Case Report

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QT Prolongation during a Migraine Attack

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Abstract

Objectives: Describing a case of QT prolongation during a migraine attack.

Materials and methods: A 35- year old woman was admitted to our Center for arthralgias, abdominal pain and papular skin rash. She suffered from ophthalmoplegic migraine.

Results: During the recovery she had a sudden migraine attack. An ECG was performed, showing a prolonged QT interval (455 ms with respect to 397 ms in the basal ECG), lasting a few minutes and fully reversible after migraine attack.

Conclusion: We describe a case of QT prolongation during migraine attack, which returned to basal values after the episode.

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Introduction

Migraine is characterized by attacks of headache, hypersensitivity to visual stimuli, nausea and vomiting. The autonomic nervous system is involved since autonomic symptoms are common during acute migraine headaches.

In the last years a possible role of impairment of ion channel functions is increasingly being recognized in many disorders of the nervous systems, including migraine.

Familial hemiplegic migraine (FHM) is a subtype of migraine in which the mutations in calcium and sodium channel have been identified [1].

Any dysfunction in the calcium channels may be related to many signs or symptoms. On ECG the QT interval is the most sensitive electric phenomenon used to be altered by changes in the intracellular or extracellular calcium concentrations. We hypothesize that before the appearance of clinical signs of migraine, the impairments of ion channel function within genetically susceptible individuals might induce ECG abnormalities [2].

Ophthalmoplegic migraine is an uncommon form. It presents predominantly with headache and ophthalmoplegia. One or more cranial nerves can be affected. Migraine and neurologic signs generally recover completely within a few days or weeks, however residual deficits are known to occur in a minority of patients.

In the present Case report we describe a case in which QT prolongation was observed during a ophthalmoplegic migraine attack.

Case Report

A 35- year old woman was admitted to our hospital for arthralgias, abdominal pain and papular skin rash. These symptoms appeared a few days before. She was affected by essential hypertension and Cushing syndrome, and underwent a surgical intervention of bilateral surrenectomy about 2 months before. An inflammatory pelvic disease associated with perihepatitis was also diagnosed in the past.

Our patient suffered from ophthalmoplegic migraine. The first symptoms were reported about seven years before, consisting with a ptosis in the right eye followed by episodes of severe headache associated to nausea and vomiting. At the time of diagnosis she had two admissions in Neurological Unit where she underwent an encephalic magnetic resonance of the head, showing normal findings. During the second admission our patient also referred diplopia and blurred vision. The physical examination showed a right ptosis, a bilateral alterning deficit of the 6th cranial nerve and a paretic right hemisyndrome.

Prednisone was administered at the dose of 1 mg/kg and then and the patient was finally discharged with an oral dose of 12.5

mg. Several functional and instrumental examinations were performed such as intracranial angiography, magnetic resonance with contrast, lumbar puncture, neck and thorax computerized tomography, cranial nerves studies. No abnormalities were found. Also mitochondrial diseases were excluded.

On admission at our unit, physical examination showed a ptosis in the right eye, and a pain at deep palpation of her right ipocondrium. Moreover, there were some papular lesions on both arms.

Our patient referred regular use of following drugs: bisoprolol (5 mg/day), memantine (20 mg/day), zonisamide (300 mg/day), lorazepam (1 mg/day). No abnormalities of routine chemistry were detected, except for a slight normochromic normocitic anemia (haemoglobin 11.3 g/dl). Inflammatory markers were increased: PCR was 15 mg/L, VES 17 mm/h, a2-globulin 9.2 g/L. Her basal ECG showed a QT length of 397 msec.

She underwent a dermatological consultancy which interpreted the popular rash as ecchymotic lesions.

During the hospitalization the patients suffered from a new ophthalmoplegic migraine crisis. She started to show diaphoresis, pallor, asthenia, nausea, and migraine. Vital parameters were normal. An arterial hemogasanalysis showed no particular abnormalities; in particular serum electrolytes were normal.

An ECG was performed and showed a prolonged QT interval (455 msec with respect to 397 msecdocumented in the basal ECG; these values refer to QT corrected by heart rate).

The migraine attack lasted about 10 minutes and after spontaneous remission of headache ECG abnormalities also recovered.

Discussion

The autonomic innervation of the heart plays an important role in modifying cardiovascular function. Case-control studies report both sympathetic hyperfunction and sympathetic hypofunction during single episodes of migraine. Disrupted autonomic innervation of the heart in patients with migraine may result in possible electrocardiographic (ECG) abnormalities during headache epysodes. Previous studies reported ECG abnormalities such as sinus bradycardia, premature ventricular contraction (PVC), non-specific ST-T changes, and right bundle branch block during migraine attacks [3].

Pogacnik et al. reported an increased frequency of cardiac arrhythmias during migraine compared with a pain-free period [4].

Recently, Aygun et al. reported that ECG abnormalities are often present during a migraine attack, particularly PR and corrected QT interval lengthening; these abnormalities will be absent or less prominent during pain-free intervals [5].

Till now, these abnormalities appear not to be life-threatening; however, it seems sensible to set up an optimal prophylactic therapy for migraine in order to prevent dangerous cardiac rythm anomalies especially in patient at high cardiovascular risk.

Conclusion

QT prolongation during migrain attack occurred several times in the same patient and these episodes were documentated by serial ECG (so it was not just a fluke). There are no data about susceptibility of QT prolongation in patients with ophtalmoplegic migraine, and it is unknown whether genetical factor may influence QT interval in patients suffering of migraine, under drug treatment. This aspect is the original issue of our case report.

Conflict of interest: The authors declare that they have no conflict of interest.

References

1. Marconi R, De Fusco M, Aridon P (2003) Familial hemiplegic migraine type 2 is linked to 0.9 Mb region on chromosome 1q23. Ann Neurol 53: 376-381.
2. Behnam Sabayan MD, Abdolali Zolghadrasli MD, Pouya Dastouri MD (2008) QT Interval Duration May Be Associated With the Risk of Developing Migraine: A Hypothesis. Headache 47: 932-933
3. Jhee SS, Salazar DE, Ford NF (1998) Monitoring of acute migraine attacks: placebo response and safety data. Headache 38: 35-38.
4. Pogacnik T, Sega S, Pecnik B, Kiauta T (1993) Autonomic function testing in patients with migraine. Headache 33: 545-550.
5. Aygun D, Altintop L, Doganay Z (2003) Electrocardiographic changes during migraine attacks. Headache 43: 861-866.