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## EDITORIAL

### Franco-Mexican strategic partnership for liver transplantation<sup>☆,☆☆</sup>



### Colaboración estratégica franco-mexicana para el trasplante hepático

Mexico and France have begun an effective cooperation in the field of liver transplantation.

The cooperation between Mexico and France in the health field is long-standing, and is based on the large number of doctors who have studied in France.

In the surgical field, Professor Mialleret signed the first letter of intent in Mexico City more than 50 years ago. This was ratified in the name of the French National Academy of Surgery in 2003 by its Chairman at that time, Professor Christian Chatelain. An inter-governmental agreement was signed in 2009, but the expected development did not follow.

The beginning of a new administration in Mexico in 2012, led to this cooperation in the health field to be relaunched. This was realised by a series of institutional meetings at the highest level. This relaunching re-motivated the French institutions, where the interest in Mexico appeared to have decreased. Successively, Inserm, the Pasteur Institute, and the Assistance Publique des Hôpitaux de Paris (Paris Hospitals Public Healthcare), signed cooperation agreements.

The French and Mexican Academies of Medicine and Surgery, with the support of their respective Chairmen, Doctor Alejandro Reyes Fuentes of the Academia Mexicana de Cirugía and Doctor Enrique Ruelas Barajas of the Academia Nacional de Medicina de México, Professor André Laurent Parodi Académie Nationale de Médecine (France) and Professor Jacques Baulieux of the Académie Nationale de Chirurgie (France), in the presence of Ms. Mercedes Juan López,

Secretaría de Salud, México, and the French Ambassador for Mexico, signed a cooperation intention agreement to facilitate the exchanges at the beginning of 2013.

In April 2014 the President of the French Republic, Mr. François Hollande, the French Health Minister, Ms. Marisol Touraine, and Mr. Martin Hirsch, General Manager of the Assistance Publique des Hôpitaux de Paris (APHP), were in Mexico to formalise the cooperation agreements in multiple fields, including health, and more particularly as regards obesity and metabolic diseases, chronic diseases (diabetes), oncology, and organ transplantation.

In fact, a letter of intent protocol as regards exchanges associated with liver transplant was signed on 6 February 2014 between the Academia Mexicana de Cirugía, the National Academy of Surgery (France), and the Instituto Mexicano del Seguro Social (IMSS), represented by its Director, Mr. José Antonio González Anaya, in the presence of Ms. Mercedes Juan López, Secretaría de Salud, México.

There is no doubt that it is a clearly demonstrated political commitment by the Mexican Government and the authorities of the Instituto Mexicano del Seguro Social (IMSS), with the aim of improving health care in this speciality in Mexico. In effect, around 40–50 liver transplants are performed each year, in the different IMSS hospitals that provide a service for 70 million members. This activity is shared between different hospitals of the IMSS. The project consists in regrouping liver transplant into four hospital centres of the IMSS: two in the Mexico City, one in Guadalajara, and another in Monterrey.

The Mexican authorities, who wanted a rapprochement with Europe, gave preference to France to fulfil this project, even though other possibilities could be considered.

France is a pioneer country as regards transplants. In this field, the city of Lyon has always been in the vanguard of innovation. We remember the names of Claude Bernard, celebrated doctor and physiologist of the 19th century, who discovered the glycogenic function of the liver using his “liver lavage” experiments; Alexis Carrel, a native

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of Lyon, who received the Nobel Prize in 1912. His vascular anastomosis techniques by "triangulation" made the first paw transplants in dogs possible; Mathieu Jaboulay, who in 1906 performed two renal xenotransplants in the forearm of patients with renal failure. More recently, Jean-Michel Dubernard performed the first pancreas transplant in the world. It was he who also started the first mixed limb transplants in humans, and later of the face.

The first liver transplant in Lyon was performed in 1976 in the Croix-Rousse Hospital. The two adult liver transplant centres were located in only one place in 2009, in the Croix-Rousse Hospital. Approximately 2500 liver transplants have been performed in Lyon: around 80 per year in adults in the Croix-Rousse Hospital, and around 10 paediatric transplants annually in the Femme-Mère-Enfant Hospital (HFME).

The European Liver Transplant Register (ELTR) shows that liver transplants are currently performed in 155 institutions, in 28 countries in Europe, with around 118,500 liver being performed from 1968 until December 2013. France is at the head of the European countries as regards this type of transplant, with 21,279 transplants being performed up to the end of December 2013.

However, it is noted that the annual rate of liver transplants in France has currently levelled off somewhat due to the limited amount of cadaver donors, which are the main source of organs in our country. These provide 2100 transplants per year, with a reduced number of transplants from live donors (10–12 per year). A significant increase has also been observed in the number of recipients over 65 years of age. The two main indications are liver carcinomas (25%) and alcoholic cirrhosis (25%). The survival at one year is 85% (except for fulminating hepatitis), 72.5% at five years, and 62.4% at 10 years. The number of patients on the waiting list is around 100 per year and appears to be declining. The average waiting time for a transplant is 6.6 months. Since 2007, the allocation of organs has been carried out using the MELD (Model for End Stage Liver Disease) score. Although liver transplants are performed mainly from cadaver donors, there is a special list for "super emergencies". Priority is given to children, for whom "good donors" are reserved, and which usually enables a split-liver transplantation using the left lobe to be performed on a child. The right liver lobe is assigned to an adult. Resorting to "expert opinion" may be necessary in around 25% of cases, which leads to an improvement in the MELD score. In France, the Biomedicine Agency (ABM) is responsible for the allocations of organs throughout the country, in accordance with strict rules based on transparency, equality, and justice, and need for a transplant. It is rigorously monitored. Activity associated with transplant is reserved for public hospitals. There are no payments for organ donation. Organ trafficking is prohibited, as well as medical tourism for transplants.

The donation (removal) rate is approximately 25 per million inhabitants, a little less than in Spain where there is a medical coordinator in each large hospital.

Recent administrative rules have stated that everyone is a "potential donor" in that they have not indicated, while alive, to reject donating organs. The French Medical Ambulance Service, Emergency Medical Aid Service, with its system, is very useful for recruiting donors due to accidents, or suicide, in a state of "brain death", and become

organ donors. It is clear that this system is a model that should be adopted in Mexico, as it is essential to improve the use of cadaver donors. A system of this type must be implemented in advance, if it is truly desired to initiate an efficient transplant program.

Media campaigns for organ donations are also very common in France.

Either way, despite everything, there is no doubt that we face a lack of organs, which leads to the increasing use of "marginal donors" (steatotic livers, livers from donors of advanced age, etc.).

In the near future, the use of donors in a "non-beating heart state" (particularly those of type III Maastricht) could be allowed, as in Great Britain, where its practice is normal, to effectively increase the possibilities of using cadaver donors.

The use of transplants from "live donors" has become less frequent in France for some years, since the rule of priority of "good donors" for children was adopted.

Thus, it was in this favourable context that the strategic cooperation agreement between France and Mexico was drawn up to develop liver transplant in Mexican territory.

During the several trips to Mexico, we can now prepare, with the support of the International Relations services of the Hospitales Civiles de Lyon and the Claude Bernard Lyon 1 University, a model cooperation agreement with Instituto Mexicano del Seguro Social (IMSS). This agreement is complete with an implementation agreement for liver transplant. Managers of the IMSS have travelled to Lyon on two occasions. In April 2014, Mr. José Antonio González Anaya, Managing Director of the IMSS, and Doctor Javier Dávila Torres signed the basis of the aforementioned agreement in Lyon. Later, in April 2015, Doctor Yamamoto, Transplant Coordinator of the IMSS, was in Lyon to finalise the fine details of the exchange. Fifty-five physicians of all specialities that had anything to do with transplants were selected to attend courses of 6–12 months duration. In financial terms, the IMSS and the Mexican Consejo Nacional de Ciencia y Tecnología (CONACYT), will pay all the costs. In accordance with the implementation agreement, the doctors who attend the courses are admitted as visiting fellowships after they have registered in the Approval of University Studies of the Claude Bernard Lyon 1 University. The specialities of the Mexican doctors selected include, anaesthesia, resuscitation, paediatric surgery, adult surgery, critical medicine, hepatology, histopathology, and radiology. The course will provide placements, either in the Croix-Rousse Hospital for adult transplants, or in the HFME for paediatric transplants. A training program was established by each person responsible for the course, which was validated by the IMSS. The first five Mexican doctors were received in Lyon at the beginning of July 2015.

It was within the framework of the recent visit to France by the President of the Mexican Republic, Mr. Enrique Peña Nieto, when he arrived to formalise the definitive signing of this strategic cooperation on 13 July 2015. The signing by Mr. José Antonio González Anaya, Managing Director of the IMSS, and by Professor Denis Bourgeois, Vice-Chairman and representative of International Relations and European Relations of the Claude Bernard Lyon 1 University, took place in Paris, in the presence of the President of the Mexican

Republic. President Peña Nieto was interviewed on that day along with doctors of the French-Mexican Strategic Cooperation for Liver Transplant.

In about eighteen months there could be selected Mexican doctors who could work in a team in the four hospital services envisaged by the IMSS. At the same time, the necessary operational strategy will have to be implemented for the extraction of cadaver donor organs, which will be an essential condition for the success of this project. This should enable the obtaining of the required "volume effect" so that liver transplantation can again become an activity carried out "routinely" in Mexico, being fully competitive with the rest of the countries of North America and Latin America.

This fine example of the rapprochement of our two countries, separated by the oceans, for such an ambitious project should serve as a model for other fields in the Franco-Mexican Medical Cooperation. The processes of this program initiated by the different Medical and Surgical Academies of Mexico and France have become a reality.

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