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Penulis : Pardede BK, Utari A, **Mexitalia M**

Corresponding author: Maria Mexitalia

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Original Article

Insulin-like growth factor-1 and growth in infants 0-6 months of age

Bob Kevin Pardede, Agustini Utari, Maria Mexitalia

Abstract

Background During infancy, growth is affected by many factors, including hormones. Insulin-like growth factor-1 (IGF-1) is a hormone with an important role in regulating somatic growth and organ development.

Objective To analyze for possible correlations between IGF-1 levels and infant growth from 0-6 months of age. Methods A prospective study was conducted on 38 infants from birth to 6 months of age. Inclusion criteria were full-term newborns with normal birth weight and singleton birth. Serum IGF-1 was measured twice, from umbilical cord blood at birth and at 6 months of age. Anthropometric measurements were made every three months. Paired T-test was used to analyze mean IGF-1 among time points, and Pearson's correlation test was used to analyze IGF-1 levels and growth.

Results Mean IGF-1 level decreased from birth to 6 months of age (89.6 ng/mL vs. 48.3 ng/mL, respectively; P < 0.001). Delta IGF-1 had positive significant correlations with delta weight at 3 months (r = 0.347; P = 0.033) and 6 months (r = 0.386; P = 0.017), as well as delta head circumference at 3 months (r = 0.356; P = 0.028) and 6 months (r = 0.356; P = 0.028). However, there were significant negative correlations between umbilical cord IGF-1 with delta body weight (r = -0.459; P = 0.004) and delta length at 6 months (r = -0.414; P = 0.010).

Conclusions: There is a decrease in IGF-1 levels at the first 6 months of life. Umbilical cord IGF-1 level has negative correlations with the weight and length increment at the age of 6 months. [Paediatr Indones. 2021;61:89-93; DOI: 10.14238/pi61.2.2021.89-93].

Keywords: umbilical cord IGF-1; IGF-1 at 6 months of age; growth

nsulin-like growth factor-1 (IGF-1) is a hormone that mediates the effects of growth hormone (GH) and has a significant role in regulating somatic growth and organ development. This hormone is secreted by the anterior pituitary, and regulated by growth hormone releasing hormone (GNRH) and somatostatin. Growth hormone induces IGF-1 in the liver and regulates paracrine IGF-1 production in other tissues. 1 The IGF-1 system is very sensitive to metabolic changes and IGF-1 concentrations. The insulin-like growth factor binding protein (IGFBP) is suspected of having a role in growth and nutrition because postnatal growth is influenced by infants' nutritional intake, especially that of protein and energy.2 A previous study in Denmark showed that IGF-1 and IGFBP-3 levels positively correlated with increased body weight and length, until the age of 3 months in full-term infants. The IGF-1 levels were lower in breast-fed infants than in those receiving formula at 3 months.3 The IGF-1 in infants who breastfed for 6-12 months was assumed to affect GH

From the Department of Child Health, Universities Diponegoro Medical School/Dr. Kariadi Hospital, Semarang, Central Java, Indonesia.

Corresponding author: Maria Macitalia. Department of Child Health, Universitas Diponagoro Medical School/Dr. Kaziadi Hospital, Jl. Dr. Sutomo No.16-18, Semzang, Telephone /Fac. (024) 8414296, act: 8091 Ensail demacitalia@onnail.com.

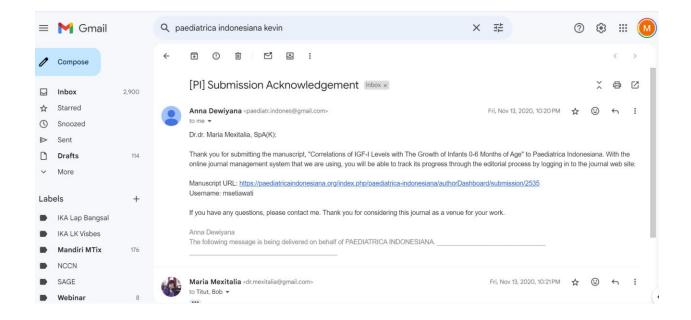
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Bukti Konfirmasi Submit Artikel

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1.	Bukti submit diterima	13-11-2020
2.	Bukti acceptance	16-03-2021
3.	Bukti copy editing	16-03-2021

1. Tanggal 13 November 2020





[PI] Submission Acknowledgement

2 messages

Anna Dewiyana <paediatr.indones@gmail.com>
To: "Dr.dr. Maria Mexitalia, SpA(K)" <dr.mexitalia@gmail.com>

Fri, Nov 13, 2020 at 10:20 PM

Dr.dr. Maria Mexitalia, SpA(K):

Thank you for submitting the manuscript, "Correlations of IGF-I Levels with The Growth of Infants 0-6 Months of Age" to Paediatrica Indonesiana. With the online journal management system that we are using, you will be able to track its progress through the editorial process by logging in to the journal web site:

Manuscript URL: https://paediatricaindonesiana.org/index.php/paediatrica-indonesiana/authorDashboard/submission/2535

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If you have any questions, please contact me. Thank you for considering this journal as a venue for your work.

Anna Dewivana

The following message is being delivered on behalf of PAEDIATRICA INDONESIANA.

2. Tanggal 16 Maret 2021



Maria Mexitalia <dr.mexitalia@gmail.com>

[PI] Editor Decision

1 message

Partini Pudjiastuti Trihono <paediatr.indones@gmail.com>

Tue, Mar 16, 2021 at 2:49 PM

To: Bob Kevin Pardede <bobkevinpardede@gmail.com>, Agustini Utari <agustiniutari@gmail.com>, Maria Mexitalia <dr.mexitalia@gmail.com>

Bob Kevin Pardede, Agustini Utari, Maria Mexitalia:

We have reached a decision regarding your submission to Paediatrica Indonesiana, "Insulin-like growth factor-1 and growth in infants 0-6 months of age".

Our decision is to: accept submission.

Partini Pudjiastuti Trihono

Department of Child Health, University of Indonesia Medical School/Dr. Cipto Mangunkusumo, Jakarta partinipt@yahoo.com

The following message is being delivered on behalf of PAEDIATRICA INDONESIANA.

3. Tanggal 16 Maret 2021



Maria Mexitalia <dr.mexitalia@gmail.com>

[PI] Copyediting Request

3 messages

Partini Pudjiastuti Trihono <paediatr.indones@gmail.com> Reply-To: Partini Pudjiastuti Trihono <partinipt@yahoo.com> To: "Dr.dr. Maria Mexitalia, SpA(K)" <dr.mexitalia@gmail.com> Tue, Mar 16, 2021 at 2:49 PM

Dr.dr. Maria Mexitalia, SpA(K):

I would ask that you undertake the copyediting of "Insulin-like growth factor-1 and growth in infants 0-6 months of age" for Paediatrica Indonesiana by following these steps.

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Partini Pudjiastuti Trihono

Department of Child Health, University of Indonesia Medical School/Dr. Cipto Mangunkusumo, Jakarta partinipt@yahoo.com

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