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## CARTA AO EDITOR

### **Analysis of the reversibility of biliary cirrhosis in young rats submitted to biliary obstruction followed by desobstruction**

**Maria Julia de Aro Braz<sup>1</sup>, Leonardo Ervolino Corbi<sup>1</sup>, Ana Cristina Aoun Tannuri<sup>1,2,3</sup>, Josiane de Oliveira Gonçalves<sup>3</sup>, Suellen Serafini<sup>3</sup>, Maria Cecília de Mendonça Coelho<sup>3</sup>, Uenis Tannuri<sup>1,2,3</sup>**

The study entitled “Analysis of the reversibility of biliary cirrhosis in young rats submitted to biliary obstruction followed by desobstruction”, presented at the XXXV COMU in 2016, was elaborated aiming the identification of relevant information for the management of hepatic diseases such as biliary atresia, one very important condition in pediatric clinic due to its progression into biliary cirrhosis and eventually, necessity for liver transplant. Biliary atresia is a cholangiopathy of unknown etiology which affects 1 in every 14.000 live births in the United States<sup>1</sup>. Nowadays, patients with biliary obstruction are submitted to Kasai portoenterostomy as an attempt to restore bile flow<sup>2</sup> and the most important prognostic factor is the age at which portoenterostomy is performed<sup>3,4</sup>. Children untreated before reaching two years of life, die by complications of portal hypertension and liver failure<sup>5</sup>, but good results may be achieved when the child undergoes the surgery before there is a severe loss of liver function<sup>3,4</sup>. On the other hand, even among patients who undergo surgery, some may develop progressive liver fibrosis culminating in cirrhosis. The evolution to transplant necessity is quite frequently, so that biliary atresia is responsible for over

60% of pediatric liver transplants<sup>5</sup>.

The objectives of the study were to analyze histologic and molecular changes in livers of young rats that undergo biliary obstruction and biliary drainage after a period of obstruction; to compare rats obstructed, before and after biliary drainage, in order to evaluate if there is progression, regression or if the hepatic lesion is maintained after biliary desobstruction; and to determine how long after common bile duct obstruction, the hepatic lesion established becomes irreversible. 99 21-days old Wistar rats underwent biliary obstruction and remained obstructed during 2, 3, 4, 5, 6, 7 or 8 weeks, and desobstruction surgery were performed 2, 3, 4, 5 or 6 weeks after the first procedure. Liver samples were collected and histological (hematoxylin-eosin and picrossirius methods) and molecular (RT-PCR) analysis were performed. The parameters analyzed were degree of ductular proliferation, presence of collagen fibers in portal space and expression of genes  $\alpha$ -SMA, desmin and TGF $\beta$ 1.

The results show that histologic and molecular changes in livers of young rats that undergo biliary obstruction include ductal proliferation and portal fibrosis;

1. Faculdade de Medicina da Universidade de São Paulo.

2. Instituto da Criança – Hospital das Clínicas da FMUSP.

3. Laboratório de Investigação em Cirurgia Pediátrica (LIM 30) – Faculdade de Medicina da Universidade de São Paulo.

**Correspondence:** maria.julia.braz@usp.br.

reduction of desmin levels and augmentation of  $\alpha$ -actin and TGF $\beta$ 1 levels over time. It was found improvement in histologic and molecular changes after biliary drainage procedure in most groups. The findings suggest that cirrhosis and its histological and molecular changes occur early after biliary obstruction and are severe and potentially fatal, but they can be reversed or at least delayed after

procedure for biliary drainage. However, it was not possible to determine how long after common bile duct obstruction the established hepatic lesion becomes irreversible and intervention ceases to be effective. Further studies are necessary.

An article is being written for publication in a journal of pediatric surgery.

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