

NORMATIVE DATA OF PENILE LENGTH ON CHILDREN AGE GROUPS WITH TANNER CLASSIFICATION IN HASAN SADIKIN HOSPITAL

¹Caesar Khairul Wallad, ¹Jupiter Sibarani, ¹Tjahjodjati.

¹Department of Urology, Faculty of Medicine/Padjajaran University, Hasan Sadikin General Hospital, Bandung.

ABSTRACT

Objective: It has been reported that normal value of penile length were varied among countries. Difference in race, ethnicity, genetics and nutrition plays a factor in penile length. Micropenis is an abnormality in which penile length were considered smaller in comparison of a 'normal penile length'. There are published article in Asia and Europe in terms of local penile length figures unfortunately none in West Java. This study was aim to establish local data as a reference in order to define micropenis. **Material & method:** All subjects in pediatric outpatient clinics were collected with cross sectional method. Exclusion criteria includes: congenital penile disease (hypospadias, burried penis, chordee, fistulas, webbed, etc), history of hormonal therapy, malnourished, and congenital syndromes. Subjects will undergone examination of stretched penile length. **Results:** A total of 276 children were included in the study with 23 subjects in each Tanner groups. The average penile length in Hasan Sadikin Hospital were inferior in all groups in contrast with the Tanner age groups as cited in table 1. **Conclusion:** Normative local data of penile length is necessary. Not using the local reference may result in underestimation and overdiagnosis.

Keywords: Penile length, children, Tanner classification.

ABSTRAK

Tujuan: Telah dilaporkan bahwa nilai normal panjang penis bervariasi di berbagai negara. Perbedaan dalam ras, etnis, genetika, dan nutrisi mempunyai peranan penting dalam panjang penis. Mikropenis adalah suatu kelainan dimana panjang penis lebih kecil dibandingkan dengan 'panjang penis normal'. Beberapa artikel di Asia dan Eropa telah mempublikasikan parameter normal panjang penis akan tetapi belum ada di Jawa Barat. Penelitian ini bertujuan untuk memaparkan data lokal sebagai referensi untuk mendefinisikan mikropenis. **Bahan & cara:** Semua subyek pasien yang berobat jalan di klinik pediatrik dikumpulkan dengan metode kros-seksional. Kriteria eksklusi mencakup: penyakit penis kongenital (hipospadia, burried penis, kordee, fistul, webbed, dan lain-lain), riwayat terapi hormonal, malnutrisi, dan sindrom kongenital. Subyek kemudian menjalani pemeriksaan panjang penis yang diregangkan. **Hasil:** Seluruh 276 anak yang termasuk dalam studi dengan 23 subyek di tiap kelompok umur berdasarkan kelompok umur Tanner. Panjang rerata penis di Rumah Sakit Hasan Sadikin lebih rendah di semua kelompok umur dibandingkan dengan kelompok umur Tanner seperti tertera pada tabel 1. **Simpulan:** Data lokal normatif panjang penis sangat penting. Tidak menggunakan referensi lokal dapat mengakibatkan diagnosis yang berlebihan.

Kata kunci: Panjang penis, anak, klasifikasi Tanner.

Correspondence: Caesar Khairul Wallad, c/o: Department of Urology, Faculty of Medicine/Padjajaran University, Hasan Sadikin General Hospital, Bandung. Jl. Pasteur No. 38 Bandung. Phone: +62 22 2039141. Mobile phone: 085352592080. Email: caesaritenour_2000@yahoo.com.

INTRODUCTION

Evaluation of the genitalia is important in physical examination of childrens and newborns. Penile size below normal in male infants is a warning signs to medical practitioner about abnormalities that can be worry and concern for parents. The

presence of penile size standards based on age will help in the early diagnosis and treatment of patients.

Medical consultations regarding to penis size are very common at urology clinics, because the issue has a significant medical, sexual, psychological and social relevance.

Penile length (PL) varies in different

populations. It depends on race, ethnicity and nutritional status thus it causes differences in penile length in each population. Many studies from different countries has been making effort to develop a system to define normal penile length.¹⁻⁴

The Tanner classification from a British Pediatrician, Dr. James Tanner has been published and used in so many countries including Indonesia as a standard to define micropenis. Later on the popular Harrit Lane Handbook mention the mean stretched penile length and 2.5 cm SD below the mean.

Eventhough the Author of the classification system himself has argued that age classification using the tanner stages represents an invalid use and Tanner classification represents a maturity stages and are not diagnostics for age estimation.⁴ It still very much an imperative part in the diagnosis of micropenis in West Java especially in our Hospital

OBJECTIVE

To establish local data in West Java as a reference in order to define micropenis.

MATERIAL & METHOD

This was a prospective cross-sectional study design. Data were collected from patients who went to clinic of Pediatrics at Hasan Sadikin Hospital in a period of 6 months. There were 276 children in which were divided into 12 age groups, with 23 children in each group.

The inclusion criteria include male from newborns (neonates) up to 11 year olds and their parents agreed to be included in the study sample.

The exclusion criteria were subject who has a congenital abnormality of the penis for example; hypospadias, webbed penis, chordee, phimosis, buried penis, fistula urethra and others that cause errors in the measurement of SPL (stretched penile length), has the specific disease syndrome with or without abnormality of the penis for example (Down syndrome, Klinefelter, Noonan, Laurence moon, Robinow, Prader-Willi and others), malnutrition disorders, and hormonal therapy history.

The subjects SPL is checked by a supine position with legs crossed at the knee and ankle contact area (crossed-leg position). Measurements were taken three times and a mean value was taken to avoid bias. Penis length was measured with a 10 cm ruler.

RESULTS

A total of 276 children were included in the study with 23 subjects in each tanner groups. The average penile length in Hasan Sadikin Hospital were inferior in all groups in contrast with the Tanner age groups as cited in table 1.

Table 1. Penile length in Hasan Sadikin in comparison with the Tanner age groups.

Age	Mean $\pm$ SD (Hasan Sadikin)	Mean $\pm$ SD (Tanner's)
0–5 mo	1.7 cm $\pm$ 1	3.9 cm $\pm$ 0.8
6–12 mo	2.1 cm $\pm$ 0.6	4.3 cm $\pm$ 0.8
1–2 yr	3.2 cm $\pm$ 1	4.7 cm $\pm$ 0.8
2–3 yr	3.4 cm $\pm$ 1	5.1 cm $\pm$ 0.9
3–4 yr	4.2 cm $\pm$ 0.8	5.5 cm $\pm$ 0.9
4–5 yr	4.3 cm $\pm$ 1	5.7 cm $\pm$ 0.9
5–6 yr	4.5 cm $\pm$ 1	6.0 cm $\pm$ 0.9
6–7 yr	4.8 cm $\pm$ 1	6.1 cm $\pm$ 0.9
7–8 yr	5.1 cm $\pm$ 0.6	6.2 cm $\pm$ 1.0
8–9 yr	5.2 cm $\pm$ 1.1	6.3 cm $\pm$ 1.0
9–10 yr	5.2 cm $\pm$ 0.7	6.3 cm $\pm$ 1.0
10–11 yr	5.9 cm $\pm$ 0.9	6.4 cm $\pm$ 1.0

DISCUSSION

Micropenis is one of the abnormalities found in external genitalia of the male. Micropenis is a condition where the penis size standard below. The condition is described if the length of the penis when erect dorsally (measured from the top) is at least 2.5 standard deviation less than the average penis size in general or 7 cm smaller in adults when compared to erect penis in general (12.5 cm).¹⁻²

The most common cause of micropenis is hypogonadotropic hypogonadism, which is the failure of the hypothalamus to produce adequate gonadotropin-releasing hormone (GnRH). The condition may result from hypothalamic dysfunction, which may occur in some congenital disease syndrome for example; Prader-Willi syndrome, Kallmann syndrome (genital-olfactory-dysplasia), Syndrome Laurence-Moon-Biedl. Other causes are growth hormone deficiency or neonatal hypoglycemia secondary to congenital hypopituitarism, pituitary congenital aplasia, and midline brain abnormalities, such as agenesis of the corpus

callosum and encephalocele occipital.⁴⁻⁸

The most useful examination in diagnosis of micropenis is physical examination. Examination of penis length begins with a stretched penis (stretched penile length). A stretched penis length is determined by measuring the penis from the attachment of the penis to the pubic symphysis to the TIP of the penis head. In general, penis neonates who are old enough at least have a 1.9 cm long.

After the diagnosis of micropenis is complete, the basic principle of the therapy is to restore the size of micropenis to normal value with children in his age within standard deviation. Several Authors has described the use of androgen and testosterone injection and its response after the periodic injection.⁵⁻⁸ These treatment was imperative but it may be unnecessary. These low measurement were a normal number in those population, so that it does not need treatment to begin with.

Problems arise when parents worries regarding their children penile size. These are typical outpatient problems, in which parents are overly concern then asking the Urologist, or Pediatrician regarding their children. Problems become factual when referring these numbers of penile size to the tanner group which is still widely used in our region. High number of over diagnosis led to early treatment of testosterone injection.

From our study even though that children in all age groups were inferior to the Tanner group, that does not mean these children need a testosterone injection to increase the penile length. It shows that the Tanner classification were higher in their standard. The hypothesis was children on Brittain region, which are subjects in Tanner, has higher average penile size compared to West Java or possibly Indonesia.

These results also supports that penile normogram was influenced by race ethnicity, and population. Thus encourage the authors from other countries to develop a normogram in order to create data as reference in penile anthropometry of children and adolescents. Later on every population is

recomended to have their own penile anthropometry of penile normogram. Despite of the low number of subjects enrolled in this study it is sufficient to say that these early study result encourage the need of penile normogram.

CONCLUSION

Normative local data of penile length is necessary. Though we need a more widespread and larger sample, every population should have a local reference. Not using the local reference may result in underestimation and overdiagnosis. Hopefully in years to come there will be a larger scale study to develop a national scale as reference in penile normogram.

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