



## RESEARCH ARTICLE

### IMPACT OF TYPICAL GASTROESOPHAGEAL REFLUX IN PATIENTS WITH ASTHMA

Patrice Emery Itoudi Bignoumba<sup>1,\*</sup>, Dieudonné Mounguengui<sup>2</sup>, Prisca Angie Falone Ondeto<sup>2</sup>, Ines Flore Maganga Moussavou<sup>1</sup>, Jean Raymond Nzenze<sup>2</sup> and Jean Baptiste Moussavou Kombila<sup>1</sup>

<sup>1</sup>Service d'hépatogastro-entérologie du CHU de Libreville

<sup>2</sup>Service de Médecine polyvalente de HIAOBO

#### ARTICLE INFO

##### Article History:

Received 15<sup>th</sup> February, 2020  
Received in revised form  
19<sup>th</sup> March, 2020  
Accepted 27<sup>th</sup> April, 2020  
Published online 30<sup>th</sup> May, 2020

##### Keywords:

Sex ratio  
Middle age  
Professional activity  
in activity without activity.

#### ABSTRACT

**Introduction:** The absence of Gabonese data justifies this work, which aimed to identify the consequences of typical gastro esophageal reflux disease (GERD) in asthma control. **Patients and methods:** This is a retrospective cross-sectional study carried out in a population of asthmatics followed for more than 2 years at Omar Bongo Ondimba Military Training Hospital between January 1, 2008 and 31 December 2015. Demographic, Social, Epidemiological, Clinical, Paraclinical and Therapeutic data were collected and compared between the group of patients with GERD and those without GERD. **Results:** The hospital frequency of typical GERD in the asthmatic population was 24.9%. The female predominance and the middle age (50 years) were similar in the 2 groups. Allergic rhinitis was statistically more common in the group without typical GERD ( $p < 0.001$ ). The Typical GERD was statistically associated with a frequency of more than 30 asthma attacks per year ( $p < 0.001$ ), more than 20 annual consultations per year ( $p < 0.001$ ), very frequent use of bronchodilators of short duration of action ( $p < 0.001$ ), and the need for more than 3 hospitalizations per year ( $p < 0.001$ ). The severity of the seizures was not statistically linked to the presence of GERD ( $p = 0.126$ ). **Conclusion:** The hospital frequency of typical GERD in asthma patients is 24.9%. The typical GERD is responsible for a high number of annual exacerbations, annual consultations, annual hospitalizations and very frequent use of short-acting bronchodilators.

Copyright © 2020, Patrice Emery Itoudi Bignoumba et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

## INTRODUCTION

The Gastroesophageal reflux disease (GERD) is the involuntary return of part of the gastric contents, through the cardia to the esophagus without any effort to vomit (Kellerman, 2017). It is said to be typical when manifested by heartburn, regurgitation and postural syndrome (Kellerman, 2017). Asthma is a chronic inflammatory disease of the bronchial tubes that corresponds to a reversible obstructive ventilatory disorder, bronchial hyper responsiveness and recurrent episodes of wheezing dyspnea (Bongiovanni, 2019; Abrosimov, 2018). The repercussions of GERD in asthma control are increasingly well known (Bongiovanni, 2019; Abrosimov, 2018). This impact, not assessed in asthmatics in Gabon led us to carry out this work. The main objective was to identify the consequences of typical GERD in asthma control.

## PATIENTS AND METHODS

It is a retrospective and descriptive cross-sectional study. It took place in the multipurpose medicine department of the

\*Corresponding author: Patrice Emery Itoudi Bignoumba,  
Service d'hépatogastro-entérologie du CHU de Libreville.

Omar Bongo Ondimba Military Training Hospital between January 1, 2008 and December 31, 2015. We included asthmatic patients followed for more than 2 years, and aged over 15 years. The diagnosis of typical GERD was established in the presence of 2 of the following 3 signs: heartburn and / or regurgitation and / or postural syndrome. The patients were divided into 2 groups: Group without typical GERD and Group with typical GERD. We compared the Epidemiological, Clinical, Paraclinical and Therapeutic data of these 2 groups. The statistical analysis was carried out using the SPSS 20 software. We considered that the comparison was statistically significant when  $p$  was less than or equal to 0.05.

## RESULTS

Among the 334 asthmatics regularly followed, 83 had a typical GERD, a hospital frequency of 24.9%. As shown in Table I, the demographic characteristics found a predominance of women in the 2 groups and an identical average age. Socially, patients without typical GERD were employed in 50.6% of the cases, while 55.4% of patients with typical GERD were unemployed. This difference was statistically significant ( $p = 0.022$ ).

Table 1. Socio-demographic data and Co-morbidities

	GROUP WITHOUT GERD	GROUP WITH GERD	p
Sex ratio ♂/♀	93/153 0,6	22/61 0,4	0,080
Middle age	50 ans ± 16 ans	47 ans ± 17 ans	0,114
Professional activity	127 50,6%	37 44,6%	0,022
in activity without activity	124 49,4%	46 55,4%	
Background and comorbidities allergic rhinitis	166 66,1%	39 47,0%	<0,001
hta	32 12,7%	16 19,3%	
obesity	25 10,0%	14 16,9%	
other atopies	13 5,2%	0 0%	
diabetes	10 4,0%	1 1,2%	
other	5 2,0%	5 6,0%	

Table 2. Impact of typical GERD on asthma

	GROUP WITHOUT GERD	GROUP WITH GERD	p
NUMBER OF ANNUAL CRISES			
0-9	103 41,0%	26 31,3%	
10-19	117 46,6%	32 38,6%	
20-29	29 11,6%	3 3,6%	
≥ 30	2 0,8%	22 26,5%	<0,001
NUMBER OF ANNUAL CONSULTATIONS			
0-9	157 62,5%	50 60,2%	
10-19	92 36,7%	11 13,3%	
≥ 20	2 0,8	22 26,5%	<0,001
NUMBER OF ANNUAL HOSPITALIZATIONS			
0	109 43,4%	26 31,3%	
1-3	134 53,4%	33 39,8%	
≥ 4	8 3,2%	24 28,9%	<0,001
CLASSIFICATION OF ASTHMA			
INTERMITTENT ASTHMA	103 41,0%	26 31,3%	
LIGHT PERSISTENT ASTHMA	117 46,6%	32 38,6%	
MODERATE PERSISTENT ASTHMA	31 12,4%	22 26,5%	0,126
SEVERE PERSISTENT ASTHMA	0 0%	3 3,6%	
USE OF SHORT-TERM ACTION BRONCHODILATORS			
RARE	32 12,7%	7 8,4%	
RARE	95 37,8%	16 19,3%	
FREQUENT	97 38,6%	21 25,3%	
VERY COMMON	27 10,8%	39 47,0%	<0,001

The antecedents were dominated in the 2 groups by allergic rhinitis with a statistically significant link for the group without typical GERD ( $p < 0.001$ ). Table II reveals that the patients who presented more than 30 asthma attacks per year were statistically more numerous in the patients with typical GERD ( $p < 0.001$ ). This statistical link was also found for a number of annual consultations greater than 20 in the group with typical GERD. Likewise, the patients who had been hospitalized more than 3 times a year were statistically more numerous in the group with typical GERD ( $p < 0.001$ ). The severity of the seizures did not seem to be influenced by the presence or not of GERD ( $p = 0.126$ ). The very frequent use of short-acting bronchodilators was statistically more frequent in the group with typical GERD ( $p < 0.001$ ).

## DISCUSSION

The hospital frequency of GERD in an asthmatic population was 24.9%. This frequency was similar to the hospital frequency of GERD typical in consultation of hepatogastroenterology at the CHU of Libreville, which was 26% (Itoudi Bignoumba, 2019). It was also similar to the prevalence of typical GERD in a student population in Burundi, which was 27.8% (Ntagirabiri, 2013). This frequency of typical GERD underestimates the real prevalence of GERD in asthmatics because it does not take into account atypical manifestations requiring a pH-metry and an esophageal manometry for the diagnosis.

Thus, studies that use these means for the diagnosis of GERD find an association of 75% (Leggett, 2005). The female predominance of GERD in an asthmatic population is constant in the literature (Bongiovanni, 2019; Itoudi Bignoumba, 2019; Senhaji et al., 2015; Lohouès-Kouacou, 2013). The Allergic rhinitis was the most common history in both asthma patients with and without GERD with a significant association for patients without GERD. This association of asthma and allergic rhinitis had been observed by Mounguengui et al. (2010). This confirms that despite the multi-factor etiopathogenesis of asthma, allergy remains the main etiology in our patients (Senhaji et al., 2015; Mounguengui et al., 2010; Ullmann, 2018).

Typical GERD significantly influences the occurrence of high frequency of seizures ( $p < 0.001$ ), the need for frequent consultations or even hospitalizations with very frequent use of short-acting bronchodilators. This observation was also made by (Ben Abdelghaffar, 2014; Rachidi, 2016; Kiljander, 2004; Bor, 2010; Cheung, 2009). The passage of digestive contents in the airways triggers bronchial inflammation and bronchospasm, which explain this high frequency of attacks, consultations and hospitalizations (Ben Abdelghaffar, 2014; Rachidi, 2016; Kiljander, 2004; Bor, 2010; Cheung, 2009). However, GERD does not seem to increase the severity of the attacks, probably because it is not the main etiology of the exacerbation of asthma (Ben Abdelghaffar, 2014; Rachidi, 2016; Kiljander, 2004; Bor, 2010; Cheung, 2009).

## Conclusion

The typical hospital frequency for GERD in asthma patients is 24.9%. Typical GERD pejoratively influences the number of annual exacerbations, the number of annual consultations, the frequency of hospitalizations and the very frequent use of short-acting bronchodilators.

## REFERENCES

- Abrosimov VN, Ponomareva IB, Nizov AA, Solodun MV. On respiratory manifestations of gastroesophageal reflux disease. *Ter Arkh* 2018;27(8):131-136.
- Ben Abdelghaffar H., Akrouf I., El Fekih L. et al., 2014. Asthme et reflux gastro-œsophagien: à propos de 35 cas. *Rev des Mal Respir* DOI: 10.1016/j.rmr.10.423.
- Bongiovanni A, Parisi GF, Scuderi MG et al. Gastroesophageal reflux and respiratory diseases: does it exist a real link? *Minerva Pediatr* 2019; doi: 10.23736/S0026-4946.19.05531-2.
- Bor S., Kitapcioglu G., Solak ZA. et al., 2010. Prevalence of gastroesophageal reflux disease in patients with asthma and chronic obstructive pulmonary disease. *J Gastro Hepatol.*, 25(2):309-313.
- Cheung TK., Lam B., Lam KF. et al., 2009. Gastroesophageal reflux disease is associated with poor asthma control, quality of life, and psychological status in Chinese asthma patients. *Chest.*, 135(5):1181-1185.
- Itoudi Bignoumba PE., Iba Ba J., Maganga Moussavou IF., Bignoumba Ibouili R. et al., 2019. Aspects épidémiologiques et cliniques du reflux gastro-œsophagien de l'adulte à propos de 696 patients suivis en consultation ambulatoire à Libreville. *Bull Med Owendo.*, 17(46):6-10.
- Kellerman R., Kintanar T. 2017. Gastroesophageal Reflux Disease. *Prim Care.*, 44(4):561-573.
- Kiljander TO., Laitinen JO. 2004. The prevalence of gastroesophageal reflux disease in adult asthmatics. *Chest.*, 126:1490-1494.
- Leggett JJ., Johnston BT., Mills M. et al. 2005. Prevalence of gastroesophageal reflux in difficult asthma. *Chest.*, 127:1227-1231.
- Lohouès-Kouacou MJ., Assi C., Ouattara A. et al., 2013. Prévalence du reflux gastro-œsophagien typique à Abidjan. *J Afr Hépatol Gastroenterol.*, 7(3):117-121.
- Mounguengui D., Miloundja J., Mandji LJM. et al., 2010. Asthme et rhinite : une association fréquente. *Bull Med Owendo.*, 13(36):18-21.
- Ntagirabiri R., Niyonzima S., Mumana AL., Ndabaneze E. 2013. Reflux gastro-œsophagien chez l'adulte jeune africain : cas des étudiants de l'Université du Burundi. *J Afr Hépatol Gastroentérol.*, 7(3):192-195.
- Rachidi M., Aitbatahar S., Saijai H. et al., 2016. Asthme et reflux gastro-œsophagien. *Rev Franç Allerg.*, 56(3):319-321.
- Senhaji L., El Otmani FZ., Amara B., Serraj M., El Biaze M., Benjelloun MC. 2014. Asthme et reflux gastro œsophagien. *Revue des Maladies Respiratoires* 2015, doi.org/10.1016/j.rmr.10.046
- Ullmann N., Mirra V., Di Marco A. et al., 2018. Asthma: Differential Diagnosis and Comorbidities. *Front Pediatr.*, doi: 10.3389/fped.2018.00276.

\*\*\*\*\*