بسم الله الرحمن الرحيم

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بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات: لا يوجد

Transforming Growth Factor beta 2 (TGF-β2) in Breast-fed versus premature formula-fed preterm Neonates

Thesis

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List of Abbreviations

Abb.	Full term
AAP	American academy of pediatrics
BF	Breast-Fed
BM	Breast milk
CBC	Complete blood count
CPAP	Continuous positive airway pressure
CRP	C-Reactive protein
CS	Cesarean section
CSF	Cerebro spinal fluid
DHM	Donor human milk
DM	Diabetes Mellitus
ELBW	Extremely low birth weight
FI	Feeding intolerance
GA	Gestational age
GIT	Gastrointestinal tract
HGS	Hepatocyte growth factor substrate
HPF	Hydrolyzed protein formula
Ig	Immunogloblin
IUGR	Intrauterine growth retardation
LBW	Low birth weight
MV	Mechanical ventilation
NEC	Necrotizing enterococitis
NICU	Neonatal intensive care unit
NS	Neonatal sepsis
NVD	Norma vaginal deliver

List of Abbreviations Cont...

Abb.	Full term
PDA	Patent ductus arteriosus
PTF	Premature formula
RDS	Respiratory distress syndrome
SIP	Spontaneous intestinal perforation
TGF-β	Transforming growth factor-β
TPN	Total parental nutrition
VLBW	Very low birth weight

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INTRODUCTION

It is well established that breast-feeding confers protection against infectious diseases, particularly those of the gastrointestinal tract, via antimicrobial molecules such as immunoglobulins, lysozyme, lactoferrin, defensins, and oligosaccharides ***(Lepage et al., 2012).***

Accumulating evidence suggests that in addition to this passive immunoprotection, bioactive molecules in breast milk modulate the infant's mucosal and systemic immune responses and may thereby promote adequate and appropriate immune responsiveness against both potentially pathogenic and indigenous microbes and harmless environmental and dietary antigens ***(Guellec et al., 2016).***

One of the most striking differences between breast-fed and formula-fed infants was evident in the serum concentrations of the Transforming Growth Factor beta 2 (TGF-β2) isoform, TGF-β2, with breast-fed infants exhibiting significantly higher levels of this anti inflammatory cytokine. Breast milk provides infants with direct anti-pathogenic effects via maternal microbe-specific Ig and various other antimicrobial substances ***(Lepage et al., 2012).***

TGF-β2 is an important growth factor present in human and bovine milk ***(Rasmussen et al., 2016; Chatterton et al., 2013)***. TGF-β is an immunomodulatory cytokine that is secreted in breast milk in significant quantities. Of the 3 human TGF-β isoforms (TGF-β1, 2, and 3), TGF-β2 is most abundant in breast milk. Breast milk TGF-β2 may be an important source of TGF-β during the neonatal period when endogenous production of TGF-β in the gut is still inadequate ***(Maheshwari et al., 2011).***

In the intestine, TGF-β2 is decreased in premature infants and especially in those experiencing necrotizing enterocolitis (NEC) as compared with term infants ***(Maheshwari et al., 2011).*** TGF-β2 may promote intestinal immune responses and gut functions, such as the intestinal adaptation to bacterial colonization and establishing oral tolerance by regulatory T cells, inducing IgA production and enhancing the intestinal epithelial barrier function, in newborn infants ***(Rasmussen et al., 2016; Chatterton et al., 2013)***.

The deficiency of TGF-β2 may partly account for intestinal disorders, for instance the high incidence of NEC in formula-fed preterm infants ***(Nguyen et al., 2015).***

In NICU, premature formula has been used to feed the preterm infants when breast milk is not available ***(Obsorn and Sinn, 2006)***. Whether it enables a more rapid establishment of full enteral feeding in preterm infants needs to be investigated ***(Mihatsch et al., 2001).***

We hypothesis that breast fed preterm neonates exhibit higher level of serum TGF-β2 and lower incidence of feeding intolerance compared to premature formula fed preterm neonates.

AIM OF THE STUDY

To study the feeding tolerance and its relation to serum TGF-β2 in breast fed versus premature formula fed in preterm neonates.