



Research Article

## *Helicobacter Pylori* Digestive and Extra digestive Pathologies Collected in Democratic Republic of the Congo

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### Abstract

*Helicobacter pylori* digestive and extra-digestive pathologies collected in the Democratic Republic of Congo (Hp-HDRC): Since quite 40 years, a strange phenomenon characterized by numerous atypical, most extra-digestive pathologies, appeared in the Democratic Republic of Congo. Congolese population is convinced to face massive criminal poisonings, but in 2010, the Laboratory of Toxicology of the University of Kinshasa in Democratic Republic of Congo established that the phenomenon was consecutive to *Helicobacter pylori* toxins reaching the blood via lungs, by flying up along the esophagus, because of their gaseous state. This paper intended to collect and discuss relevant *H. pylori* digestive and extra-digestive pathologies. A retrospective survey has been conducted on laboratory records concerning patients received at the Laboratory for poisoning suspicion from January 2005 to the end of July 2017. A total of 588 patients' files have been investigated. There were 393 male and 195 female. 553 samples were positive to *H. pylori*. As Ammonia and carbon dioxide are very caustic, they displacement in the organism is accompanied by a huge internal heat starting in gastrointestinal tract until to internal organs and functions: heart, lungs, hemoglobin, Central nervous system, respiratory system... with numerous linked pathologies: abdominal pain, throat dryness, stomach buzz, muscles pain, high transpiration, hard respiration, suffocation, Intense tiredness, Drowsiness, dizziness, mental confusion. A list of pathologies is presented.

### Keywords

*H. pylori* toxic-infection; Extra-digestive pathologies; Gas ammonia; Carbon dioxide intoxication

### Introduction

*Helicobacter pylori* are a well-known bacterium, the only one living in human stomach, in spite of its strong acidity. Discovered in 1875 by German scientists, it was discovered again in 1982 by two Australian research workers, J. Robin Warren a pathologist and Barry J. Marshall a gastroenterologist. International Scientific Community took much time to recognize the indubitable role of *Helicobacter pylori* in gastric diseases. Barry J. Marshall had to swallow a whole tube plenty of *Helicobacter pylori* germs to finally convince the scientific community [1-5].

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It's reported that *Helicobacter pylori* could colonize many people without any trouble. Its symptoms, which concern quite specifically the digestive tube, are sometimes the fact of associated diseases. They are, mainly: gastro-duodenal diseases involving gastric ulcer, chronic gastritis, Malt Lymphomas and gastric cancer. Recent literature reports more and more extra-digestive symptoms linked to *Helicobacter pylori*. Yet, more evident proofs are needed [6-12].

Since quite four decades, a strange phenomenon is current in Democratic Republic of the Congo. It's most characterized by numerous general pathologies concerning many organs at the same time, involving the digestive tube as well. Congolese population is convinced to face massive criminal poisonings committed from the East Region of the country by the mean of an unknown poison named "Karuho poison". Congolese National Health System is unable to establish a diagnostic and then to take care of patients. Only traditional practitioners originating from the East region of the country seem to be specialized in the management of that phenomenon. After a quick diagnostic conducted in patients' saliva, miscellaneous plant extracts mixed with honey are administered. Results are varied.

In 1990, a research work started at the Laboratory of Toxicology of the University of Kinshasa on the phenomenon in concern. In 2010, after twenty years of trying, we surprisingly established an amazing link with *Helicobacter pylori*. Indeed, all patients' samples received at the Laboratory of Toxicology for poisoning suspicion were positive to *Helicobacter pylori* and *Helicobacter pylori* eradication saved patients. Those results have been presented at some following international conferences: 2012 at Jackson City University, USA [13], 2016 in Valencia, Spain [14], 2017 in Paris, France [15-18] and 2017 again, in Edinburgh, Scotland [19].

The present paper is based on E-Poster at the Euro Personalized Medicine, September 14-15, 2017, Edinburgh, Scotland under the same title: "*Helicobacter pylori* digestive and extra-digestive pathologies collected in the Democratic Republic of Congo" [19]. It deals with different symptoms collected in patients involved in the phenomenon described above, positive to *Helicobacter pylori*. The focus is the free and massive passage of *Helicobacter pylori* toxins into the blood stream and related consequences.

### Material and Methods

A retrospective survey has been conducted on laboratory records concerning patients' samples received at the Laboratory of Toxicology of the University of Kinshasa for poisoning suspicion from January 2005 to the end of July 2017.

### Inclusion criteria

- Samples received for poisoning suspicion at the Laboratory of Toxicology
- Tested for *Helicobacter pylori* at the Laboratory of Biochemistry of the Faculty of Pharmaceutical Sciences of the University of Kinshasa
- With valid data for Blood sedimentation rate, ASAT, ALAT, Creatinin, Urea, Saliva pH, recorded at the same Laboratory of Biochemistry

## Exclusion criteria

- Samples received at the Laboratory of Toxicology for any other toxicological issue
- Samples not analyzed for *Helicobacter pylori* or analyzed elsewhere
- Patients with non-valid or non-complete data

*Helicobacter pylori* detection was performed by chromatographic serological test. Saliva pH was estimated by the means of an indicator paper. Other biological parameters were collected by regular biological known methods.

## Results

### Population of study

According to Table 1, population of study included 588 patients received at the Laboratory of Toxicology of the University of Kinshasa from January 2005 to July 2017. There were 393 males (69%) and 195 (31%) females. There were 6 (1%) patients under 5 years, 37 (6%) under 20 years and 41 (7%) patients beyond 50 years. Patients from 21 to 50 years old were most represented in the population of study 510 (87%) patients. Unmarried patients were 265 (45%) while currently married patients were 282 (48%). All the levels of education were represented: no education 80 patients (14%), primary school 142 patients (24%), High school 212 patients (36%) and Higher education 154 patients (26%). Two nationalities were concerned: DR Congo 581 patients (99%) and Cameroon 7 patients (1%).

### Biological parameters

Patients' saliva was alkaline in most patients 495 (84%). All patients tested for *Helicobacter pylori* (533 patients) were positive to *Helicobacter pylori* 553 patients (100%). Blood sedimentation rate, hemoglobin, Asat, Alat, creatinin and urea were also recorded in 533 patients. Sedimentation rate was out of norm in 349 (89%) patients. ALAT and ASAT were normal for most of the patients 353 (90%). The eradication of *H.pylori* was effective in 387 (70%) patients. Resistance rate to treatment was 30%. Iron deficiency anemia was in 51 patients (13%) (Table 2).

According to Table 3, three types of pathologies were recorded: digestive, general and nervous pathologies. General pathologies involved lungs pathologies as well. Even nervous pathologies are general as well; they were treated apart because of their great impact in patients' health. Extra-digestive pathologies were very far more numerous than digestive pathologies.

## Discussion

### Main findings

As already stated in precedent papers, our research work undertaken by the Democratic Republic of the Congo on putative "DRC massive poisonings" by an unknown poison, locally named "Karoo poison", showed a surprising but real responsibility of *Helicobacter pylori* in the phenomenon, revealing at the same time a new feature of *Helicobacter pylori* infection [12-15]. Indeed, quite all patients received at the Laboratory of toxicology for poisoning suspicion were positive to *Helicobacter pylori*. *Helicobacter pylori* eradication cleared at the same time the symptoms presented by patients. Symptoms were digestive but most extra-digestive which indicate indubitably a free passage of *Helicobacter pylori* toxins

(ammonia and carbon dioxide) into the blood stream, provoking a double heavy intoxication, turning *Helicobacter pylori* infection into *Helicobacter pylori* toxic-infection. Actually, our findings are not so incredible, as many papers in recent literature report more and

**Table 1:** Demographic parameters.

Variables	Patients	Percentage
<b>Sex</b>		
Male	393	69
Female	195	31
Total	588	100
<b>Age (years)</b>		
0 – 5	6	1
6 – 20	31	5
21 – 50	510	87
> 50	41	7
Total	588	100
<b>Educational level</b>		
No education	80	14
Primary	142	24
High	212	36
Higher	154	26
Total	588	100
<b>Current marital status</b>		
Unmarried	265	45
Married	282	48
Formerly married	41	7
Total	588	100
<b>Nationality</b>		
Congolese	581	99
Foreign	7	1
Total	588	100
<b>Residency</b>		
In DRC	585	99.5
Elsewhere	3	0.5
Total	588	100

**Table 2:** Biological parameters.

Parameters	Patients	Percentage
<b>Saliva alkalinity (n = 588)</b>		
Yes	495	84
No	93	16
Total	588	100
<b>H.pylori (n=553)</b>		
Positive	553	100
Negative	0	0
Negative after treatment	387	70
Still positive after treatment	166	30
Clearance of the symptoms after treatment	381	69
<b>Hemoglobin (n=391)</b>		
Normal	340	87
Abnormal (under the norm)	51	13
<b>Aspartate amino transferase ASAT (n=391)</b>		
Normal	353	90
Abnormal (up to the norm)	38	10
<b>Alanine amino transferase ALAT (n=391)</b>		
Normal	353	90
Abnormal (up to the norm)	38	10
<b>Creatinin (n=391)</b>		
Normal	386	99
Abnormal (up to the norm)	5	1
<b>Urea (n=391)</b>		
Normal	386	99
Abnormal (up to the norm)	5	1
<b>Blood sedimentation rate (n=391)</b>		
Normal	42	11
Abnormal (up to the norm)	349	89

**Table 3:** Digestive and extra-digestive pathologies collected in patients.

Digestive Pathologies	General Pathologies	Nervous Pathologies
Internal heat in stomach	Muscles heat	Intense tiredness
Abdominal pain	Hard breathing	Frequent drowsiness
Throat dryness	Breathlessness	Dizziness
Mouth or tongue burn	Suffocation	Unbalance
Change in food and beverages taste	Allergic reflex cough	Accelerated aging
Alkaline saliva	Skin allergy Skin blackening	Frequent forgetting
Bloody spit	Pricking	Mental confusion
Stomach fullness	Heart pain	Memory disorders
Stomach buzz	Heart palpitations	Hands shaking
Stomach and gut distending	Hormonal disorders in women	Electroencephalogram disturbance
Nausea	Spermatozoids destruction	Blurred vision
	Hemoglobin destruction	
	Anorexia	

more extra-digestive symptoms linked to *Helicobacter pylori*. It has also been established that *Helicobacter pylori* toxins are released in stomach by the reaction urea-urease linked to *Helicobacter pylori*, in gaseous state. After their release they should be excreted in stools. In case of constipation however, instead of going down, they could fly up along the esophagus, get the larynx way and reach the lungs. From there, they enter then into blood circulating system. Briefly, our research work emphasizes *Helicobacter pylori* intoxication component by gas ammonia and carbon dioxide which is responsible of digestive and extra-digestive symptoms after their passage into blood via the lungs way. It's the causticity of both toxins and the strong inflammation that it generates which explain hugeness and strength of observed symptoms, without forget the strong carbon dioxide asphyxia potential.

### Digestive pathologies

In gastric tract, the first problem concerns stomach and gut fullness, stomach buzz, gut and stomach distending, caused mainly by carbon dioxide accumulation. The inflammation generated brings stomach and back ache accompanied by an internal heat which irradiate from stomach to thorax when toxins go up. Throat dryness, tongue and mouth burn, bitter taste of food and beverages, alkaline saliva, bloody spit, and nausea attest the attack of gas ammonia in the mouth.

### Lungs attack

Gas ammonia and carbon dioxide; reach the lungs still in gaseous state. They then look like toxic compounds administered by inhalation. Hard breathing, breathlessness, suffocation observed in our study is signs of lungs attack. Finally, it's necessary to notice an allergic reflex cough, like for tobacco smokers.

### Extra-digestive pathologies

General and nervous pathologies are both linked to the passage of gas ammonia and carbon dioxide into the blood and central nervous system as well. Gas ammonia and carbon dioxide exert a double intoxication in patients. The huge number of extra-digestive pathologies observed is explained by the high causticity of gas ammonia and carbon dioxide and their freedom to interfere with many different organs. Muscles heat, heart pain and heart palpitations, skin allergy and skin blackening, transpiration, hormonal disorders in women, destruction of spermatozoids, destruction of hemoglobin in case of lack of Glucose-6-phosphate dehydrogenase constitute the

main general disorders observed. At nervous level, main pathologies observed are: mental confusion, intense tiredness, drowsiness, dizziness, frequent forgetting, memory disorders, blurred vision, Electroencephalogram disturbance, hands shaking, accelerated aging,

It must be noticed that, in the context of our study, heart palpitations, were considered as a consequence of gut and stomach distending which, pushing the diaphragm up could have compressed the heart, from time to time. Skin blackening was the consequence of high transpiration, one of toxins elimination toxins way, accumulated them on the skin. Anorexia was a consequence of stomach and gut fullness caused by carbon dioxide accumulation. Incredibly, patients' liver and kidney were off of toxins attack. Toxins elimination was not occur through the kidney but through stools and transpiration.

### Conclusion

Congolese *Helicobacter pylori* phenomenon justifies and validates papers suggesting extra-digestive pathologies in recent literature. It shows the importance of *Helicobacter pylori* toxins in the *Helicobacter pylori* infection and indicates the way by which toxins reach the blood. Because of the intoxication component, it's better to substitute *Helicobacter pylori* infection by *Helicobacter pylori* Toxic-infection. Consequently, *Helicobacter pylori* treatment should be enriched by toxicological aspects to take in count the intoxication component [17].

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