DIFFERENTIATION OF BILIARY ATRESIA FROM OTHER CAUSES OF NEONATAL CHOLESTASIS. A CORRELATION OF CLINICO-RADIOLOGIC, LABORATORY AND HISTOPATHOLOGIC PROFILE AT PHILIPPINE CHILDREN'S MEDICAL CENTER FROM JANUARY 2015 TO DECEMBER 2019.

Kristine Joy A. Gacutno, MD
Rouchelle D. Dela Cruz, MD, FPSP
Philippine Children's Medical Center

OBJECTIVES

To differentiate and correlate the clinical, radiologic, biochemical and histopathologic parameters of biliary atresia and other causes of neonatal cholestasis.

INTRODUCTION

Biliary atresia is the principal cause of neonatal cholestasis and the most common reason for pediatric liver transplantation. The incidence of extrahepatic biliary atresia ranges from 1 in 5,000 to 1 in 19,000 live births in different populations.

The significance of this study is to serve as a platform to bring forth the subtle clinical and histomorphologic differences between other causes of neonatal cholestasis and biliary atresia especially in the early stages.

METHODS

This is a 5-year retrospective and descriptive study of patients who were clinically diagnosed with neonatal cholestasis who underwent liver biopsy at PCMC. Logistic regression analysis was used to assess the relationship between variables.

RESULTS

This study utilizing regression analysis showed that the age (33.3% for infants with 3 months of age and 40.5% for above 3 months), jaundice (71.4%) and onset of acholic stool (71.4%) after 1 month of life, presence of ascites (33.3%) and elevated level of alkaline phosphatase were significant predictors of biliary atresia. Ultrasonographic findings of abnormal gallbladder pathology also favor biliary atresia. Eight histopathologic features were found to be significant predictors of the etiology of neonatal cholestasis: bile duct proliferation, ductular reaction, bile plugs, portal tract edema, absence of hepatocellular necrosis absence of extramedullary hematopoiesis, moderate canalicular cholestasis and higher degree of fibrosis favors biliary atresia.

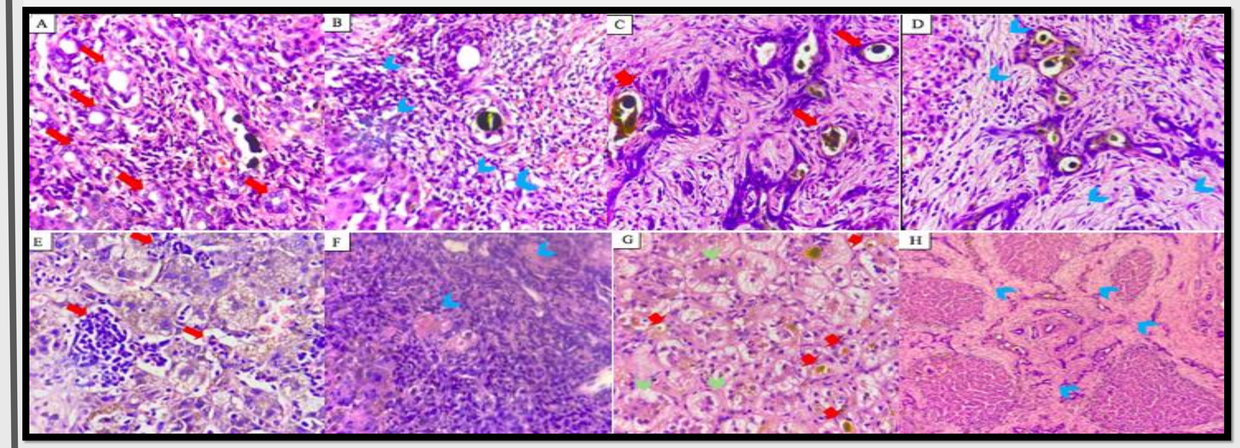

FIGURE 1. SIGNIFICANT PREDICTORS OF THE ETIOLOGY OF NEONATAL CHOLESTASIS

A. Bile duct proliferation (red arrows.) B. Marked ductular reaction (blue arrowheads). C. Bile plugs (red arrows). D. Portal tract edema (blue arrowheads). E. Marked extra medullary hematopoiesis in neonatal hepatitis (red arrows). F. Mild hepatic necrosis (blue arrowheads) in viral hepatitis. G. Moderate canalicular cholestasis and few giant cells (canalicular cholestasis, red arrows and giant cells, green arrowheads). H. Island of hepatocytes with stage 4 fibrosis (fibrosis blue arrowheads).

CONCLUSION AND RECOMMENDATION

This study however did not find any single clinical feature with high sensitivity and specificity to differentiate biliary atresia from other diseases. Thus a combination of laboratory parameters, imaging studies and liver biopsy features are essential in making an accurate diagnosis. Based on the outcome of the study a scoring system that integrates clinical, radiological and histopathological parameters can be created that will aid clinicians and pathologists to make a precise and timely diagnosis.

KEYWORDS

Neonatal cholestasis, Jaundice, Acholic stool, Biliary atresia, Neonatal Hepatitis, Alkaline Phosphatase.