

Comparison of Dronedarone and Amiodarone in Maintaining Sinus Rhythm of Paroxysmal Atrial Fibrillation

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Abstract: Objective: To compare the Dronedarone and the Amiodarone in maintaining the sinus rhythm of paroxysmal atrial fibrillation. Method 80 cases of paroxysmal atrial fibrillation patients were randomly divided into the dronedarone group and the amiodarone group. All patients were monitored for ambulatory electrocardiogram, liver and kidney function, thyroid function and other adverse reactions after 1 month and 3 months. Results: After 1 month, there was no statistical difference in arrhythmias recurrence, thyroid dysfunction, liver and kidney dysfunction, other adverse reactions ($P > 0.05$). After 3 months, the amiodarone group was superior to the downturn in control arrhythmias recurrence, while the traders' group were better than the amiodarone group in the thyroid dysfunction ($P < 0.05$). Conclusion: Compared with amiodarone, the advantage of drawdown is that it has fewer side effects, especially thyroid dysfunction.

Keywords: Dronedarone; Amiodarone; Paroxysmal Atrial Fibrillation

Introduction

Atrial fibrillation is one of the most common arrhythmias. The treatment of the atrial fibrillation is the translator radiofrequency ablation and the drug therapy. The medicine includes rhythm control and rate control. Amiodarone is the effective drug in controlling the rhythm of the atrial fibrillation at the present, while it also has many side effects, such as thyroid disease, pulmonary interstitial fibrosis, hepatotoxicity, which need to be monitored [1].

Dronedarone is a deionized benzofuran derivative. The electrophysiological characteristics of amiodarone multichannel block were retained by removing iodide group and introducing methylsulfonamide group [2]. Therefore, dronedarone eliminate the toxic effects of amiodarone on the thyroid and lung [3]. We plan to compare the efficacy of dronedarone and amiodarone in maintaining the sinus rhythm of Paroxysmal Atrial Fibrillation.

1. Method

80 cases of paroxysmal atrial fibrillation patients divided into two groups: the dronedarone group and the amiodarone group. Exclusion criteria: thyroid disease, liver and kidney disfunction, pregnancy, NYHAIII-IV, ejection fraction < 35%, sick sinus syndrome, atrioventricular block, QT interval > 500ms, pulmonary interstitial fibrosis, allergic to research drugs. The dosage of dronedarone was 400mg Bid; the amiodarone was 200mg Tid, 200mg Bid a week later, then 200mg qd after 2 weeks. The schedule of the clinical follow up was one month, three months. All patients received ambulatory electrocardiogram, liver and kidney function, thyroid function and other adverse reaction was recorded.

2. Statistical Analysis

SPSS 26.0 statistical software Processed the data. Categorical data were analyzed by χ^2 test or the Fisher exact test. $P < 0.05$ were considered statistically significant.

Result:

In control the recurrence of arrhythmias, the superiority of amiodarone appears. In our study, we found that there were statistically significant in amiodarone group at the 3 month ($P < 0.05$), however, at 1 month the result was no statistical

significance ($P>0.05$). There were no statically difference in liver and kidney dysfunction, other adverse reaction between the two groups ($P>0.05$). By contrast the dronedarone group take an absolute advantage in the thyroid dysfunction on 3 month ($P<0.05$).

Table 1 the comparison of the two groups in treatment of paroxysmal atrial fibrillation

Group	Case Number	Atrial Fibrillation		Thyroid Dysfunction		Liver Kidney Dysfunction		Other Adverse Reaction	
		Atrial tachycardia							
		1M	3M	1M	3M	1M	3M	1M	3M
Amiodarone	40	3(7.5%)	5(12.5%)	3(7.5%)	9(22.5%)	3(7.5%)	5(12.5%)	9(22.5%)	10(25%)
Dronedarone	40	5(12.5%)	14(32.5%)	0(0%)	0(0%)	2(5%)	4(10%)	6(15%)	8(20%)
X2		-	5.591	-	-	-	-	0.738	0.287
P		0.712	0.034	0.241	0.002	1.0	1.0	0.568	0.790

3. Discussion

The dronedarone is the Class III antiarrhythmic agent, can inhibit the sodium, potassium, calcium channels and β receptor blockers. The dronedarone act on the atrial acetylcholine-dependent potassium channels, so more effect on atria than ventricles. It inhibited the inward current and outward current, alleviated the dispersion of repolarization, reduce the risk of arrhythmias [4,5]. In our study we found that amiodarone is better than dronedarone in control arrhythmias recurrence at 3 months, however at 1 month there were no difference. This was due to the follow-up time too short. Previous study found that the median time of dronedarone group to recurrence of atrial fibrillation was 96 day [6]. Therefore, dronedarone is effective in maintaining sinus rhythm.

Amiodarone contains 37% iodine, the rate of deiodination is 10% in vivo. Amiodarone is commonly administered at 200mg per day, at this dose about 7mg of iodine can be ingested, cause a 40-fold increase in iodine level, urine iodine concentration is up to 15000ug/d [7,8]. At the result, patients with iodine overdose lead to thyroid dysfunction. Dronedarone is a deionized benzofuran derivative. In the essential drug structure of amiodarone, remove the iodide and introduce the methyl sulfonamide. Therefore, in the thyroid disease, dronedarone is better than amiodarone. Same result was found in our research ($P<0.05$).

The liver, kidney side effect of dronedarone and amiodarone in our research show that they were no statically ($P>0.05$). Elevated liver enzymes induced by dronedarone can be recovered after drug withdrawal [9]. Other side effects such as gastrointestinal reaction, nervous system response they were no significant difference in the two groups.

Connolly et al explore the effect of dronedarone on end-point events in high-risk patients with permanent atrial fibrillation, inclusion criteria were defined as 65 years of age with at least one of the following risk factors, coronary artery disease, stroke or transient ischemic, symptomatic heart failure (NYHA II-IV heart failure), and left ventricular ejection fraction $<40\%$. The primary concomitant endpoint was stroke, myocardial infarction, embolism, or death. The result suggested that dronedarone should not be used in patients with permanent atrial fibrillation with high-risk factors [10]. Therefore, dronedarone is not recommended to the patients with the NYHA III-IV heart failure, acute decompensated heart

failure.

Compared with amiodarone, the advantage of dronedarone is that it has fewer side effects. However, in maintaining sinus rhythm, amiodarone is superiorities. Dronedarone as a substitute for amiodarone can provide new options for patients affected by amiodarone side effect.

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