

Syncope in Cardiological Department: The First Multicenter Study in Dakar (Senegal)

Guindo A¹, Aw F¹, Adama K¹, Sarr SA¹, Diouf Y¹, Mingou JS¹, Tabane A¹, Beye SM², Diop CMBM¹, Diop KR¹, Diallo S¹, Akanni S¹, Diouf MT¹, Bodian M¹, Ngaidé AA², Dioum M³, Affangla A¹, Leye MCBO³, Mbaye A², Ndiaye MB¹, Kane A¹, Diao M¹

¹Department of Cardiology, CHU Aristide Le Dantec, Dakar, Senegal; ²Department of Cardiology, Idrissa Pouye General Hospital, Dakar, Senegal; ³Department of Cardiology, FANN National University Hospital Center, Dakar, Senegal

ABSTRACT

Introduction: Syncope represents 1 to 6% of hospitalizations in the emergency department. Syncope is classified as reflex, orthostatic hypotensive, or cardiac. The initial assessment allows beyond diagnosis to define the severity of the picture related to the underlying disease rather than to the syncopal event itself. Our study represents the first study in Senegal on the assessment of syncope.

Methodology: This was a descriptive cross-sectional study over a period from May 1, 2020 to July 30, 2021 that included all patients received for syncope, whether hospitalized or not in the cardiology departments of Aristide Le Dantec (HALD), Principal hospital and Idrissa Pouye hospital (HOGIP).

Results: We collected 86 patients including 73.25% in HALD, 15.2% in HOGIP and 11.68% in Principal. The mean age was 61.6 years with a standard deviation of 20.11 predominantly male or 54.7%. Of the patients 65.1% were hospitalized and 34.9% were not. The most common cardiovascular risk factors were hypertension (48.84%) and diabetes (12.8%). The majority of patients had duration of syncope of less than 7 days (55.62%). The ECG found a predominance of full BAV 58.13%, as did the Holter ECG (23.07%). The implantable Holter ECG found in one patient a symptomatic sinus pause of 3 sec. The responses to the tilt test were mixed in 57.14%, cardio-inhibitory without asystole in 7.14% late orthostatic hypotension in 7.14% of cases, vasodepressive in 28.57% of cases. Cardiac ultrasound found systolic LV dysfunction (5%), moderately severe aortic stenosis (1.25%) and intracavitary thrombi (2.5%). Cardiac syncope was mostly found (67.44%), followed by reflex syncope (16.27%), and syncope by orthostatic hypotension (1.16%). All patients with reflex syncope and orthostatic hypotension followed the hygieno-dietetic measures. All patients with severe conductive disorders received a pace maker (57.69%).

Conclusion: Syncope is a functional sign whose diagnostic and therapeutic approaches are varied, ranging from a simple disabling reflex syncope but with a good prognosis to cardiac syncope likely to be life-threatening requiring rapid and optimal management. Unraveling the banal from the dramatic in the face of syncope is a heavy task for the cardiologist.

Keywords: Syncope-multicenter study-Dakar; Diabetes; Orthostatic hypotension; Aortic stenosis

INTRODUCTION

Syncope represents 3% to 5% of the reasons for consultation and 1 to 6% of hospitalizations in the emergency department in the United States and Europe [1-3]. The incidence increases with age, especially after 70 years with a prevalence of 42%. Syncope is classified as reflex, orthostatic hypotensive (HO) or cardiac [1]. The mechanisms can be entangled and 50% of syncope remains undiagnosed after clinical presentation [3,4].

In the presence of any syncope, a systematic initial assessment should be made which allows beyond the diagnosis to define the severity of the picture linked to the underlying disease rather than to the syncopal event itself. On the management of syncope, in particular the provision of standardized guidelines, there remains a significant gap between their presence and their applications in practice. Few studies have been carried out on syncope in sub-Saharan Africa, particularly in Senegal. The general objective of this work was to assess the epidemiological,

Correspondence to: Aissata Guindo, Department of Cardiology, CHU Aristide Le Dantec, Dakar, Senegal, Tel: +22394422256/+221774451178; E-mail: eddiekoman@gmail.com

Received date: October 5, 2021; **Accepted date:** October 19, 2021; **Published date:** October 26, 2021

Citation: Guindo A, Aw F, Adama K, Sarr SA, Diouf Y, Mingou JS, et al. (2021) Syncope in Cardiological Department: The First Multicenter Study in Dakar (Senegal). J Clin Exp Cardiol. 12:706.

Copyright: © 2021 Guindo A, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

diagnostic and therapeutic aspects of syncope in the cardiology departments of the Aristide Le Dantec (HALD), Idrissa Pouye (HOGIP), Principal of Dakar hospitals.

MATERIALS AND METHODS

This was a descriptive cross-sectional study over a period from May 1, 2018 to July 30, 2019 of patients with syncope in the cardiology departments of Aristide Le Dantec (HALD), Idrissa Pouye (HOGIP), Principal of Dakar hospitals.

We included all patients hospitalized or not in the three departments presenting at least one episode of syncope reported or objectified to the hospital regardless of age. The description of the syncope had to have these characteristics: brief loss of consciousness of at least 3 seconds with loss of postural tone and spontaneous recovery of consciousness in less than 3 minutes.

Other causes of unconsciousness not corresponding to typical syncope were not included: faintness, epilepsy. An informed consent and data confidentiality sheet was established and signed by each patient. The variables studied were qualitative and quantitative. The data were collected on a pre-established form, entered using Sphinx software version 5.1.0.2, Microsoft Office (Word, Excel 2010). The analysis was carried out using SPSS software (Statistical package for Social Sciences) versions 18.

RESULTS

During the study period, 86 patients were recruited, 73.25% from Aristide Dantec University Hospital, 15.2% from HOGIP and 11.68% from Principal. The average age was 61.6 ± 20.1 years with extremes of 17 years and 92 years. The most represented age group was that of 70 to 80 years with a frequency of 24.7% was predominantly male, i.e. 54.7% with a sex ratio of 1.21. Among the patients included 65.1% were hospitalized and 34.9% were not most found were hypertension with a prevalence of 48.84% followed by diabetes and sedentary lifestyle with both a prevalence of 12.8%. Concerning the patients, 5.81% had an undocumented previous heart disease, 2.32% ischemic heart disease, 1.16% atrial fibrillation, 4.7% a notion of sudden familial death. Among the patients, 55.62% of the patients had presented their first episodemus less than a week before their admission. Dizziness and dyspnea were the main functional signs associated with syncope with frequencies of 37.2% and 23.3%, respectively.

The ECG revealed a prevalence of 58.13% of complete AVB, i.e. two cases of Brugada Syndrome, one of which was type 1 (2.32%) (Figure 1). It was normal in 22.9% of cases.

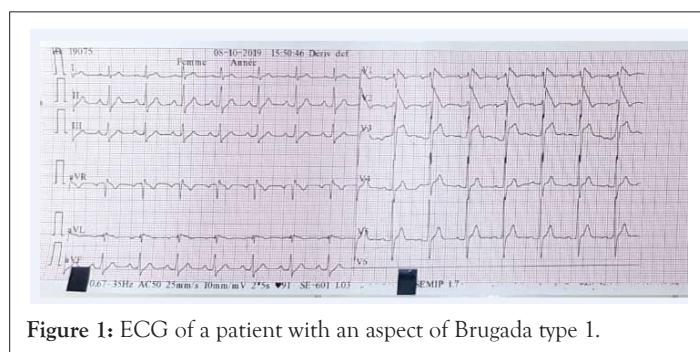


Figure 1: ECG of a patient with an aspect of Brugada type 1.

Among the patients included, 22.1% underwent a tilt test. It was positive in 84.2% of cases. Regarding the responses to the tilt test, we had a mixed response in 57.14%, cardio-inhibitory without asystole (7.14%) and late orthostatic hypotension (7.14%), vasodepressive in 28.57% of cases. On holter ECG, complete paroxysmal AVB was found in 23.07% of cases, sinus dysfunction in 23.07% and atrial disease in 15.38% of cases. Implantable ECG, the latter regained a symptomatic sinus pause of 3 seconds. Cardiac Doppler ultrasound found systolic LV dysfunction in 5% of cases, aortic stenosis in 1.25% of cases, intracavitary thrombi in 2.5% of cases than in 3 of our patients and came back negative.

On the etiological level, we found a cardiac origin in 67.44% of cases, reflex in 16.27% of cases, orthostatic hypotension in 1.16% of cases. The etiology was not found in 11.62% of cases.

From a therapeutic standpoint, all the patients presenting with reflex syncope and by orthostatic hypotension followed the hygieno-dietary measures, and the wearing of venous compression stockings in the event of a vaso-depressive component. Only 4 of our patients were put on midodrine. All the patients with conductive disorders presenting an indication for definitive stimulation were implanted, i.e. a frequency of 60.5%. It was a single chamber in 42.31% and a double chamber in 57.69% of cases.

One of the patients with complete AVB/ACS inferior received 2 active stents on the right coronary, unlike the other, due to difficulties in revascularization.

DISCUSSION

Some studies on indications for cardiac stimulation have found prevalences of syncope of 47% in complete atrioventricular block [5] and 37% [6] in Senegal and 54% in Burkina-faso [7]. The mean age in our study was 61.6 years. Kouakam in Lille has a lower average age of 49 years [8]. Mamy in Senegal in a study carried out on the exploration of reflex syncope found an average age of 47 years [9]. The degeneration of the conduction tissue, the physiological changes in cardiac hemodynamics and the regulatory mechanisms of cerebral blood flow related age, associated with the high prevalence of heart disease explain the greater susceptibility of elderly subjects to syncope. Among the patients recruited, 8.2% came from the sub-region and 1.2% from Central Africa. This is explained by the fact that in Senegal, mainly in Dakar, we have cutting-edge diagnostic and therapeutic means that are inaccessible in several countries in the sub-region and in several regions of Senegal. High blood pressure was the main risk factor (48.8%). Kouakam found a lower prevalence of 22% [8]. Hypertension, a major cardiovascular risk factor, can cause damage to the conduction tissue [1-3]. Diabetes was the second risk factor in our study (12.8%) like Milogo (13%) [7] and 9% in Kouakam [8].

Diabetes is an etiological factor of a reflex syncope because 20 to 70% of diabetics have an attack of the ANS but also of a cardiac syncope (conductive disorders by diabetic or ischemic cardiomyopathy) [4-7]. Electrical abnormalities were dominated by complete AVB, i.e. a prevalence of 58.3%. Studies carried out on cardiac stimulation found similar percentages: Kebe 60% [6]; Ndofo 95.5% [5], Milogo 82.8% [7]. This high percentage of AVB on the ECG in our study is explained by the advanced age of our study population. The holter ECG detected sinus dysfunction and complete paroxysmal AVB in each 23.07% of cases, a disease of

the atrium in 15.38% of cases, Milogo finds sinus dysfunction in 7.6% [7]. The ECG holter keeps a place in the diagnostic arsenal especially in case of daily symptoms: Tine in Senegal in a study carried out on the indications and results of the Holter ECG found a prevalence of complete AVB of 16.7%, of high-grade AVB of 11.1%; sinus dysfunction of 5.56% and a prevalence of severe arrhythmia of 17.11% [10]. However, it has several limitations and the absence of rhythm or conduction abnormalities does not exclude a cardiac origin [1-4]. The ECG was normal in 22.9% of cases; these were mainly young subjects without structural cardiac abnormalities with symptoms suggestive of reflex syncope, Mamy in Senegal also found no significant electrical abnormalities in a series of 30 patients presenting with reflex syncope [9].

The implantable ECG holter revealed symptomatic sinus dysfunction lasting more than 3 seconds requiring the implantation of a pace maker. Brignole found with the implantable holter asystole in 56% of cases and tachycardia in 11% of cases [11]. It represents an important diagnostic tool in the exploration of syncope. Cardiac Doppler echocardiography found LV dysfunction in 5% of cases, aortic stenosis in 1.25%, intracavitary thrombi in 2.5%. Sarasin found a similar frequency of aortic stenosis of 1.23% but a greater frequency of LV dysfunction, i.e., 27% [12]. This low prevalence of echocardiographic abnormalities in our study results from the systematic realization for the most part not guided by the initial evaluation. Aortic stenosis, aortic dissection, tamponade pericardial, thrombi or intracardiac obstructive tumors are the most frequent abnormalities [1-12]. In addition to the diagnostic aspect, cardiac echography may change the therapeutic attitude depending on the presence of severe LV dysfunction, d'ischemic involvement or an abnormality that makes the pace maker implantation procedure difficult (Table 1).

Table 1: Comparison of electrocardiographic data from different studies on syncope.

DATA	Ndobo	Kebe	Milogo	Tine	Notre étude
Year	2016	2015	2016	2015	2019
Country	Sénégal	Sénégal	Burkina Faso	Sénégal	Sénégal
Permanent AVB	95,5%	60%	82,8%	27,8%	58,3%
Intermittent AVB	12,6 %			16,66%	23,07%
2nd degré AVB	68,1%	12%		11,11%	3,48%
STEMI			5%		2,32%
Sinus dysfunction	12%		7,6%	5,56%	12,8 %
Normal ECG					22,9 %

We found cardiac syncope in 67.44%, reflex in 16.27%, orthostatic hypotension in 1.16% of cases. The etiology was not found in 11.62%; on the contrary, Ammirati found a predominance of reflex syncope 35%, cardiac syncope in 20.9% and an etiology not found in 17% of cases [13]. Brignole found prevalences similar to that of Ammirati [14] the most often reported etiology [1-14] reflex syncope remains weak in our study. There are several reasons for this: the advanced age of our study population, the carrying out of the study in two main cardiac stimulation centers and finally the tilt test, one of the main diagnostic means is only available in one only center and because of its cost, several patients could not benefit from it. The prevalence of unexplained syncope found should be put into perspective due to the low socioeconomic level or the inaccessibility of certain diagnostic means. Midodrine has

only been suggested in 4 patients presenting with reflex syncope with predominantly vasodepressant after failure of MHD: on noted partial improvement in symptoms as in the Izcovich study [15].

CONCLUSION

Overall, its indications have been downgraded and reserved for specific cases due to numerous side effects and relatively low evidence of its real efficacy. All patients with severe conductive disorders have been implanted with a single-chamber pace maker in 42.31% and a double room in 57.69% of cases. This is different from the results of Ndobo and Milogo who find more frequent single-chamber stimulation in 58% and 82.6% of cases, respectively. The patient presenting a typical Brugada aspect was put on amiodarone 200 mg and is awaiting DAI. We deplored 5.81% of deaths. This challenges us to the need to improve the income of our population and the importance of educating patients about syncope. Syncope is a functional sign whose diagnostic and therapeutic approaches are varied, ranging from simple vasovagal syncope to cardiac syncope which can be life-threatening. Unraveling the mundane from the dramatic in the face of syncope is a heavy task for the cardiologist, in particular because of the patients' lack of financial means and the inaccessibility of certain diagnostic and therapeutic means in our country.

REFERENCES

1. Brignole M, Moya A, Lange FJD, Deharo JC, Elliott PM, Fanciulli A, et al. 2018 ESC Guidelines for the diagnosis and management of syncope. *Eur Heart J.* 2019; 39:1883–1948.
2. Ganzeboom KS, Mairuhu G, Reitsma JB, Linzer M, Wieling W, Dijk NV. Lifetime cumulative incidence of syncope in the general population: a study of 549 Dutch subjects aged 35–60 years. *J Cardiovasc Electrophysiol.* 2006; 17:1172–1176.
3. da Silva RMFL. Syncope: Epidemiology, etiology, and prognosis. *Front Physiol.* 2014; 5:471.
4. Moya A, Sutton R, Ammirati F, Blanc JJ, Brignole M, Dahm JB, et al. Guidelines for the diagnosis and management of syncope (version 2009). *Eur Heart J.* 2009; 30:2631–2671.
5. Ndobo JV. Single and double chamber cardiac stimulation in Dakar: Practical modalities and evolving complications at the Cardiology Department of the Aristide Le dantec University Hospital in Dakar; 2016; 052.
6. Kebe-Bah OD. Single and double chamber pacemaker implantation in young adults under 50 at the Cardiology Services of the Aristide Le Dantec and HOGGY CHU in Dakar; 2017; 332.
7. Millogo GRC, Seghda A, Ilboudo M, Konaté L, Bassolet A, Kologo JK, et al. Bilan de cinq ans de stimulation cardiaque dans deux structures hospitalières publiques du Burkina Faso: Expérience d'une collaboration avec deux centres hospitaliers d'Auvergne. *Annales de Cardiologie et d'Angéiologie.* 2017; 66: 255–259.
8. Kouakam C, Lestave LP, Daems C, Blanc CJ. Prospective evaluation and outcome of patients admitted for syncope over a 1 year period. *Eur Heart J.* 2002; 10: 815-820.
9. Mamy AN. Contribution of the tilt test in the exploration of syncope: cross-sectional study on 30 patients at the cardiology clinic of Aristide Le Dantec hospital. 2016.
10. Tine-Faye AE. Long term EKG recording: Indications and results of 222 cases in the aristide LeDantec cardiology department; 2015: 992.
11. Brignole M, Vardas P, Hoffman E, Huikuri H, Moya A, Ricci R, et al. Indications for the use of diagnostic implantable and external ECG loop recorders. *Europace.* 2009; 11: 671–687.

12. Sarasin FP, Junod AF, Carballo D, Slama S, Unger PF, Louis-Simonet M. Role of echocardiography in the evaluation of syncope: A prospective study. *Heart*. 2002; 88: 363–367.
13. Ammirati F, Colivicchi F, Santini M. Diagnosing syncope in clinical practice. Diagnosing syncope in clinical practice. Implementation of a simplified diagnostic algorithm in a multicentre prospective trial - the OESIL 2 study (Osservatorio Epidemiologico della Sincope nel Lazio). *Eur Heart J*. 2000; 21: 935–940.
14. Brignole M, Ungar A, Bartoletti A, Ponassi I, Lagi A, Mussi C, et al. Standardized-care pathway vs. usual management of syncope patients presenting as emergencies at general hospitals. *Europace*. 2006; 8: 644–650.
15. Izcovich A, Gonzalez Malla C, Manzotti M, Catalano HN, Guyatt G. Midodrinefor orthostatic hypotension and recurrent reflex syncope: a systematic review. *Neurology*. 2014; 83: 1170–1177.