



Frequency of joined disabilities of children with cerebral palsy in Tuzla canton

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ABSTRACT

Introduction: Cerebral palsy (CP) connotes a group of non-progressive, but often variable symptoms of motor impairment of movement and posture, as well as other impairments which are a consequence of anomalies or brain impairment in different phases of its development. CP is a pathological condition characterised in the first place by motor function impairment to which other disorders such as: visual and hearing impairment, intellectual deficit, emotional problems, behaviour disorder, speech disorder, epileptic seizure and similar can join. The aim of this study is to determine frequency of joined disabilities of children with cerebral palsy in Tuzla Canton.

Methods: The research covers a total sample of 48 examinees, chronological age from 2-19 years, in Tuzla Canton. Research instrument was a Structural Questionnaire for the parents of children and adolescents with cerebral palsy. Research data were processed by nonparametric statistics method. Basic statistical parameters of frequency and percentages were calculated, and tabular presentation was made.

Results: After classification of examinees as per frequency of joined disabilities was done, work results have shown that speech impairment occurred with 35.4 % of children, visual impairment 33.3 %, epilepsy 29.3 %, whereas hearing impairment occurred with 2 % of children.

Conclusion: In research of frequency of joined disabilities of children with cerebral palsy in Tuzla Canton, most expressed are speech and visual disorders with children, then epilepsy, whereas a small percentage of children are with hearing disorder.

Keywords: joined disabilities, children with cerebral palsy

INTRODUCTION

Cerebral palsy is a pathological condition characterised in the first place by impairment of motor

function to which other disorders such as: visual and hearing impairment, intellectual deficit, emotional problems, behaviour disorder, speech disorder, epileptic seizures and similar can join. Martin Bax defines this entity as disorder of moves and postural balance due to defects or impairment of immature brain (1). Majority of previous research in the world was focused on the prevalence, determination of the motor abilities, and perinatal etiological factors of the cerebral palsy. Evidences indicated that 70-80 %

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of cerebral palsy is caused by the prenatal factors and that the birth asphyxia has a relatively minor role with the less than 10 % (2). Cerebral palsy occurs with frequency from 2-3 on 1000 live births (3).

As per Institute for public health of Tuzla Canton, on the area of this Canton, 52 children with cerebral palsy of the age from 1 to 14 are registered (4). Multiple disabilities of persons with physical impairment represent a special problem in daily practice. Research done as per methodology of International Classification of Impairment, Disabilities and Handicap (ICDH; WHO, Geneva, 1980) has shown that, as much as 95.8 % of children with cerebral palsy in specialized primary schools have multiply disabilities (4).

Disability can occur together or separately from other mental or physical disorders. 290 million people worldwide are estimated to have disabilities (5). It is considered that 50 to 90% of children with cerebral palsy have some ophthalmological abnormalities, such as strabismus, amblyopia and other. Other joined disabilities are: speech defect, cognitive defect, emotional defect as well as epileptic seizures (6). Approximately 25-35 % of children with cerebral palsy have epilepsy. Much smaller percentage of children with epilepsy has cerebral palsy (7).

In Tuzla Canton, children with multiple disabilities are included in daily Centre "Steps of hope". The Centre focuses on social model of work with children, which connotes inclusion into community, introducing the parents of the children with their remaining abilities, introducing the community to children with disabilities, education and rehabilitation of children which includes education of parents for conducting physical therapy at home, and inclusion of children with disabilities in development into regular system of education where possible (8).

The goals of education and rehabilitation in B&H, similar to most other countries of the world, are to work towards community inclusion, acceptance of diversity, optimal physical and mental health, and personal and social well-being. The focus of family quality of life is a step towards understanding how we can move closer to achieving these goals (9).

The aim of this study is to determine frequency of joined disabilities of children with cerebral palsy in Tuzla Canton.

METHODS

The study included 48 children with cerebral palsy, age from 2-19 years, with the place of residence in Tuzla Canton, which have been treated in Centre for physical medicine, rehabilitation and spa treatment "Iliđa" Gradačac, in Bosnia and Herzegovina. The patients formed two groups: children with cerebral palsy whose mothers have had health problem/sickness during pregnancy, and children with cerebral palsy whose mothers have not had health problem/sickness during pregnancy. Structural Questionnaire for the parents of children and adolescents with cerebral palsy was used (9).

Structural Questionnaire consisted of 69 multiple choice or fill in questions. Questions can be divided into eight groups:

- First group of questions (1-8) are general questions and questions on possible hereditary health issues.
- Second group of questions (9-18) are on pregnancy control and sicknesses during pregnancy.
- Third group of questions (19-23) are on the number of children and stillborn children.
- Fourth group of questions (24-35) are on confinement.
- Fifth group of questions (36-42) are on motor development, type of cerebral palsy and physical and surgical therapy.
- Sixth group of questions (43-56) are on intellectual and sensor disabilities.
- Seventh group of questions (57-67) are on education and abilities of teaching a child about defined grades of different subjects per teaching plan for special education and
- Last two questions are on membership of parents in Association of parents which relate to children's cerebral palsy.

Methods used in the research include testing of statistical differences by Hi-quadrant test and specific methods for cohort groups – relation of sickness risk.

RESULTS

In the group of sickness during pregnancy, 20 (60.6 %) are of male examinees and 13 (39.4 %) are of female examinees, which all together represent a to-

TABLE 1. Sickness during pregnancy and gender

Sickness	Gender				Total	
	Male		Female		N	%
	N	%	N	%		
Sickness during pregnancy	20	60.6	13	39.4	33	100
No sickness during pregnancy	10	66.7	5	33.3	15	100
Total	30	62.5	18	37.5	48	100

tal of 33 examinees in the group with influence of prenatal ethological factors. In relation to the group without sickness during pregnancy, it is 10 (66.7 %) of male and 5 (33.3 %) of female.

Achieved results show that there are no statistically important differences ($h^2=0.16$; $p \geq 0.05$).

With mothers with sickness during pregnancy, 23 (69.7 %) of children are with visual impairment, while with mothers with no sickness during pregnancy it is 10 (66.7 %) children. In relation to the group of mothers with no sickness during pregnancy it can be seen that 5 (33.3 %) of children are without visual impairment, while that percentage with mothers with sickness during pregnancy is 10 (30.3 %) children. As per calculated h^2 test, achieved results point out to the fact that there are no statistically important differences between the groups ($h^2=2.08$; $p \geq 0.05$). The relation of risk is 1.01, both group of examinees have nearly the same possibility for their children to have visual impairment.

In the group of mothers with sickness and without sickness during pregnancy, a percentage which shows that children have no hearing impairment is more expressed, and which is in proportion 97 % : 93.3 %. There is one examinee in each group of

TABLE 3. Sickness during pregnancy and hearing impairment

Sickness	Hearing				Total	
	No		Yes		N	%
	N	%	N	%		
Sickness during pregnancy	32	97	1	3	33	100
No sickness during pregnancy	14	93.3	1	6.7	15	100
Total	46	95.8	2	4.2	48	100

TABLE 2. Sickness during pregnancy and visual impairment

Sickness	Visual				Total	
	No		Yes		N	%
	N	%	N	%		
Sickness during pregnancy	10	30.3	23	69.7	33	100
No sickness during pregnancy	5	33.3	10	66.7	15	100
Total	15	31.2	33	68.8	48	100

mothers with sickness and without sickness during pregnancies that have hearing impairment.

Results achieved by h^2 test show that there is no statistically important difference ($h^2=0.34$; $p \geq 0.05$), the relation of risks show that mothers with sickness during pregnancy have 2.28 times higher chance that they will not have a child with hearing impairment.

With mothers with sickness during pregnancy, 22 (66.7 %) of children are with speech disorder, whereas 11 (33.3 %) of children are without disorder. In relation to the group of mothers without sickness, percentage of children with speech disorder 13 (86.7 %) is more expressed, whereas 2 (13.3 %) of children are without disorder.

There are no statistically important differences in relation to sickness of mothers during pregnancy and speech disorder with children ($h^2=0.04$; $p \geq 0.05$).

Children from the group of mothers with sickness during pregnancy have 3.25 times higher possibility that they will not have children with speech disorder. 19 (57.6 %) of examinees have epilepsy where mothers have sickness during pregnancy, whereas 14 (42.4 %) of examinees do not have it. The percentage of children who have epilepsy and whose mothers have

TABLE 4. The relation of sickness during pregnancy and speech disorder

Sickness	Speech				Total	
	No		Yes		N	%
	N	%	N	%		
Sickness during pregnancy	11	33.3	22	66.7	33	100
No sickness during pregnancy	2	13.3	13	86.7	15	100
Total	13	27.1	35	72.9	48	100

not had sickness during pregnancy is more expressed 10 (66.7 %), in relation to mothers with sickness during pregnancy.

There are no statistically important differences ($h^2=0.35$; $p \geq 0.05$).

On basis of risk evaluation, children from the group of mothers with sickness during pregnancy have 1.27 times higher possibility that their child will have epilepsy.

DISCUSSION

Out of 33 examinees, 23 (69.7 %) of children whose mothers have had sickness during pregnancy are with visual impairment, while there are 10 (66.7 %) such examinees whose mothers have not had sickness during pregnancy.

Depending of the study, the prevalence of visuomotor and perceptual problems among children with spastic CP varies from 39 % to 100 % (2).

In study of Švraka E. (2004), out of 80 examinees, there were 40 (50 %) examinees with visual impairment. Out of 30 mothers with sickness during pregnancy, 18 (60 %) of children have visual impairment. Out of 50 mothers without sickness during pregnancy, 22 (44 %) of examinees have visual impairment (10).

In the group of mothers with sickness and without sickness during pregnancy, the percentage which shows that children have no hearing impairment is more expressed, and which is in balance 97 %: 3 %. Only one examinee in the group of mothers with sickness and without sickness has hearing impairment.

In the Study of neuroimpairments, activity limitations, and participation restrictions in children with cerebral palsy in Sweden, of 176 children with CP, severe hearing impairment have 2 children (2).

Only 3 children (3.75 %) have hearing impairment in relation to the whole sample of 80 children (10).

With mothers who have had sickness during pregnancy, 33.22 (66.7 %) of children have had speech disorder, whereas 11 (33.3 %) were without disorder. In relation to the group of mothers without sickness, the percentage of children with speech disorder is more expressed 13 (86.7 %), whereas 2 (13.3 %) of children were without disorder.

56 (70 %) of examinees have speech disorder. Out of 30 examinees with sickness during pregnancy, 22 (73.3 %) have speech disorder. Out of 50 examinees without sickness during pregnancy, 34 (68 %) of examinees have speech disorder (10).

Nineteen (57.6 %) of examinees have epilepsy where mothers have had sickness during pregnancy, while 14 (42.4 %) do not have it.

Epilepsy is a common disorder among children with CP. Of all children ($n=127$) included in the Dutch population based study, 18.9 % had active epilepsy at the time of examination, and a further 21.3 % had a history of epilepsy. Of the children with quadriplegic CP 44.8 % never had epilepsy, compared with 66.7 % of the children with spastic diplegia, triplegia and hemiplegia, and 37.5 % of the children with ataxia and dyskinesia (2).

Out of 80 examinees, 33 (41.25 %) of examinees have epilepsy. Out of 30 examinees whose mothers have had sickness during pregnancy, 16 (53.3 %) of examinees have epilepsy. Out of 50 examinees whose mothers were without sickness during pregnancy, 17 (34 %) of examinees have epilepsy (10).

After classification of examinees as per frequency of joined disabilities was done, work results have shown that speech impairment occurred with 35.4 % of children, visual impairment 33.3 %, epilepsy 29.3 %, whereas hearing impairment occurred with 2 % of children.

CONCLUSION

In research of frequency of joined disabilities of children with cerebral palsy in Tuzla Canton, most expressed are speech and visual disorders with children, then epilepsy, whereas a small percentage of children are with hearing disorder.

COMPETING INTERESTS

Authors declare no conflict of interest.

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