New Therapies for Hepatitis C: Latin American Perspectives

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Introduction

Some Latin American studies estimate that there are more than 6 million infected individuals with hepatitis C virus (HCV) and report a prevalence of approximately 1.2% to 2% with a predominance of genotype 1b.[1,2] Until 1995, blood transfusions have been the main mode of transmission; however, due to excellent screening programs, additional percutaneous mechanisms have been described, some but not all related to health care.[3,4] From 2013 to 2014, the first interferon-free direct acting antivirals (DAAs) were approved in the United States and European Union. They were more effective, easier to administer, had minimal side effects, and sustained virologic response (SVR) over 90% in 12- to 24-week regimens.[5] Currently, Latin American countries are planning their own strategies to approve these drugs. In 2009, Rodriguez-Torres et al. published the results of a group study of Latino and non-Latino whites who were treated with peginterferon and ribavirin, noting that SVR in the former group was lower than in the latter for reasons related to ethnic factors, body mass, and the presence of cirrhosis.[5] However, the low frequency of favorable alleles (CC) of interleukin-28B (IL28B) reported in the region,[6] which were not considered in the above-mentioned study, seems to be a better explanation (Table 1).[7]

Access to New Therapies

The majority of Latin American countries lack prevalence studies of the general population, which hinders calculation of the actual number of potential treatment candidates.

HCV infection is not considered a priority, which delays the approval of antiviral therapy by the local authorities (Table 2). However, the high cost of new medications, comparable to other modalities used by modern medicine, is not the main limiting factor. Rather, it is the lack of leadership to understand the viability of the new control and treatment programs for HCV as opposed to the current programs focusing on terminal diseases and transplants that could be preventable with these new therapies. More cost-effectiveness studies are needed to demonstrate this and to proceed without doubt to eradicate HCV and its consequences in Latin American countries, emulating treatment in the developed world.[8]

Scenarios by Countries

In order to evaluate the actual situation in each country, we posed five questions based on indexed and nonindexed literature, currently available information, and the concepts of some identified opinion leaders (Table 3): 1) Is there any official program for detection and/or treatment? 2) Is the prevalence of HCV in the general population a known fact? 3) Which treatment regimens are currently approved? 4) Is there any state strategy to include the new DAAs at a lower cost? 5) What is the main mechanism for the transmission of HCV?

Comments About Some Countries

México. It is anticipated that the new antivirals will be approved in 2015. Telaprevir has been approved. Intravenous drug abuse is starting to appear in northern Mexico.

Colombia. There is a compassionate daclatasvir/asunaprevir program. Colombian citizens can file a lawsuit against third-party payers if approved therapy is denied. The first state control program was started in 2014. The Colombian

Abbreviations: CC, allele; DAA, direct-acting antiviral; HCV, hepatitis C virus; IL28B, interleukin-28B; SVR, sustained virologic response

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TABLE 1 Prevalence of IL28B rs12979860 Genotype CC in Latin American HCV Patients. Sustained Virological Response to Peginterferon Alpha and Ribavirin in Patients with Genotype CC Versus nonCC[7]

Country	Investigator	n	Prevalence CC in HCV Patients (%)	CC Prevalence Reported in the Population (%)	SVR in CC Patients (%)	SVR in non-CC Patients (%)
Argentina	Ridruejo, 2011	102	18	N/A	67	33
Brazil	Cavalcante, 2012	221	24	4--67	67	31
Brazil	Ramos, 2012	66	32	4--67	62	28
Brazil	Ferreira, 2012	26	35	N/A	78	N/A
Chile	Pavez, 2011	78	22	41	59	22
México	Sixtos, 2011	80	21	14--31	76	41
Mexico	Martïnez-Gómez, 2011	83	24	14--31	45	28

TABLE 2 Barriers for Access to the New Antivirals

Direct
Availability of new drugs in the country.
High costs.
Fear of adverse effects.
Advanced liver disease.

Indirect
Other health priorities.
Lack of guidelines by the government or private companies providing health care to the population.
Availability of other therapies recently approved (boceprevir, telaprevir).
Ignorance of health care workers and general population.
Few specialized centers with experience.
Lack of prevention and control programs.

Society of Hepatology published national guidelines, but they are not official. Telaprevir and boceprevir cost US $35,000 per patient treated.

Venezuela. Sofosbuvir and simeprevir can be obtained through pharmacies in the United States.

Perú. Boceprevir and telaprevir were approved in 2013 and are covered by Social Security and private insurance companies. There are no national guidelines.

Chile. It is anticipated that new antivirals will be approved. Telaprevir and boceprevir are only available for private insured patients.

Brazil. Sosfosbuvir, daclatasvir, and simeprevir will be introduced in the first 6 months of 2015. The price for sofosbuvir will be US $15,000; each year, 150,000 patients will be treated. Telaprevir and boceprevir are also available.

Argentina. Telaprevir and boceprevir are available. New therapies might be approved by the first semester of 2015.

Cuba. Pegylated interferon is manufactured within the country for national and international use.

Conclusion

1. More prevalence studies on general population are needed.
2. The low prevalence of IL28B genotype CC in the region might justify the introduction of interferon-free regimens.
3. In the majority of Latin American countries, HCV infection is not considered a priority.
4. High cost is not the main limiting factor because it is comparable to other therapies approved in the region.

TABLE 3 Perspectives of the New Antivirals in Latin American Countries**

Evaluated Aspects	State Program for Detection or Treatment	Prevalence in General Population (%)	Currently Approved Treatment regimen	State Strategy to Introduce New DAAs at a Lower Cost	Main Mechanism of Transmission*
Countries					
México	Yes	1.4	Telaprevir	Yes	TS/DUIV
Costa Rica	Yes	0.3	Telaprevir		TS/RCS
Panamá	?	1.0-2.0			BT/HCR
Colombia	Yes	1.0-2.0	Telaprevir/boceprevir	No	BT/HCR
Venezuela	No	1.0-2.0	Telaprevir/boceprevir	No	BT/HCR
Ecuador	?	1.0-2.0		No	BT/HCR
Perú	No	1.0-2.0	Telaprevir/boceprevir	No	BT/HCR
Bolivia	?	1.0-2.0			BT/HCR
Chile	Yes	1.2	Peginterferon/ribavirin	Yes	BT/HCR
Brazil	Yes	0.9-1.9 (6)	Telaprevir/boceprevir	Yes	BT/IVDU
Argentina	No	1.3-1.7	Telaprevir/boceprevir	Yes	BT/HCR
Cuba	Yes	0.8	Peginterferon/ribavirin	Yes	BT/HCR
Paraguay	No	0.3	None	No	BT/HCR
Uruguay	No	1.0			BT/HCR
Dominican Republic	No	2.4	Telaprevir	No	BT/HCR

Abbreviations: BT, blood transfusions; HCR, possibly related to health care; IVDU, intravenous drug use.
*Until screening for HCV was universalized (1990-1995) in the majority of countries.
**Bram, Javier: Chile; Chenquer, Hugo: Brazil; Dagher, Lucy: Venezuela; Girala, Marcos: Paraguay; Leon, Roberto: Venezuela; Mattos, Angelo: Brazil; Silva, Marcelo: Argentina.

5. It is imperative to join forces between state Government, pharmaceutical industry, health professionals, and patients to expedite the introduction of the new interferon-free DAA regimens.■

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