Spasmophilia in the Cardiological Outpatient Department: A Retrospective Study of 228 Sub-saharan Africans over 5 Years

Ba Djibril Marie*, Sow Mamadou Saidou, Diack Aminata, Diallo Cheikh Omar, Barkire Ismaila, Dieng Fatou Kine and Fall Moussa Daouda

Department of Cardiology and Internal Medicine, Military Hospital of Ouakam, Dakar, Senegal

*Corresponding author: Ba Djibril Marie, Department of cardiology and Internal Medicine. Military Hospital of Ouakam, Dakar, Senegal. Tel: 00221-773338434; E-mail: gaby.11ba@yahoo.fr

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Abstract

Background: Spasmophilia also called latent tetany is a disorder with a very heterogeneous clinical manifestation which affects particularly young women. Chest pain, constriction of the throat and palpitations are symptoms common to spasmophilia and ischaemic heart disease (IHD). The objective of this work was to assess the incidence and to study the epidemiological, clinical features of spasmophilia in patients with symptoms of ischaemic heart disease.

Methods: This was a retrospective study conducted at the cardiology Department of Military Hospital of Ouakam, in Dakar, Senegal, from January 1st 2009 to December 31st 2014. We included all patients who were admitted with manifestation of ischaemic heart disease and who subsequently had a negative evaluation for IHD. We observed the occurrence of neuromuscular hyperexcitability, assessed with Electromyographic (EMG) test. We collected and analyzed epidemiological, clinical, and outcomes data of Powered by Editorial Manager® and ProduXion Manager® from Aries Systems Corporation 228 patients.

Results: The incidence of spasmophilia in patient’s referred with symptoms of ischaemic heart disease was 20% and 100% in patients with normal ECG findings. The mean age of patients was 28.70 ± 18 years with a sex ratio (F/M) of 13.41. The most common presenting symptoms were dominated by chest pain (90%), a history of Insomnia was found in 31 patients (13.60%), and affective disorders were found in 55 patients (24.12%). Biochemical investigation revealed decreased serum magnesium in 5.26%. Medical examinations were normal. All patients were treated with magnesium lactate. 80.60% of patients reported after 3 months complete regression of complaints. 17.20% of patients continued to experience complaints with a significant improvement in terms of reduced frequency and intensity. No complications were noted in our patients after 12 months follow-up.

Conclusion: Despite its fearly common occurrence, spasmophilia is rarely recognized. We recommend to add EMG test to the algorithm of examinations of patients with chest pain and normal ECG.

Keywords: Spasmophilia; Chest pain; Electromyographical test; Magnesium deficiency

Background

Spasmophilia also called latent tetany and recently referred to as the central neuronal hyper excitability syndrome (NHS) is a disorder with a very heterogeneous clinical manifestation. It includes neuromuscular hyperexcitability, decreased attention, fatigue, constant anxiety, chest pain etc. [1].

Spasmophilia affects particularly young women [2]. A noncharacteristic clinical picture and the lack of a pathognomonic symptom, cause that despite of the fearly common occurrence, spasmophilia is rarely recognized.

Chest pain is the most common reason for referral of patients for acute medical admission. Prompt and accurate diagnosis is very important but our ability to differentiate between the patient with a life-threatening cardiac condition and someone with non-cardiac discomfort still depends primarily on clinical acumen plus interpretation of the ECG and the chest radiograph.

Chest pain, constriction of the throat and palpitations are symptoms common to spasmophilia and ischemic heart disease (IHD) [3]. Henceforth, it becomes difficult to distinguish between them as there is considerable overlapping of symptomatology.

The objective of this work was to assess the incidence and to study the epidemiological, clinical features of spasmophilia in patients with symptoms of ischemic heart disease presenting in the cardiology department.

Methods

This was a retrospective study conducted at the cardiology and Internal medicine Department of Military Hospital of Ouakam, in Dakar, Senegel, over a period of 5 years (January 1st 2009 to December 31st 2014).

We include all patients who were admitted with manifestation of ischemic heart disease such: chest pain, constriction of throat, palpitation and dyspnea and who subsequently had a negative evaluation for IHD. A metabolic cause of tetany was ruled out.
We observed the occurrence of neuromuscular hyper excitability, assessed with Electromyographic (EMG) recordings of the first interosseous muscle on the right arm. The test was considered positive when, after the strap of the sphygmomanometer had been loosened, spontaneous motor unit discharges in sequences of triplets and multiplets waves were observed. The test was considered negative when a silent electromographical trace was recorded.

We collected and analyzed epidemiological, clinical, paraclinical and outcomes data of patients.

We studied data on age, gender, psychological factors. We also noted the time delay between the onset of symptoms and final diagnosis. All patients had a complete physical examination and a laboratory assessment with emphasis on the level of serum magnesium and calcium.

On the ECG we looked for suggestive electrocardiographic changes, rhythm and conduction abnormalities. Doppler echocardiography was performed for all patients to evaluate the left ventricle (LV) wall motion, LV ejection fraction and pericardial involvement. We also looked for rib fractures, pleural effusion and signs of venous stasis on the chest X-ray. Salt magnesium, calcium and anxiolytics therapy were evaluated.

The studied parameters were entered into an electronic questionnaire using Epi info version 6.0 of the World Health Organization. Data analysis was performed using SPSS (Statistical Package for Social Sciences). Quantitative data were expressed as mean ± standard deviation. Qualitative data were expressed as percentage.

These hormones have been shown to increase the occurrence of cell death via apoptosis in germ cells located at specific stages of the seminiferous epithelial cycle.

Results

- We included 228 patients. 211 patients (92.54%) were females and 17 patients (7.46%) were males giving a sex ratio (F/M) of 13/41.
- The mean age of patients was 28.7 ± 18 years with a range of 6 and 59 years. In women, the mean age was 28 years and among men it was 34 years. Most of patients (58.77%) were under 30 years.
- EMG test was positive for all patients.
- The Diagnosis latency i.e., the interval from the onset of symptoms to the definite diagnosis of latent tetany was 6.4 months.
- The most common presenting symptoms (Table 1) were dominated by chest pain (90%), palpitations (81%) and shortness of breath (42.9%) Association of chest pain and palpitations was found in 92 patients (40.35%).

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest pain</td>
<td>205</td>
<td>90</td>
</tr>
<tr>
<td>palpitations</td>
<td>184</td>
<td>81</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>98</td>
<td>42.9</td>
</tr>
<tr>
<td>Muscle crumps</td>
<td>60</td>
<td>26.3</td>
</tr>
<tr>
<td>headaches</td>
<td>28</td>
<td>12.3</td>
</tr>
<tr>
<td>Loss of consciousness</td>
<td>5</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Table 1: Symptoms found in our patients.

- A history of Insomnia was found in 31 patients (13.60%) and panic attacks in 5 patients (2.19%).
- Mood and affective disorders were found in 55 patients (24.12%).
- Biochemical investigation with emphasis on the level of serum magnesium and calcium revealed a decreased serum magnesium and calcium respectively in 5.26% and 1.31%.
- Successive ECG was normal. Echocardiography and chest X-ray were normal for all patients. Exercise tests and coronarography were performed in 5 patients with typical chest pain and cardiac risk factors with a negative outcome examination. ECG holter recording, performed in all patients with palpitations, was normal.
- All patients were treated with magnesium lactate and calcium by the oral route. Anxiolytics were given to patients with sleep and mood disorders.
- Psychological evaluation and psychotherapy were designated for patients with panic attacks.
- 80.6% of patients reported after 3 months complete regression of complaints. This favorable outcome was higher (79.2%) in the group of patient diagnosed as spasmophilic before 6 months from the onset of symptoms versus 40% in those with late diagnosis.
- 17.2% of patients continued to experience complaints with a significant improvement in terms of reduced frequency and intensity.
- 5 patients (2.2%) were sent for treatment in a psychiatric outpatient unit.
- No complications were noted in our patients after 12 months follow-up.

Discussion

In our study, the incidence of spasmophilia in patients referred with symptoms of ischemic heart disease was 20% and 100% in patients with normal ECG findings. Data on the incidence of spasmophilia are rare in Africa. In the literature there is a lack of precise data concerned which most probably results from its underestimation.

The mean age of patients was 28.7 ± 18 years with a range of 6 and 59 years. In women, the mean age was 28 years and among men it was 34 years. In Japan, 508 patients were reported to range in age from 5-85 years. Spasmophilia was particularly prevalent among women in their late teens and among men in their twenties [4]. The young age of patients with spasmophilia was also reported by Torunská [5].

Our study confirms female predominance as has been emphasized in previous works [3-6].

Chest pain was found to be the main symptoms. Although chest pain is a common clinical syndrome, there is a paucity of African studies describing the causes, prevalence and disposition of patients with chest pain. However Geyser, in a study conducted in the emergency department (ED) of a regional hospital in Pretoria found that most of patients with chest pain of non-cardiac origin were black Africans (75%). In this study, regarding age, patients with cardiovascular disease tend to be older than the average, with a mean age of 55.07 years while patients with psychological disorders were younger than the average, with a mean age of 29.86 years and such patients were most often females (85.71%) [7]. Sullivan found that the diagnosis of normal coronary artery in patients referred with chest pain, was five times more common in women than men [8]. In Czech, Sovova found that 50% of patients referred for chest pain with negative coronarography findings had spasmophilia [3].
In our study, all patients with chest pain had normal ECG findings. Despite the fact that studies of several decades ago reported a 3% to 10% incidence of acute myocardial infarction in patients presenting to the ED with chest pain and a normal ECG [9,10], it seems that such patients have low rates of mortality and cardiac complications [11].

Clinically, spasmophilia in Africans does not appear much different from that of European countries [3,5,12,13]. In our study, mood and affective disorders were present in 21.12% of patients. Panic attack was found in 2.19%. The symptoms of panic disorder according to the diagnostic criteria DSM-III [24] are, except a few, virtually identical with those of spasmophilia. In a group of 20 patients treated for panic disorder, Taborska found a concomitant incidence of latent tetany with known etiology and decreased levels of intracellular magnesium in 18 (90%) [25].

Despite its common occurrence, it happens that spasmophilia is diagnosed too late and therefore insufficiently cured as noted in our study where diagnosis latency was 6.4 months.

The impact of therapy with magnesium salts on improvement of spasmophilic patients, as noted in our work, has been emphasized by most of authors.

**Conclusion**

Spasmophilia is a disorder with a very heterogeneous clinical manifestation. A noncharacteristic clinical picture and the lack of a pathognomonic symptom, cause that despite of the fearly common occurrence, spasmophilia is rarely recognized.

Electromyography examination is regarded as the most sensitive method in the diagnostic spectra at disposal and with regard to the high rate of positive EMG tests in patients with a history of chest pain and a negative evaluation for IHD, we recommend to add this simple test to the algorithm of examinations of these patients particularly in young women.

**References**


