Amiodarone Induced Proximal Myopathy

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Summary:

Twentythree patients were put on amiodarone after M.I. for reasons like recurrent tachycardia and frequent ventricular premature beats. Out of 23, eleven patients were diabetic. The duration of diabetes was 4.5+2 years. Patients were followed up for one year. Three out of eleven diabetics, developed proximal symmetrical myopathy. Nerve conduction studies were normal in 2 out of 3 affected patients. The average duration of diabetes was 5 years in affected individuals. The myopathy was reversible after withdrawal of drug.

Introduction:

Amiodarone was first introduced as an anti-anginal agent in 1960. It has been used extensively as an effective anti-arrhythmic agent especially for malignant ventricular arrhythmias since 1974. The drug is notorious for its side effects like corneal micro deposits, gastro-intestinal disturbances, disturbed thyroid functions, symptomatic bradycardia, prolonged QT interval, photosensitivity and pulmonary toxicity. Neuromuscular side effects are uncommon and they include tremors, ataxia, peripheral neuropathy and rarely symmetrical myopathy. We have observed increased incidence of proximal myopathy in diabetic patients who were on amiodarone. Although side effects like pulmonary toxicity, severe GIT disturbance and QT interval prolongation compel discontinuation of drug, we had to stop it immediately in our one patient who became almost bedridden.

Material and Methods:

Patients with recurrent episodes of symptomatic ventricular tachycardia and troublesome ventricular ectopics with couplets and short runs of non-sustained ventricular tachycardia were put on amiodarone according to the schedule given in table 1.1 and 1.2. Follow up was carried out at Cardiology ward during the study period of one year from 18-7-1994 to 17-7-1995.

TABLE 1.1

DOSAGE SCHEDULE FOR SUPRESSION OF V.T.

Day	1	800 mg q 8 hr. with meals
Day	2 - 7	800 mg B.I.D. with meals
Week	2 -3	400 mg B.I.D. with meals
Week	4 - 6	300 mg B.I.D. with meals
Week	7 - 12	400 mg O.D. with meals
Week	13	200 mg O.D. with meals

1. All patients before study were admitted for a period of 24 to 72 hours and were continuously monitored for arrhythmias. Only patients with V.T. couplets and multifocal PVCs were included in the study. During follow up every patient was monitored for 48 hours, at the end of month for first three months. 80% suppression of PVCs was titration point for maintenance therapy.

2. History was taken and complete clinical examination was carried out with particular emphasis on

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cardiovascular and neurological examination of diabetic patients, first at the time of study and then monthly for first 3 months and then after every three months.

TABLE 1.2

DOSAGE SCHEDULE FOR PVC'S

Week 1	400 mg B.I.D. with meals
Week 2	300 mg B.I.D. with meals
Week 3 - 12	200 mg B.I.D. with meals
Week 13	200 - 400 mg OD

3. Chest radiograph, surface electrocardiogram and echocardiography was also done first at the time of study and then on monthly basis for first 3 months and then after every 3 months.

4. Nerve conduction studies (sural nerve) were carried out in patients complaining of pain, paresthesia and weakness, at any time of follow up.

5. Slit lamp examination of eyes was carried out for every patient.

6. Serum CPK was estimated in patients complaining of symmetrical proximal weakness.

Results:

1. Three patients developed proximal symmetrical weakness without significant wasting or any numbness & pain. Power was of grade 4/5 in one, 3/5 in another and of grade 2/5 in one patient. They also have modest elevation of CPK levels.

2. Mean duration of diabetes was 5.5 years in patients who developed myopathy.

3. Nerve conduction studies showed sensory loss in one patient only.

4. Patients improved within 4-6 months after discontinuation of therapy.

5. Myopathy was not noticed in non diabetic individuals.

CLINICAL PATHOLOGICAL VARIABLE

Patient No.	Age	Power in proximal muscles	Onset of symptoms after treatment months	Nerve conduction studies
1	51	4/5	4m	N
2	47	3/5	4m	sensory
3	53	2/5	3m	N

Discussion:

The neuromuscular side effects of amiodarone have reported in upto 14% cases. In this group the proximal myopathy is rather rare. Interestingly we have found higher incidence of proximal myopathy in the diabetic population using amiodarone (27.3%) which is statistically significant. It was noted that patient's age played an important role. The eldest patient (aged 53 years) developed symptoms much earlier. The diabetes in this patient was of much longer duration than other. The myopathy in these patients was different than the usual diabetic amyotrophy. The classical features of diabetic amyotrophy like wasting, proximal muscle pain and numbness were absent. All the patients in the study gradually improved after discontinuation of therapy.

Conclusion:

There is higher incidence of proximal myopathy in diabetic patients, so amiodarone should be used with caution especially those who are diabetic for many years and are older. As this problem is reversible, the patients should be carefully followed up with particular emphasis on neurological examination. The moment problem is detected the drug should be omitted and substituted with some other antiarrhythmic agent.

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