

Measured Length of Normal Term Infants Changes Over the First Two Days of Life

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ABSTRACT

Measured neonatal length may be influenced by reluctance of the measurer to extend the infant's limbs against the normal flexor posture. As the degree of flexion decreases over the first few days of life, measured length may increase. We conducted a study of the effect of postnatal age on measured length and on inter-observer correlation. The study sample consisted of 101 healthy term newborns. Correlation between measurements made before age 2 hours by the study nurse and by regular nurses was excellent with a mean difference of 0.61 ± 0.49 cm ($r^2 = 0.923$). The mean measured length increased by 0.2 cm between admission and age 1 day ($p = 0.057$) and by a further 0.17cm by age 2 days ($p = 0.001$). This study demonstrates that measured length appears to change over the first 2 days of life.

KEY WORDS

length, newborn, neonate

INTRODUCTION

Routine measurement of length is recommended for all newborns^{1,2}. This provides important information on intrauterine growth and also provides a basis for subsequent assessment of growth during childhood.

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The accuracy of this measurement has been questioned by a number of studies^{3,4}. One factor that may explain some of the variance in measurements that has not been well studied is the age of the infant at the time of measurement.

At birth, the normal infant has a posture similar to the intrauterine state of marked limb flexion. Nurses making routine measurements may be reluctant to forcefully extend the infant's legs in order to ensure accuracy. During the first days of life, the intrauterine state of flexion gradually decreases³.

Thus, we hypothesized that the measured length of normal infants would gradually increase over the first 48 hours of life. If so, this finding would be important in defining the ideal age for measurement.

INFANTS AND METHODS

Study population

Infants selected for this study were term healthy newborns with a birth weight between 2,500 and 4,000 grams. They were born at Kaplan Medical Center, Rehovot, Israel. They were randomly selected from the nursery population on days when the study nurse (MS) was available.

Protocol

The routine protocol in the department is for all babies to be measured by a nurse as part of the admission examination within 2 hours of birth. These measurements were made by 15 different nurses with the number of measurements per nurse ranging from 1 to 22. All measurements were made on a standard infant anthropometer (Holtain Ltd., Crymych, Dyfed, UK). The study nurse measured each infant on three occasions - within 2 hours of birth and at 1 and 2 days of age. The study nurse was unaware of the admission measurement by the