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MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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Portal Vein Thrombosis in Neonates with Umbilical Vein Catheterization: Incidence and Risk Factors

Thesis

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List of Abbreviations

Abb.	Full term
ACT	Anticoagulation therapy
ALT	Alanine aminotransferase
aPTT	Activated partial thromboplastin time
AST	Aspartate aminotransferase
CRP	C-reactive protein
CT	Computed Tomography
CVAD	Central venous access device
EHPVO	Extrahepatic portal vein obstruction
EVL	Endoscopic variceal ligation
EVS	Endoscopic variceal sclerotherapy
FBN	Fibrinogen
FFP	Fresh frozen plasma
HLH	Hematophagocytic lymphohistiocytosis
HUS	Head ultrasound to rule out haemorrhage
HVPG	Hepatic venous pressure gradient
ICU	Intensive care unit
INR	International normalized ratio
IQR	Interquartile range
IVC	Inferior vena cava
IVC/RA/RV	Inferior vena cava/right atrial/right ventricular
IVH	Intraventricular hemorrhage
LFT	Liver function tests
LHV	Left hepatic vein
LMWH	Low molecular weight heparin
LPV	Left portal vein
MRB	MesoRex Bypass shunt
MRV	Magnetic Resonance Imaging Venography
MTHFR	Methylenetetrahydrofolate reductase
NEC	Necrotizing enterocolitis
NGT	Nasogastric tube

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Portal Vein Thrombosis In Neonates with Umbilical Vein Catheterization: Incidence and Risk Factors

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ABSTRACT

Background and aim of the work: Umbilical venous catheter (UVC) placement is thought to be a cause of portal vein thrombosis (PVT). Our study aimed to identify the incidence of PVT and potential risk factors predisposing neonates with UVC to develop PVT and the prevalence of hereditary prothrombotic mutations among the affected group if PVT detected.

Methods: A prospective observational study was conducted in the Neonatal intensive care unit (NICU) of Ain Shams university (ASU) Children's Hospital on 100 neonates(Group A). They were subjected to abdominal X-ray initially and duplex on their portal veins initially and at 1,6 and 12 months post insertion. We compared the risk factors of group (A) with the risk factors of another group of 25 childen with PVT ,who had been admitted in NICUs while neonates(Group B).

Results: There was 46 males and 54 females. The mean BW was 1.87±0.72 Kg, the mean GA was 33.71±2.41weeks.Mean stay in NICU was 18.22±9.78 days, with mean UVC insertion duration 6.88 ±2.55 days, 75 %of inserted UVC were central in position, 77% of the studied neonates were premature,1 patient had NEC(Necrotizing EnteroColitis), 18% had sepsis,4% had blood products transfusion through the UVC. The one year follow up of the study group showed no incidence of UVC related PVT.

Conclusion: Although PVT is related to UVC in the literature and in our experience in the ASU Children's Hospital Hepatology Clinic as a tertiary referral centre, yet in this study, the sole placement of UVC does not appear to increase risk of PVT if properly inserted and cared.

List of Abbreviations Cont…

Abb.	Full term
NICU	Neonatal intensive care unit
NSBB	Non selective Beta blockers
PHT	Portal hypertension
PHTN	Portal hypertension
PICC	Periherally inserted central catheters
PIVs	Peripheral intravenous lines
PLT	Platelets
PRC	Packed red blood cells
PROM	Premature Rupture of Membranes
PV	Portal vein
PVT	Portal vein thrombosis
RBC	Red blood cell
RHV	Right hepatic vein
RPV	Right portal vein
RR	Recessus of Rex
SMV	Superior mesenteric vein
SV	Splenic vein
TIPS	Transjugular intrahepatic porto-systemic shunt
tPA	Tissue plasminogen activator
UFH	Unfractionated heparin
US	Ultrasound
UVC	Umbilical vein catheter
VTE	Venous thromboembolism

INTRODUCTION

Extrahepatic portal vein obstruction (EHPVO), although rare in children, is a significant cause of portal hypertension (PHT) which leads to life-threatening gastrointestinal bleeding in the pediatric age group. PHT may also lead to other complications such as hypersplenism, cholangiopathy, ascites, and even hepatopulmonary syndrome and portopulmonary hypertension that may require liver transplantation ***(Khodayar and Aldea, 2016).*** Portal vein thrombosis (PVT) refers to a total or partial obstruction of the blood flow in this location, secondary to a thrombus formation ***(Ferri et al., 2012).*** It represents one of the most frequent causes of portal hypertension in children ***(El Karaksy et al., 2015)*** and is a major cause of gastrointestinal bleeding in children and adolescents ***(Maamouri et al., 2016)***.

Bleeding from ruptured gastroesophageal varices is considered the most serious complication and the leading cause of death in children with PVT ***(El Karaksy et al., 2015)***. The estimated incidence of PVT is 1 in 100,000 live births ***(Williams and Chan, 2011).***

Umbilical venous catheters (UVCs) have been widely used in critically ill neonates for the urgent administration of resuscitation drugs and blood products and for exchange transfusion. Despite their value in infant care, UVCs may cause serious mechanical, infectious and thrombotic complications ***(Unal et al., 2012).*** Incidence of PVT complicating umbilical