibrillation was ischemic heart disease, followed by hypertension. Heart disease was quite rare in patients under 50 years, presenting them with the most common cardiac arrhythmia, dyslipidemia. Hypertension was most common in patients between 60-69 years.

AF recurrence was influenced by associated diseases. If electric conversion recurrence rate was highest for ischemic heart disease, dyslipidemia had the smallest influence. Age over 70 years is a risk factor for the occurrence of relapses in patients who have associated ischemic heart disease, while 60 - 69 years recurrence rate was higher in patients who have associated hypertension.

Most effective treatment for maintaining sinus rhythm in both the electrical conversion and the pharmacological conversion in this study is the association of Amiodarone + Bisoprolol + IEC.

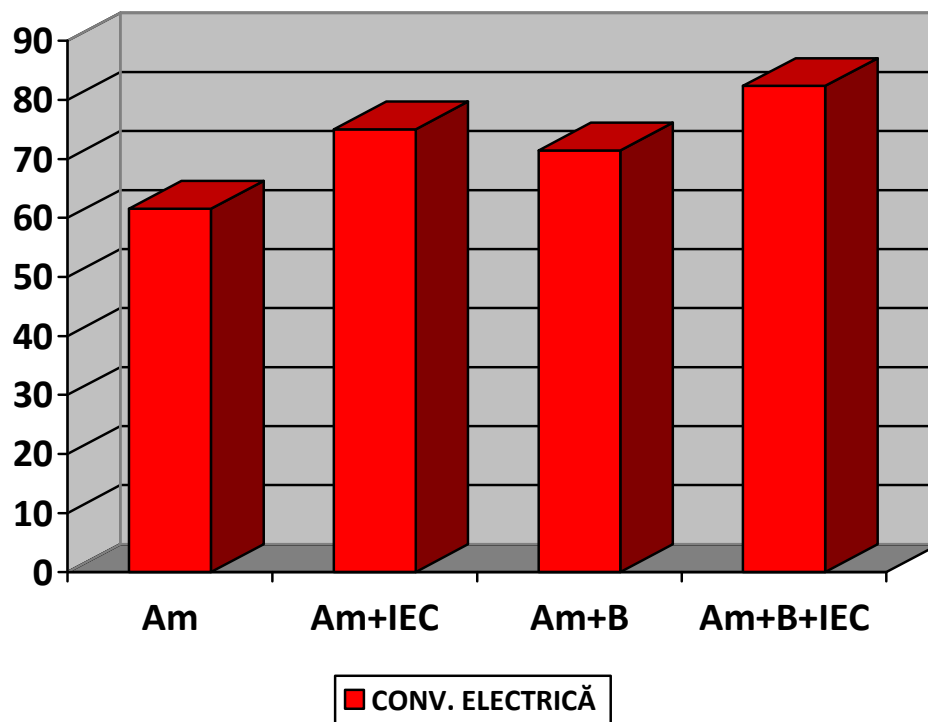
### **RESTORING AND MAINTAINING SINUS RHYTHM IN PERSISTENT ATRIAL FIBRILLATION**

Of the 128 patients who constitute the group of patients diagnosed with persistent atrial fibrillation, 56 cases (43.75%) received electrical cardioversion to sinus rhythm, 72 cases (56.25%) were converted to sinus rhythm pharmacologically. Patients who failed to convert to sinus rhythm and were diagnosed with persistent atrial fibrillation were in 13 patients (68.42%) of the 19 cases that could not convert. Following analysis, the 2 patients (15.38%), a man and a woman who received electrical cardioversion did not restore sinus rhythm and those who received drug conversion, 11 cases were not converted, 7 of them (63.63%) were male and 4 female (36.37%). Unlike paroxysmal atrial fibrillation, in persistent atrial fibrillation conversion can be seen that the proportion of cases that could not convert is greater, but there is no significant difference regarding sex for failure to restore sinus rhythm by electrical cardioversion of persistent atrial fibrillation, but for pharmacological conversion of patients with cardiac arrhythmia that situation changes, the share of male cases were not converted to sinus rhythm is significantly higher than female cases.

The prevalence of paroxysmal or persistent atrial fibrillation increases with age, the highest prevalence in patients over 70 years. Also this arrhythmia is more common in men than in women.

As in paroxysmal atrial fibrillation, in the patients diagnosed with persistent atrial fibrillation the most common illness seen in our study was coronary heart disease, high blood pressure closely followed.

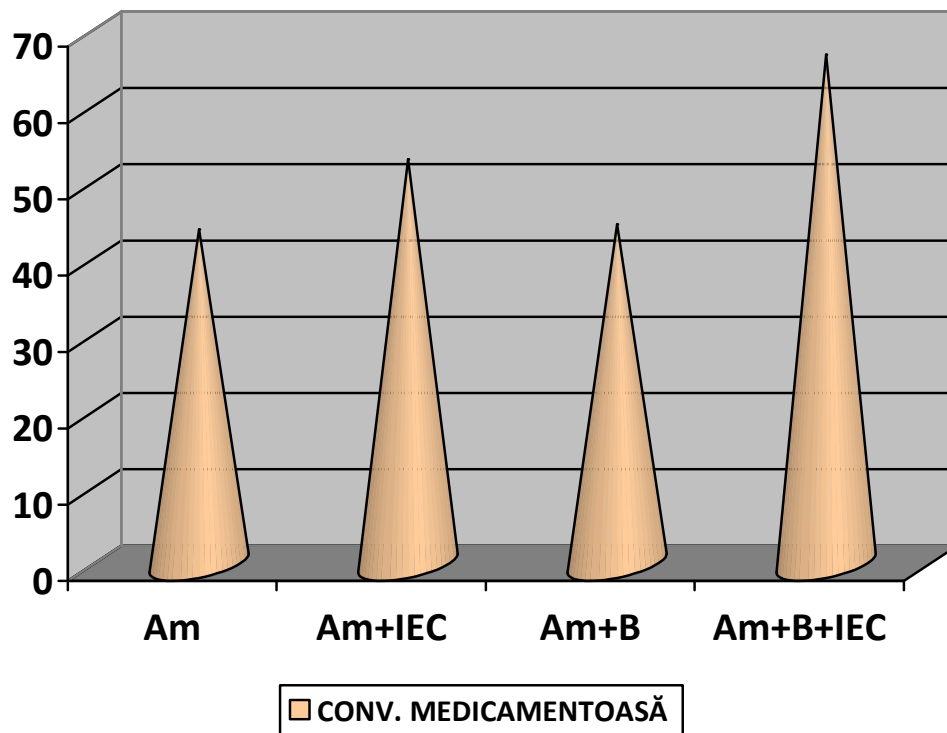
The most-efficient means of converting persistent atrial fibrillation was electrical conversion. Also maintaining sinus rhythm was better in patients who received electrical conversion, the arrhythmia recurrence rate was significantly higher in patients who recovered sinus rhythm by pharmacological conversion.



**Fig.IV.2.7 MAINTAINING SINUS RHYTHM AFTER ELECTRICAL CONVERSION IN PATIENTS WITH PERSISTENT ATRIAL FIBRILLATION AFTER THE THERAPY.**

It was found that the conversion of persistent atrial fibrillation to sinus rhythm and the maintaining of this rhythm was influenced by associated diseases. For patients who have this cardiac arrhythmias associated with ischemic heart disease the maintaining of sinus rhythm was significantly lower than the association with hypertension or dyslipidemia.

According to the survey and persistent atrial fibrillation for the most effective treatment for maintaining sinus rhythm in both pharmacological conversion and electrical conversion is the combination of Amiodarone + Bisoprolol + IEC.



**Fig.IV.2.8 MAINTAINING SINUS RHYTHM AFTER PHARMACOLOGICAL CONVERSION DEPENDING ON THE THERAPY**

### **EVALUATION OF ECHOCARDIOGRAPHIC PARAMETERS IN PAROXYSMAL ATRIAL FIBRILLATION AND PERSISTENT ATRIAL FIBRILLATION**

Echocardiography occupies a particular place in the detection and confirmation of certain diagnoses in cardiology. Currently she is the primary imaging technique in cardiology and due to his skills (anatomical and functional diagnosis, noninvasive, accessible, easily repeatable, cost - effective good), use of echocardiography has grown increasingly over the investigation of cardiac patients.

Echocardiography is the imaging technique used in clinical cardiology, it brings useful information on cardiac structure and function. This technique has a direct influence on the diagnosis and therapeutic management of patients evaluated, it can dictate therapeutic decisions it

can assess the response to initial therapy and not least it can deliver appropriate predictive data on patient outcomes.

The atrial dimensions and especially left atrium size, have questionable value in terms of conversion to sinus rhythm of atrial fibrillation and the maintaining of this rhythm. 204 patients were evaluated, they were divided into 2 groups, first group consists of 149 cases were diagnosed with paroxysmal atrial fibrillation, two group consisting of 55 cases diagnosed with persistent atrial fibrillation. Group I was subdivided into two groups, the first consisting of 79 patients with left atrial diameter was less than 45 mm, and the second group consisted of 70 cases who had left atrial diameter less than 45 mm .

Maintenance of sinus rhythm in patients with atrial fibrillation is influenced by left atrial diameter, diameter  $\geq 45$  mm LA showing a higher recurrence rate in both patients diagnosed with paroxysmal atrial fibrillation and in patients diagnosed with persistent atrial fibrillation.

Research of echocardiographic indeces (left atrial volume, left atrial ejection fraction), aimed at highlighting some association between these factors responsible for the successful conversion of atrial fibrillation to sinus rhythm and prevent recurrence of the cardiac arrhythmias. Most studies on atrial fibrillation taking into account the left atrial diameter and ejection fraction therefor. Left atrial reservoir function is a correlation between left atrial volume and left atrial ejection fraction. With it you can determine with greater accuracy involvement that has the ultrasound data on maintaining sinus rhythm in patients with atrial fibrillation.

In our study which involved the evaluation of left atrial reservoir function in maintaining sinus rhythm in patients with paroxysmal or persistent atrial fibrillation were followed for a total of 134 patients.

Patients were divided into 2 groups, group I comprises 75 patients with EF  $<50\%$ , and group II consists of 59 patients with EF  $\geq 50\%$ . Each group was divided into 2 groups:

- Group I includes patients with EF  $<50\%$  and end-systolic maximum volume of  $40\text{ml} \leq \text{LA}$ : 41 cases
- Group II includes patients with EF  $<50\%$  and end-systolic volume than the  $\text{LA} > 40\text{ml}$ : 34 cases
- Group III includes patients with EF  $\geq 50\%$  and end-systolic maximum volume of  $40\text{ml} \leq \text{LA}$ : 33 cases



- Group IV includes patients with  $EF \geq 50\%$  and end-systolic volume than the LA > 40ml: 26 cases

Recurrences of atrial fibrillation are more common in patients with  $EF < 50\%$  and a maximum LA systolic volume > 40 ml, the lowest rate of recurrence is in patients who were diagnosed with atrial fibrillation and  $EF \geq 50\%$  showing a LA maximum systolic volume < 40ml.

Recent clinical electrophysiology studies have suggested that ectopic potential arising mainly from the pulmonary veins play an important role in the initiation and perpetuation of atrial fibrillation. However the mechanisms underlying the focal arrhythmogenic activity of pulmonary veins is not fully understood.

In our study we looked at 204 patients pulmonary vein size and influence that they have in maintaining sinus rhythm after conversion from atrial fibrillation patients with paroxysmal and persistent atrial fibrillation. Depending on the patients left atrial diameter is as follows: 110 patients with LA < 45 mm, 94 patients with LA  $\geq 45$  mm. The relationship between left atrial diameter and pulmonary vein diameter showed that the 110 patients who had LA < 45 mm diameter pulmonary veins present in normal and in the 94 patients with LA  $\geq 45$  mm, 55 of them had pulmonary vein diameter limits normal and 39 cases pulmonary veins were dilated.

Relapse rate is higher in patients who were diagnosed with atrial fibrillation and had dilated VP compared with patients who have been diagnosed with atrial fibrillation and had VP diameter normal.

## CONCLUSION

1. This study was prompted most efficient way of converting paroxysmal or persistent atrial fibrillation and maintaining sinus rhythm between the two ways to restore this rhythm: electrical cardioversion and pharmacologic conversion. Thus electrical conversion should be considered as first-line option in treating patients who have been diagnosed with paroxysmal or persistent atrial fibrillation.
2. Restore and maintain sinus rhythm in this two types of cardiac arrhythmia associated diseases studied is influenced by associated disease, especially ischemic heart disease so it is preferable to carry out an assessment of the benefit / risk in these patients before making conversion to sinus rhythm in these patients.
3. In our study the most effective treatment after conversion regardless of the pathology that accompanied the two types of atrial fibrillation studied, is the combination of Amiodarone + Bisoprolol + IEC, relapse rate in patients treated as the lowest. So this schedule is the best choice to maintain sinus rhythm for a period as possible.
4. Hypertension and dyslipidemia did not significantly influence the maintenance of sinus rhythm in paroxysmal and persistent atrial fibrillation.
5. Left atrial diameter did not significantly influence the conversion of atrial fibrillation to sinus rhythm in any of the studied two types of cardiac arrhythmia, but maintain this rhythm is less in patients with LA diameter  $\geq 45$  mm and have persistent atrial fibrillation. In patients with paroxysmal AF, maintaining sinus rhythm at 3 months and 6 months was not significantly higher in patients with LA  $<45$  mm, but the 12 months maintenance of sinus rhythm is significantly higher in these patients.
6. By tracking the reservoir function in patients with paroxysmal or persistent atrial fibrillation patients with EF  $<50\%$  and maximum volume of LA  $\geq 40$  ml, should be followed more often, these two parameters (reservoir function AS) is a predictor of recurrence of atrial fibrillation in these patients.
7. It was found that in patients with AS diameter  $<45$  mm diameter pulmonary veins are normal regardless of whether patients had paroxysmal or persistent atrial fibrillation. Pulmonary veins occur after left atrial dilatation, particularly in patients with persistent atrial fibrillation, dilated pulmonary veins ratio was significantly higher in these

patients compared with patients who have paroxysmal atrial fibrillation with a diameter  $\geq 45$  mm AS.

8. Dilated pulmonary veins in patients with sinus rhythm maintenance rate was significantly lower than those who had normal pulmonary vein diameter. Because of this treatment in these patients should be maintained for longer periods to prevent stroke is the main risk factor in atrial fibrillation leading to an increased mortality among these patients.
9. This study is a survey that meets the family doctors in that they can better advise and guide the patient to be submitted to cabinet, and knowing patients with risk factors will follow more closely their health. For practitioners this study cardiologists oriented decision for treatment of atrial fibrillation conversion and post conversion radiotherapy depending on the type of this disease and associated cardiac arrhythmias and the detection of patients at high risk of relapse, re-evaluation is needed more often their to see the disease.