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Treatment of Hepatitis C with Direct Action Antivirals in Brazzaville, Congo

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ABSTRACT

Introduction: *In the Congo the prevalence of HCV infection is estimated between 3 and 5%. Before the advent of direct-acting antivirals, the care of patients infected with HCV was laborious. The aim of the study is to assess the virological response after 12 weeks of treatment with direct-acting antivirals.*

Patients and Methods: *This was a cross-sectional study conducted from January 1, 2016 to January 01, 2019. The study included patients with positive anti-HCV Ab and detectable HCV RNA treated with direct-acting antivirals. The quantification of the HCV-RNA was carried out by real-time RT-PCR Cobas 8000 Roche®. The evaluation of hepatic fibrosis was carried out by the fibro-Test or the fibroscan. Viremia was checked at 12 weeks and 24 weeks. The sustained virological response was defined by an undetectable viral load 12 weeks after the end of treatment.*

Results: *During the period, 58 patients were included, the sex ratio was 1. The average age was 50 with extremes of 25 to 81. Six patients had decompensated cirrhosis, two patients had failed with pegylated dual therapy. Genotype 4 was found in 47 of the patients, genotype 1 in seven of the patients; one patient had genotype 1 and 4 co-infection, two patients had genotype 2 and one patient did not have a genotype. The pre-therapeutic viral load was less than 5.90 log in 31 (54.3%) patients, greater than or equal to 5.90 log in 27 (46.6%) patients. The evaluation of hepatic fibrosis by fibrotest or fibroscan concluded in an F3-F4 fibrosis in 67.2%; 24.1% had F1-F2 fibrosis and 8.6% did not have fibrosis. The therapeutic combinations used were: Sofosbuvir-Ribavirin (5.2%) of the cases, Sofosbuvir-Lédipasvir (51.7%), Sofosbuvir-Daclatasvir (3.4%) of the cases and Sofosbuvir-Velpatasvir (24.1%) of the cases case. The virological response was obtained in 99% of the cases. No side effects were observed.*

Conclusion: *Direct-acting antivirals are effective and well tolerated in the treatment of hepatitis C in our study.*

Keywords

Hepatitis C virus, Infectious diseases, Congo, Virus.

Introduction

Infection with the hepatitis C virus (HCV) is endemic in the Congo with prevalences between 3-15% [1]. Before the advent of direct-acting antivirals (AVD), the management of viral hepatitis C was chronic was laborious because it was very expensive [2].

Since 2016, the advent of DSAs in the Congo has brought considerable improvements in the treatment of infection with HCV infection. The purpose of this study is to assess the efficacy and safety of direct-acting antivirals in patients infected with the hepatitis C virus in Brazzaville.

Patients and Methods

This was a cross-sectional study carried out from January 1, 2016 to January 01, 2019 in the hepato-gastroenterology and internal medicine department of the Brazzaville hospital and university center. The study included adult patients followed for hepatitis C infection with positive anti-HCV Ab and detectable HCV RNA treated with direct-acting antivirals for 12 weeks. The

quantification of the HCV-RNA was made by real-time RT-PCR Cobas 8000 Roche with a detection threshold of 15 IU / ml. All these tests were carried out in the Cerba laboratory in France. The evaluation of hepatic fibrosis was carried out by the fibro-Test or the fibroscan. The following therapeutic protocols were used: Sofosbuvir 400mg + Ribavirin, Sofosbuvir 400 mg + Ledipasvir 90mg with or without Ribavirne per day, Sofosbuvir 400mg + Daclatasvir 60 mg with or without Ribavin per day, Sofosbuvir 400 mg + Velpatasvir 400 mg. For patients with a degree of F4 fibrosis with ascites, we have combined RBV in two daily doses with the dosage of 1000 mg / 24 hours if weight <75kg and 1200mg / 24 hours if weight ≥75kg per day, oral for 12 weeks. Viremia was checked at 12 weeks and 24 weeks.

The sustained virological response was defined by an undetectable viral load 12 weeks after the end of treatment. The study variables were: age, sex, viral load, genotype, viral subtype, Alamine transferase, alpha foeto-protein, prothrombin time result of Fibrotest or Fibroscan, result of hepatic doppler ultrasound. Data was entered into Excel, exported to SPSS.17 software, analysis was performed by SPSS software. The Pearson Chi2 test was used to assess the characteristic differences, the interaction was significant for a value of p <0.005. We performed a multivariate analysis to find the determinants of virological responses.

Results

During the study period, 58 patients were included, these were 28 men and 28 women, a sex ratio of 1. The average age was 61.03 years with extremes ranging from 25 to 81 years. Patients over 65 years (41.4%) were the most represented followed by those 55 -64 years (36.2%), those 45-54 years (10.3%), those 35-44 years (8.6%), and 1.7% for those aged 25-34 and those under 25. Genotype 4 was found in 47 of the patients, genotype 1 in seven of the patients; one patient had genotype 1 and 4 coinfection; two patients had genotype 2 and one patient did not have a genotype. The pre-therapeutic viral load was less than 5.90 log in 31 (54.3%) patients, greater than or equal to 5.90 log in 27 (46.6%) patients. The evaluation of hepatic fibrosis by fibrotest or fibroscan concluded that F3-F4 fibrosis was observed in 67.2% of patients; in 24.1% of patients there was F1-F2 fibrosis and in 8.6% of patients there was no fibrosis.

The therapeutic combinations used were: Sofosbuvir-Ribavirin (5.2%), Sofosbuvir-Lédipa.svir (51.7%), Sofosbuvir-Daclatasvir (3.4%), and Sofosbuvir-Velpatasvir (24.1%). Table 1 shows the distribution of patients according to the therapeutic protocol used. At the end of treatment (12 weeks), two patients were viremic, which corresponds to an SVR of 96.5%. The Figure 1 shows the distribution of patients according to the therapeutic response at the end of the 12th week of treatment. At the 12th week after the end of treatment, a patient was viremic, which corresponds to 98.3% of SVR and a failure rate of 1.7%.

Figure 2 illustrates the distribution of patients according to treatment, twenty-four weeks after the start of treatment. Twelve weeks after stopping treatment, one patient with genotype 4 is viremic. Table 2 shows the response to treatment according to the viral genotype. No side effects were noted in our study population.

Treatment	n	%
sofosbuvir+daclatasvir	2	3.4
sofosbuvir+daclatasvir+Ribavirine	1	1.7
sofosbuvir+ledipasvir	30	51.7
sofosbuvir+ledipasvir+Ribavirine	8	13.8
sofosbuvir+ribavirine	3	5.2
sofosbuvir+velpatasvir	14	24.1
Total	58	100

Table 1: Distribution of patients according to the therapeutic protocol.

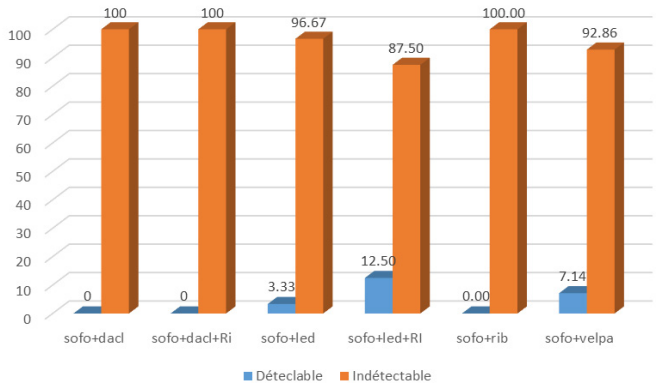

Figure 1: Distribution of SVR at 12 weeks of treatment according to the therapeutic protocol.

Genotype	RVS 24	Undétectable
	Détectable	
1	0 (0,0)	7 (12.3)
1&4	0 (0,0)	1 (1.8)
2	0 (0,0)	2 (3.5)
4	1 (100)	47 (82.5)
Total	1 (100)	57 (100)

Table 2: Distribution of SVR according to genotype.

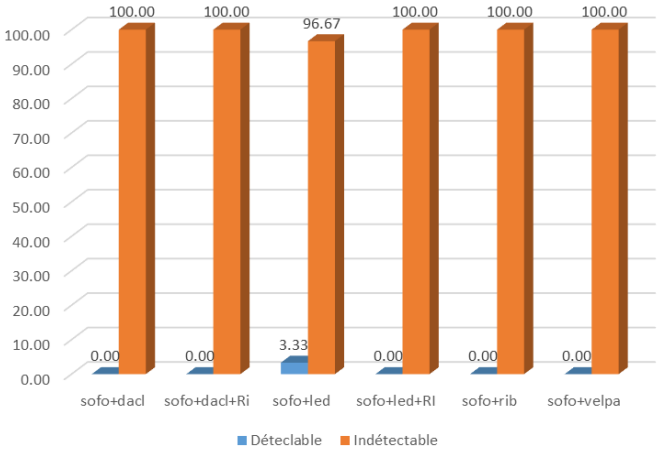

Figure 2: Distribution of SVR at week 24 according to the therapeutic protocol.

Discussion

The introduction of direct-acting antivirals in clinical practice has undoubtedly been a breakthrough in the management of hepatitis C virus infection and has significantly changed the prognosis of patients infected with hepatitis virus C [3,4]. With these therapies, virological responses (SVR) are higher, sometimes reaching 90-95% of healing [5]. The world health organization is calling for the eradication of the hepatitis C virus by 2030 [6]. In this study, the antivirals are effective and well tolerated whatever the genotype and the stage of fibrosis with or without decompensated cirrhosis or not over a period of 12 weeks of treatment. Our series is not focused on a particular genotype. However, the most common genotype was 4. This result is in agreement with previous Congolese observations [7,8].

Overall, we found an SVR rate of 98.3% for all genotypes, for genotype 4, SVR reached 97.9% at 12 weeks post treatment. Our results corroborate those of Ossama et al who found a rate of SVR at 99% over 12 weeks. Gayama V et al reported an SVR rate of 93.7% similar to our result [9]. Di Biagio et al report a lower SVR rate at 87.6% [3]. Other authors [6,10,11] report 95% -97% SVR over a shorter 8-week period. This proves the effectiveness of the Sofosbuvir + Ledipasvir protocol on genotype 4. Patients who received the sofosbuvir + velpatasvir protocol achieved SV12 at S12, unlike patients who received the sofosbuvir + Ledipasvir protocol, in which a patient was noted. The combination of Sofosbuvir + velpatasvir without ribavirin is more effective over 12 weeks in patients with or without cirrhosis. It is a pan genotypic combination with better tolerance [12]. The learned societies recommend the Sofosbuvir + velpatasvir or Sofosbuvir + Ledipasvir protocols for the treatment of genotype 1 [4].

All patients in our genotype 1 series were put on the Sofosbuvir + ledipastavir protocol. SVR was 100% for this subpopulation. Lawson-Annison et al in Togo report the same result. Genotype 4 is the most encountered in our series, this result is in agreement with the literature [13]. Indeed, phyleogeography and the history of HCV in Africa locate the epicenter of genotype 4 in central Africa [7]. Our study has some limitations, namely the sample size and the lack of data that can allow us to search for the determinants of the sustained virological response.

Conclusion

Direct acting antivirals are effective and well tolerated in patients in Brazzaville. The protocol combining Sofosbuvir and Velpatasvir has shown better efficacy on genotype 4. But the high cost of these drugs remains a handicap for the majority of patients infected with the hepatitis C virus. A complementary study on a larger sample would make it possible to research the clinical and biological factors associated with the sustained virological response.

References

1. Elira-Dokekias A, Okandze-Elenga JP, Dzia-Lepfoundzou, et al. Prevalence of Major Viral Markers among Blood Donors in Brazzaville. Gazette Transfusion. 2002; 117: 4-6.
2. Ahoui Apendi C, Bossali F, Atipo Ibara B I, et al. Treatment of viral hepatitis C at the CHU Brazzaville in 2015. Ann. Univ. M. NGOUABI. 2016; 16: 27-31.
3. Di Biagio A, Taramasso L, Cenderello G. Treatment of hepatitis C genotype 4 in DAA era. Virology Journal. 2018; 15: 180.
4. Lawson-Ananissoh LM, Bagny A, Bouglouga O, et al. Effectiveness of Treatment of Chronic Viral Hepatitis C by Direct-Acting Antivirals in Togo Open Journal of Gastroenterology. 2019; 9: 125-133.
5. Mairamou Hamadou NH, Njoya O, Kowo M P, et al. Treatment of genotype 1 hepatitis c with direct action antivirals in cameroon: preliminary results Health Sci Dis. 2018; 3: 11-14.
6. Shiha G, Esmat G, Hassany M, et al. Ledipasvir/sofosbuvir with or without ribavirin for 8 or 12 weeks for the treatment of HCV genotype 4 infection. Results from a randomised phase III study in Egypt. 2019; 68: 721-728.
7. Mongo-Onkouo A, Ahoui Apendi CP, Mimiesse Monamou J F, et al. Distribution of Genotypes and Sub Types of Hepatitis C Virus in Congo-Brazzaville. Health Science. 2018; 19: 33-36.
8. Atipo-Ibara BI, Mimiesse J, Bokilo-Dzia A, et al. Hepatitis C virus: genotype studies in Congo (Brazzaville). J Afr Hepatol Gastroenterol .
9. Gayama V, Khalida M, Mandala K A, et al. Direct- Acting Antivirals in Chronic Hepatitis C Genotype 4 Infection in Community Care Setting. Gastroenterol Res. 2018; 11: 130-137.
10. Ossama AA, Hany HK, Rehab B, et al. Efficacy and safety of sofosbuvir–ledipasvir for treatment of a cohort of Egyptian patients with chronic hepatitis C genotype 4 infection. Infection and Drug Resistance. 2018; 11: 295-298.
11. Babatin MA, AlGhamdi AS, Assiri AM, et al. Treatment efficacy of ledipasvir/sofosbuvir for 8 weeks in non-cirrhotic chronic hepatitis C genotype 4 patients. Saudi J Gastroenterol. 2019; 25: 55-60.
12. Takehara T, Sakamoto N, Nishiguchi S, et al. Efficacy and safety of sofosbuvir–velpatasvir with or without ribavirin in HCV-infected Japanese patients with decompensated cirrhosis: an open-label phase 3 trial. J Gastroenterol. 2019; 54: 87-95.
13. Iles JC, Raghwania J, Harrison GLA, et al. Phylogeography and epidemic history of hepatitis C virus genotype 4 in Africa. Virology. 2014; 464: 233-243.