

DO INFANTS USING BABY WALKERS SUFFER DEVELOPMENTAL DELAYS IN ACQUISITION OF MOTOR SKILLS?

A. Talebian MD¹,
A. Honarpishe MD²
A. Taghavi MD³,
E. Fakharian MD⁴,
M. Parsa MD⁵,
GA. Mousavi MD⁶

1. Associate Professor, Pediatric Neurologist, Kashan University of Medical Sciences
2. Associate Professor, Pediatrician, Kashan University of Medical Sciences
3. Assistant Professor, Pediatrician, Kashan University of Medical Sciences
4. Assistant Professor of neuro surgery, Kashan University of Medical Sciences
5. Paediatrician, Kashan University of Medical Sciences
6. Statistics, Kashan University of Medical Sciences

Corresponding Author:

A. Talebian MD
Shahid Beheshti Hospital
Tel: +98 361 5550026
E-mail: talebianmd@yahoo.com

Abstract

Objective

Development is a complex process, completed over a specific period of time, through the maturation of the nervous system. It is affected by genetic, ethnic, nutritional, social, and economic factors; one of the environmental factors affecting the acquisition of motor skills in infants is the use of baby walkers. Since this device is very commonly used for infants in our country, we conducted this study to evaluate its effects on the acquisition of motor skills in this age group of children.

Materials & Methods

This longitudinal study was conducted in 2005 on 300 infants referring to the Primary Health Care Centers of Kashan district in 1384; the infants were divided into two groups of 150 babies each, with the case group using baby walkers, while the other 150, the controls, did not. All babies were followed for two years, and the ages for acquisition of motor skills were documented during face-to-face or telephone interviews with the parents. Data were analyzed using the T-test and the Chi Square test.

Results

Of the study population, 175 babies (58.33%) were male. The mean age of acquisition of motor skills including rolling, crawling, moving on hands and feet, sitting without and with help, standing and walking dependently and independently were found to be delayed in infants using baby walkers, a difference between the two groups of walker users and non-walker users that was statistically significant ($P < 0.001$).

Conclusion

Considering the adverse effects that walkers have on the acquisition of motor skills in infants, as demonstrated by the results of this study, we do not recommend the use of baby walkers in infants.

Keywords: Baby walker, Motor skills, Infants.

Introduction

Child development is a complex process which is completed over a specific duration, through the maturation of the nervous system. This process is affected by the genetic, ethnic, nutritional, social, and economic backgrounds (1). One of the factors supposed to be effective in the acquisition of motor skills is the use of baby walker. In Iran, parents usually have a very positive outlook regarding baby walkers, since they believe it may help their child walk earlier (2). Although there is no definite data from our country about the use of this instrument, the American Academy of

Pediatrics has however declared that each year about three million baby walkers are sold in this country, and are used by over half of the infants in the United States (3). Studies on this subject have reported controversial results; Crouchman et al (4), and Seigle-Burton et al (5), have revealed that the use of baby walkers has resulted in delayed crawling and independent walking. Garret et al (6) in a cross sectional study have shown delay in independent standing as well as delayed crawling and independent walking. However, Kauffman and Ridenour (7) in a case-controlled study have found no significant difference between the two groups in achievement of motor skills.

Considering the high prevalence of usage of baby walkers in Iran, and the mistaken beliefs of parents with regards to development of motor skills of babies using the device and also the shortage of reliable data urged us to conduct this study to investigate the effects of baby walkers on the development of motor skills in infants referring to Primary Health Care Centers (PHCC) of Kashan District.

Materials and Methods

This longitudinal study carried out on normal healthy infants, aged between 3 and 15 months referring to the PHCC of Kashan province for their routine examinations and vaccinations in 2005. After obtaining written consent from their parents, obtaining complete history taking

and conducting physical examinations, infants found to be healthy and normal were enrolled in the study, and followed for two years, during which period any baby found to have any disease affecting growth and motor development were excluded. Finally 300 hundred babies complying with the inclusion criteria were assigned to one of the two groups, those using the baby walker, as the study group, and those, not doing so or the control group. Questionnaires including questions on babies' age, sex, nutritional status, and mother's job were prepared, and completed with the documentation of age of acquisition of motor skills, including crawling, sitting with and without help, moving on hands and feet, standing and walking dependently and independently; information was obtained either during face-to face or telephone interviews with parents. Data were analyzed with T-test and Chi Square tests.

Results

In our study population, 175 babies (58.4%) were male, and the remaining 125 (41.6%) female; when first visited, 26% of babies were between 10 and 12 months, 25% between 8 and 10 months, 17.3% between 6 and 8 months, and 11% between 2 to 4 months. There was no significant difference regarding gender/sex, nutritional status, and mother's jobs of infants (table 1); in all infants using walkers, a delay was observed in the acquisition of all motor skills (P<0.001) (table 2).

Table 1: Distribution frequency of studied infants based on sex, mother's job and type of feeding

Variables		Use of baby walker		P. Value
		Yes Group 1 N=150	No Group 2 N=150	
Sex	Male	85	90	0.558
	Female	65	60	
Type of feeding	Breast milk	116	118	0.328
	Formula	21	14	
	Both	13	18	
Mother's job	Housewife	114	122	0.259
	Employee	36	28	

Table 2: Distribution frequency of studied infants based on age of motor milestone acquisition.

Age of motor milestones acquisition	Use of baby walker		P. Value
	Yes N=150 X±SD	No N=150 X±SD	
Rolling over	3.41± 0.78	3.26± 0.67	<0.001
Crawling	4.47 ±1.01	4.01 ±0.81	<0.001
Kneeling	7.12 ±1.39	6.59 ±0.79	<0.001
Sitting with support	5.69 ±0.92	5.23 ±0.71	<0.001
Sitting without support	6.62 ±1.05	6.08 ±0.92	<0.001
Standing with support	9.16 ±1.32	8.26 ±0.90	<0.001
Standing without support	10.51 ±1.31	9.57 ±1.01	<0.001
Walking with support	11.14± 0.97	10.17 ±0.96	<0.001
Walking without support	12.72 ±1.06	11.5 ±0.93	<0.001

Discussion

In the present study, one hundred and fifty babies, using baby walkers were investigated, a study population larger than that of most of the studies mentioned here; the data obtained and analyzed indicated that acquisition of motor skills, i.e. walking on hands and feet, crawling, rolling, sitting with or without help, standing and walking, dependently or independently, in babies using baby walker users, as compared to non-walker users, was delayed, a difference that was statistically significant ($P<0.001$); The results, which were similar to those of the Garret et al, who in their 2002 study, showed that there is a 3.3 day-delay in independent walking, and a 3.7 day-delay in independent standing for each 24 hours of use of baby walkers (6). Siegle et al in their study of 173 babies showed a delay in the crawling of babies using the device (5). Crouchman in a study on 66 babies found a delay in the rolling of walker using babies (4). Thien et al also showed delays in crawling, sitting, and standing in such babies (7). France showed a delay in sitting and standing (8), and in the study group of the Reider research, delays were reported in moving on hands and feet, sitting, and independent walking (9).

Kauffman et al and Rideenour et al, both, in studies conducted on twins found no difference between babies using the device and those not using it, respectively (6,10).

In addition to the data mentioned above there have also been reports on physical injuries as a result of falling out

of the walker (7, 11).

Conclusion

Baby walkers are commonly used in our country. The results of this study, in agreement with others has shown the adverse effects of using baby walkers on the acquisition of motor skills of infants. We strongly recommend parents be made aware of these effects and the related authorities look into ways to limit the production and distribution of such devices.

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