بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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MONA MAGHRABY

Evaluation of Pepsin (A) By Mouth Swab as A Diagnostic Marker In Preterm Neonates With Clinical Gastro Oesophageal Reflux

Thesis

Submitted for partial fulfillment of Master Degree in ***Pediatrics***

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Hend Adel Elgushy Hassan

List of Contents

List of Tables

List of Tables (Cont...)

List of Figures

List of Figures (Cont...)

Fig. No.	Title	Page No.

List of Abbreviations

Abb.	Full term
ANOVA	*A one way analysis of variance.*
AOP	*Apnea of prematurity.*
BE	*Barrettes esophagus.*
BPD	*Bronchopulmonary dysplasia*
BW	*Birth weight.*
CBC	*Complete blood count.*
CDH	*Congenital diaphragmatic hernia.*
CI	*Confidence interval.*
CPAP	*Continuous positive airway pressure.*
CS	*Caesarian section.*
EA	*Esophageal atresia.*
EER	*Extra esophageal reflux.*
ELISA	*Enzyme linked immunosorbent assay.*
GA	*Gestational age.*
GEJ	*Gastroesophageal junction.*
GER	*Gastroesophageal reflux.*
GERD	*Gastroesophageal reflux disease.*
GI	*Gastro intestinal.*
GM	*Gram.*
HCL	*Hydrochloric acid.*
HIE	*Hypoxic ischemic encephalopathy.*
HPAEC	*High performance anion exchange chromatography.*
LES	*Lower esophageal sphincter.*
LPR	*Laryngeo pharyngeal reflux.*

List of Abbreviations (Cont...)

Abb.	Full term
MII	*Multichannel intraluminal impedance.*
NEC	*Necrotizing enterocolitis.*
NICU	*Neonatal intensive care unit.*
NIPP	*Non invasive positive pressure.*
PEP	*Pepsin electrophoresis.*
PIP	*Peak inspiratory pressure .*
PPI	*Proton pump inhibitors .*
RD	*Respiratory distress.*
SD	*Standard deviation.*
SVT	*Supra ventricular tachycardia.*
TLESR	*Transient lower esophageal sphincter relaxation.*
TOF	*Tracheoesophageal fistula.*
TPF	*Trans pyloric feeding.*
UES	*Upper esophageal sphincter.*
US	*Ultra sound.*
VD	*Vaginal delivary.*
WT	*Weight.*

INTRODUCTION

Gastro esophageal reflux disease (GERD) is a chronic progressive gastro intestinal problem, which is very common in preterm and full term as well. The incidence of GERD in preterm is 22% up to85 %, while in full term is 11% up to13 % ***(Funderburk et al., 2015).***

There are multiple risk factors which aggravate the condition as immature tone of the lower esophageal sphincter, supine positioning, small stomach capacity, decreased esophageal capacitance, delayed gastric emptying, decreased gastrointestinal motility, and the presence of an nasogastric tube (NG) tube ***(Minowa et al., 2016)***.

Clinical features directly resulting from reflux episodes, being vomiting and regurgitation, other common but less specific symptoms are represented by irritability, sleep disturbances, feeding refusal, or unexplained crying. Sometimes frequent regurgitations or vomiting may be complicated by failure to thrive and failure to weight gain ***(Kethman and Hawn, 2017).***

Larengopharengeal reflux (LPR) has also been thought to be associated with many diseases such as laryngitis, bronchiolites, and may contribute to the development of wheezing, pneumonia, episodes of apnea and bradycardia ***(Reder et al., 2014).***

Diagnosis of GERD in preterm neonates is very difficult as it may be a symptomatic and variable. There are

many methods and tests for diagnosis of GERD, the most common and gold standard method is multichannel intraluminal impedance with pH (pH-MII). But, it was invasive, expensive, and not reliable and need hospitalization to be performed ***(Farhath et al., 2013).***

Pepsin A is only produced by chief cells in the gastric mucosa and are present in large quantities in gastric juice unlike other types of pepsin which produced by other sites. So, pepsin A is a specific biomarker for gastric reflux ***(Johnston et al., 2016).***

Pepsin may be detected in sputum or saliva by enzymatic or immunological tests. Enzymatic tests have several limitations and are difficult to obtain and standardize in practice settings. Attention has therefore focused on immunologic assays with polyclonal and monoclonal anti-bodies that have been patented and commercialized ***(Vakil, 2014).***

Pepsin is considered to be a sensitive and specific marker for the diagnosis of LPR. Compared to multichannel intraluminal impedance (MII) monitoring, pepsin assay may be performed on upper airway samples such as saliva and sputum, thereby facilitating the testing of certain patient populations who are unable undergoes MII monitoring. Pepsin analysis also provides the advantage of direct detection of extra esophageal reflux airway damage potentially attributable to LPR ***(Na et al., 2016).***

AIM OF THE WORK

- **The primary aim was** to evaluate the detection of pepsin (A) in mouth swab in neonates with clinical gastro esophageal reflux.
- **The secondary aim** was to study relation between level of pepsin (A) and duration of mechanical ventilation, duration of hospitalization and mortality.