Auxological evaluation of “non-identical twins”

Raluca Pop[1,2], M. Pop[3], Ionela Pașcanu[4],

[1]Endocrinology Outpatient Clinic, Emergency Mures County Hospital, [2]Research Methodology, [3]Informatics and Biostatistics Department, [4]Endocrinology Department, [2-4]University of Medicine and Pharmacy Tirgu Mures

UNIVERSITATEA DE MEDICINĂ ŞI FARMACIE TÎRGU MUREŞ

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INTRODUCTION

Multiple external influences have proved to be of importance in auxology. Sub-group analysis can identify specific factors involved in normal children development.

OBJECTIVE AND HYPOTHESE

The main objective of the study was to identify differences in development in children born the same day from different parents. Our hypothesis was that there are identifiable general factors that predict the growth of a child.

METHODS

Type of study: cross-sectional; target population: children aged 6-15 born on the same day. Sample: non-randomized, composed of 377 children from 4 urban and 4 rural areas of Mures county. Inclusion criteria: identical birth date; exclusion criteria: children born small for gestational age, cardiac, renal disorders, malabsorption, rickets and refusal to participate. Variables: sex, environment, birth length, birth weight, height, weight, waist, arm span, sitting height and breastfeeding period. The study was approved by the local ethics committee and a written consent was obtained for every child. Statistical analysis used M.O. Excel and Graph Pad InStat with a level of significance 0.05.

RESULTS

66 pairs of the same sex and different environment were identified.

Children from rural areas were significantly taller than those from urban areas ($p<0.001$) (Fig. 1), regardless of the sex. The same is true for sitting height and arm span. Breastfeeding according to WHO recommendations had no significant influence on the height (Fig. 2) and weight, even after adjusting for sex and environment.

Gestational age, length at birth and parents height had no significant influence on the anthropometric parameters.

DISCUSSIONS

The environment is recognized as an important factor influencing child growth [1,2] and our study confirms it, although we found that the urban areas are associated with shorter stature. Although large studies [3] found an association between breastfeeding duration and height, we were unable to confirm it, probably due to our small sample.

CONCLUSIONS

Children born on the same day tend to be taller in rural areas but do not differ in regard to their weight or waist circumference. For our sample, breastfeeding had no influence on anthropometric parameters.

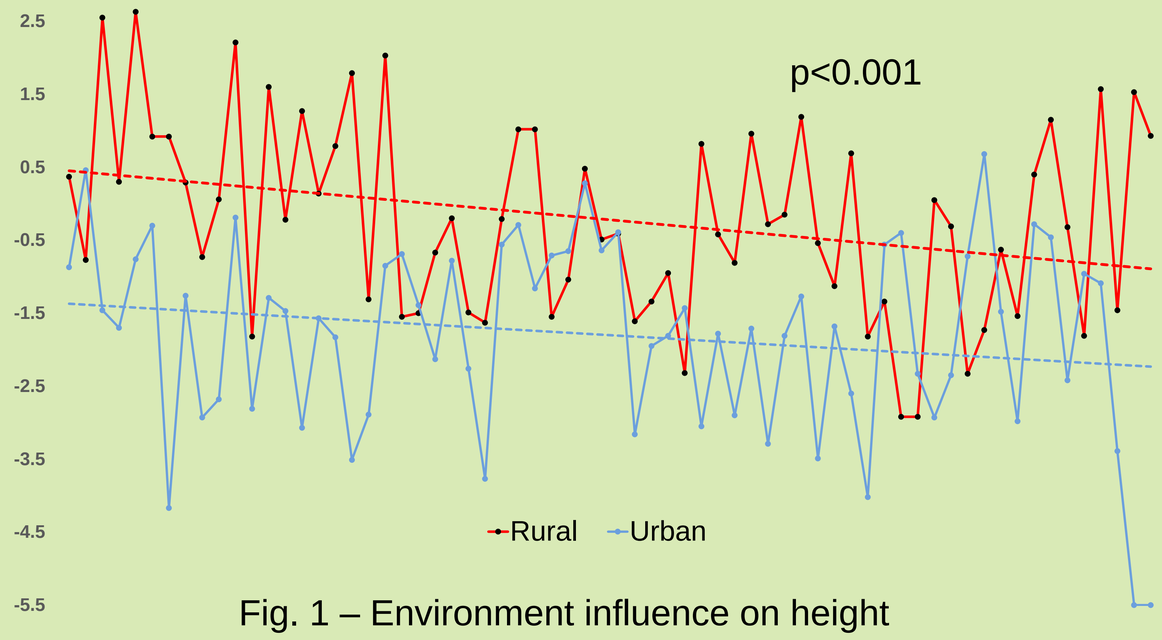

Fig. 1 – Environment influence on height

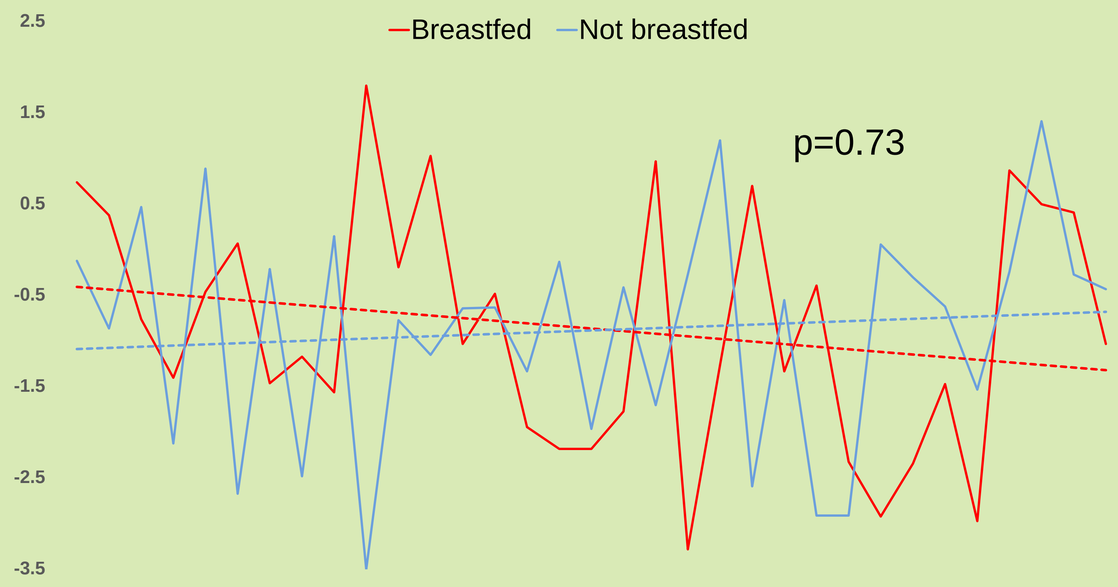

Fig. 2 – Breastfeeding influence on height

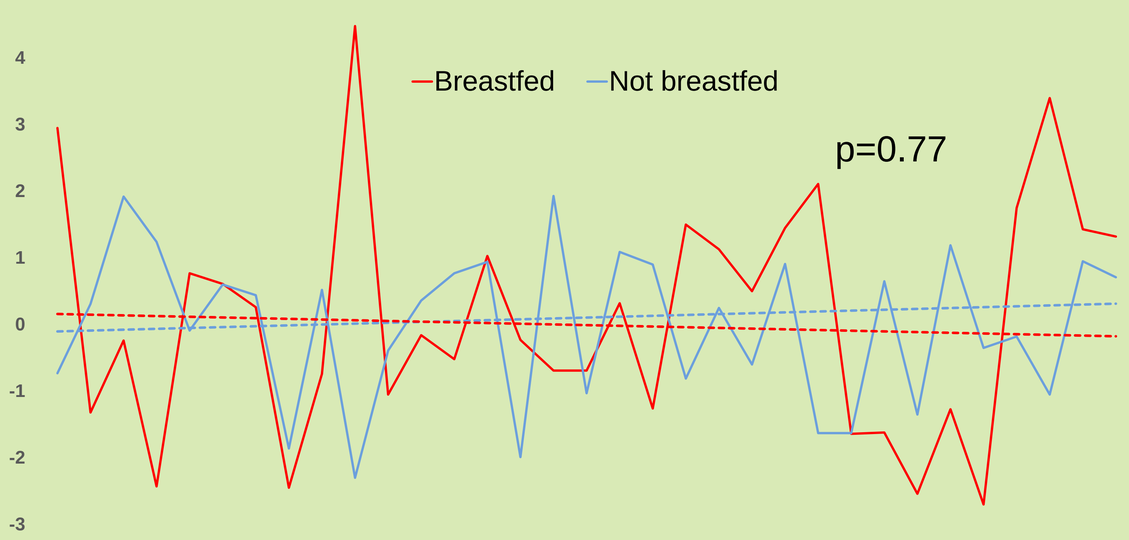

Fig.3 - Breastfeeding influence on weight

Anthropometric parameter	Rural (mean SD score)	Urban (mean SD score)	p
Height	-0.21	-1.8	**<0.001**
Weight	-0.02	-0.1	0.58
Sitting height	-0.83	-1.8	**0.0002**
Arm span	-0.39	-1.03	**0.0009**
Waist	0.24	0.14	0.83

Table 1 – Environment influence on anthropometric parameters

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