



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني 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 Contents

Title	Page No.
List of Tables.....	i
List of Figures	iv
List of Abbreviations	vi
Introduction.....	1
Aim of the Work	3
Review of Literature.....	4
Patients and Methods.....	42
Results	51
Discussion.....	87
Summary	101
Conclusion	104
Recommendations.....	105
References	106
Arabic Summary	--

List of Tables

Table No.	Title	Page No.
Table (1):	Risk factors for development of PVT after UVC insertion.....	12
Table (2):	Demographic data of Group (A):.....	52
Table (3):	Age at which UVC was inserted.....	53
Table (4):	Antenatal maternal risk factors(Group A).....	54
Table (5):	Family history risk factors of group (A):	55
Table (6):	Gestational age, birth weight and length of NICU stay in group A:.....	55
Table (7):	Classification of birth weights of group A:.....	56
Table (8):	Tip of UVC location as defined by X-ray abdomen AP view, in Group A:.....	57
Table (9):	Common solutions given through the UVC, in group A:.....	59
Table (10):	Duration of UVC insertion (days) in the Group A:.....	60
Table (11):	Causes of admission in Group A:.....	61
Table (12):	Complications during hospitalization in Group A:.....	62
Table (13):	Complete blood count parameters among group A:.....	63
Table (14):	Sonographic findings of the PV and its branches initially and before removal in group (A):.....	64
Table (15):	Sonographic findings of the PV and its branches: at 1,6,12 month follow up of group (A):.....	66
Table (16):	Demographic data of PVT group (Group B):.....	68

List of Tables Cont...

Table No.	Title	Page No.
Table (17):	Distribution of the birth weight in group (B):	70
Table (18):	Congenital anomalies in Group (B):.....	71
Table (19):	Duration of NICU stay in the group (B):.....	72
Table (20):	Different causes of NICU admission in group(B):.....	72
Table (21):	Antenatal history in group (B):.....	74
Table (22):	Family history (FH) data of group (B):	75
Table (23):	Complications during NICU admission in group (B):.....	76
Table (24):	Blood products transfusion in Group (B):	76
Table (25):	Age at which UVC was inserted in group B:.....	77
Table (26):	Comparison between the 2 groups regarding sex and presence of associated congenital anomalies:	78
Table (27):	Comparison between the 2 groups regarding age at which UVC was inserted:	80
Table (28):	Comparison between the 2 groups regarding initial cause of admission in NICU:	80
Table (29):	Comparison between the 2 groups regarding prematurity and presence of PROM:	82
Table (30):	Comparison between the 2 groups in terms of Gestational age at delivery and Birth weight:	84
Table (31):	Comparison between the two groups regarding Perinatal asphyxia, sepsis, family history of DVT and maternal preeclampsia:.....	85

List of Tables Cont...

Table No.	Title	Page No.
-----------	-------	----------

Table (32):	Comparison between the 2 groups regarding Length of stay in NICU and Blood products transfusion through the UVC:	86
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List of Figures

Fig. No.	Title	Page No.
Figure (1):	Anatomy of the Portal vein.	5
Figure (2):	Normal portal vein branching patterns as visualized by contrast-enhanced CT imaging.....	6
Figure (3):	Anatomy of neonatal portal vein	9
Figure (4):	Portal venous thrombosis associated with catheter malposition.....	14
Figure (5):	Ultrasonography	26
Figure (6):	Grades of PVT	26
Figure (7):	Neonatal portal vein thrombosis management.....	33
Figure (8):	Proposed algorithm for the management of acute variceal bleeding	35
Figure (9):	Embryologic origins of the RR and diagram of the MRB	37
Figure (10):	Sex distribution among group A.	53
Figure (11):	Birth weight distribution of neonates in Group (A).....	56
Figure (12):	Location of tip of the umbilical catheter.....	57
Figure (13):	Central UVC.	58
Figure (14):	Hepatic UVC.....	58
Figure (15):	Prehepatic UVC.....	58
Figure (16):	Causes of admission in Group A.....	61
Figure (17):	Initial Duplex of the PV in the first 48 hrs shows patent main PV with average velocity.....	65
Figure (18):	Color doppler of the main PV before UVC removal shows adequate flow in the main PV.	65

List of Figures Cont...

Fig. No.	Title	Page No.
----------	-------	----------

Figure (19):	Shows patent main PV and Right PV at the 1 month follow up with average diameter 3.1mm.....	66
Figure (20):	Color doppler and pulsed wave doppler of the PV at the 6 months follow up with patent PV and adequate hepatopetal flow and average velocity(17.6 cm/sec).	67
Figure (21):	Color and pulsed wave doppler of the PV at the 12 month follow up shows patent PV with adequate color doppler, hepatopetal flow and average velocity(18.1 cm/sec).	67
Figure (22):	Sex distribution of Group B.....	69
Figure (23):	Congenital anomalies among group B.	71
Figure (24):	Cause of NICU admission in group (B)	73
Figure (25):	Antenatal factors in the PVT group (Group B).....	74
Figure (26):	Family history of DVT in group (B).....	75
Figure (27):	Percentage of patients who received blood products transfusion through the UVC in Group (B).....	76
Figure (28):	Comparison of sex distribution between the 2 groups.....	79
Figure (29):	Comparison of presence of congenital anomalies between the 2 groups.	79
Figure (30):	Comparison between the 2 groups regarding cause of admission.	81
Figure (31):	Comparison between the 2 groups regarding prematurity.	83
Figure (32):	Comparison between the 2 groups regarding presence of PROM.	83

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 children 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 ± 2.41 weeks. 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	Peripherally 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 Karakasy 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 Karakasy 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