

Effect of Chronic Rheumatic Heart Disease on Intellectual Functioning in School Age Children

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Abstract

A Case-control study included 100 school age children of both sexes from 6-12 years old. All of diseased group were belonging to the low and very low social standards. The diseased group was compared with two control groups. Each group comprised 25 apparently healthy children. Control (1) was from the same social level as the diseased one. Control (2) is another group of apparently healthy children who were recruited from higher social classes. The aim of this work was concerned with the study of the effect of chronic rheumatic heart disease on intellectual functions and behaviour of Egyptian school age children. Predesigned questionnaire sheets and assessment of intellectual function by specific tests are the tools of this work. The study revealed that most of the diseased cases have border line IQ (< 80) and that behavioral disorder were higher among cardiac cases than control. So, we can conclude that children with chronic rheumatic heart disease showed high prevalence of behavioral disorders and that IQ of most of them was below average.

Introduction

The prevalence of chronic rheumatic heart disease in many developing countries is alarming high (Nissizen and Kiangi, 1994). It is estimated to be approximately 15 to 20 million new cases of rheumatic fever will appear each year in these countries. There is a belief that the incidence in these countries is actually higher, since many of the cases are not diagnosed at the time of acute rheumatic fever and only appear later as chronic heart disease (Zabriskie, 1985 and Mansour et al., 1994). Rheumatic heart disease is the most common and serious cardiac disorder in children and young adults limiting their efficiency and crippling them at an age where they are expected to be most contributing and productive to their community (El Sherief, 1985 and Abdel Alla et al., 1995). Rheumatic heart disease has many deleterious effect on the patients health and activity attributed to its chronic course with recurrent exacerbations of rheumatic activity, associated with many complications, e.g. heart failure and emotional disturbances e.g. extreme

shyness, aggressiveness, anxiety, persistent nervous habits and short attention span (Abdel mageed, 1989).

Subjects and Methods

A) Subjects

One hundred school age children of both sexes from 6-12 years old having chronic rheumatic heart disease belonging to the association of friends of children with rheumatic heart disease and two control groups: The 1st control group (25 child) was recruited from the asymptomatic relatives attending the outpatients clinic to match the same socio-economic standard, the 2nd control (25 child) were selected from a higher socio-economic standard. All of the control groups were sex matched asymptomatic children (free of any cardiac or chronic disorders).

Methods

The following steps were followed for all children included in the study:

1- A predesigned questionnaire to meet the objectives of the study including also socio-economic assessment and behavioral assessment.

2- Intellectual Assessment :

A battery of cognitive skills tests was applied to each child :

a) Colored progressive matrices (Raven, 1977).

b) Digit span forward and backward.

c) Vocabulary test (Wechsler, 1974).

3- Statistical management of data :

SPAT, DEIW program was used for statistical analysis.

Results

Table (1) shows the distribution of sex among the total number of cases and each of the control groups with predominance of the female sex in all groups.

The cases of the study were age matched (table 2) with each of the control groups. Mean age of cases was 10.3 years, control (1) was 9.8 years and control (2) was 10.3 years. Also in this table, as regards the mean years of education, no statistical difference was found between cases and control (1), and there was statistical difference ($p = 0.001$) between cases and control (2).

The intellectual tests (as shown in table (3) of total number of cases and each of the control groups, the verbal seale, Digit Span Sealed, Roven Percentile and Ravin IQ. Cases were significantly different from control (1) and more significantly different from control (2).

As regards the frequency and percent distribution of abnormal behavior among each of the studied group, table (4) shows that the highest incidence of behavioral disorders among cardiac cases 37%, control group (1) 20% and control group (2) 8%.

Table (1)

Frequency and percent distribuation of sex among all cases and each control group.

Variable Sex	Cases no=100		Control 1 no=25		Control 2 no=25		Total no=150	
	No.	%	No.	%	No.	%	No.	%
Male	043	043	007	028	010	040	060	040
Female	057	057	018	072	015	060	090	060
Total	100	100	025	100	025	100	150	100
P-value			N.S.		N.S.			

number of cases and each of the control groups.

Variable	Cases no=100	Control 1 no=25	Control 2 no=25
Age:			
Mean $\pm$ SD	10.3 $\pm$ 17	9.8 $\pm$ 1.9	10.1 $\pm$ 1.8
Range	69 - 12.6	6.1 $\pm$ 12.8	7.2 - 12.1
P-value		NS	NS
Mean $\pm$ SD	3.5 $\pm$ 2.1	3.6 $\pm$ 1.6	6.4 $\pm$ 2.0
Range	0 - 7	1 - 7	3 - 9
P-value		NS	0.0001

Discussion

Although the number of male children was found in the last Egyptian population census, 1986, to be slightly higher than the female children, we found in our study that there were predominance of the female sex in all age groups. The prevalence of rheumatic fever and chronic rheumatic heart disease was higher among female Egyptian children. This may be attributed to the negligence of the low socioeconomic class of Egyptian society to the female as they consider the male the whole stone of the family and the one who carries the family name. So, among this social class, both parents pay more attention to boys than girls as regards nutrition, education, psychological health care and recreation.

No statistical difference was found between the means of years of education between cases and control (1) and there was statistical difference ($p = 0.0001$) between cases and control (2). These results were in agreement with those of Perrin (1992). We suggest that children with chronic illness are liable to miss school more than their healthy classmates. They miss school for a variety of reasons, sometimes the illness or that treatment diminishes child's mobility or that at other time visiting the physician or any other health service provider takes place during regular school hours thus interfering with children attendance.

In this study, the intellectual tests included the verbal scale, digital span scale and Raven IQ. Cases were significantly different in all the three tests from control (1) and more highly significantly different compared to control (2). In our study, the mean IQ of the cases was 77.9, this equals to borderline, while mean IQ for control (1) was 83. This means low average. In control (2), the high socio-economic level, the mean IQ-score was 115.8; i.e. high average, higher than those of both the

disease groups and control (1). This demonstrates that the intellectual function of the diseased cases were affected irrespective of detailed clinical conditions. Accordingly, results of Raven IQ will be discussed for the diseases cases as one group. Apparently, the highest impact on the intellectual function was from the social status of the individual.

The prevalence rates and behavioral and emotional disorders are consistently elevated especially among children with serious disorders (Stephan et al., 1994). In the present study, it was found that behavioral disorders in general were higher among cardiac cases, 37%, while in control (1) 20% and in control (2) 8%. This finding coincides with that reported by Soliman (1994) who noticed that children with rheumatic heart disease have significantly more behavioral disorders such as nocturnal enuresis, nightmares and terrors than children with other chronic illnesses.

Conclusion

From this study we can conclude that the IQ of most of the diseased children was below average, also they have higher prevalence of behavioral disorders and most of them attended fewer years of education.

Finally, from this work we can recommend that since chronic rheumatic fever is a widely prevalent disease in our community, efforts have to be directed both through the media or health providers, to increase the population's knowledge about the disease, stressing on the fact that it is a preventable disease. Also, reducing illiteracy among parents to enable them to understand, to notify any apparent psycho-behavioral conditions.

References

- Abdel-Alla F., Eissa MA and Soliman NM (1995)** : Psychological impact of rheumatic heart disease on

affected children and their mothers. Egypt J. Psychiatry; 18(1) : 71-80 January.

Abdel Majeed H (1989) : Acute rheumatic fever. The Medicine Group (UK) Ltd. Medicine International pp. 29 10-35.

El Sherif AA. (1985) : Rheumatic fever and RHD but preventable disorders. Current Medical Tropics 1 : 1.

Mansour KS, Abu Hashem A, Abdel Aziz TA, and Mahfouz KA (1994): Subclinical carditis in children with intial acute rheumatic fever: color doppler electrocardiographic study. The New Egypt J. of Med. 10(3) : 1468-6.

Nissizen A and Kiangi GC (1994) : The increasing impnprotance of chronic disease. In : Health and disease in developing countries. The Mc Millan Press itd. London. Ch33, pp 317-322.

Perrin JM (1992) : Chronic illness. In: developmental behavioral pediatrics. pp. 304-6.

Raven JC, Court JH and Raven J (1977) : Manual for Reven;s Progressive Matrices and Vocabulary Scales. The colored progressive Matrices ed. JC. Reven Itd. Publisher HK. Liwis and Co. Itd. London.

Stepban A, Richard GF (1994) : Prognosis aim of treatment in diabetes. Medicine International (242). The Medicine

Group (Journal) itd. Medicine International, 22 : 1 Publishing house, Abingdon Oxon 1,43. VQ UK.

Soliman FHS (1994) : Physical growth and intellectual abilities of cardiac children. Thesis for Ph. D. degree in childhood studies form the medical department, Ain Shams University.

Wechsler D. (1974) : Manual for the Wechsler Intilligence Scale for children, Revised. David Wechsler; Psychological corporation, New York.

Zabriskei JB (1985): Rheumatic fever. The interplay between heart, genetics and microbes. Circulation, 7 : 1077.

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تأثير مرض روماتيزم القلب على نسبة ذكاء الاطفال فى سن المدرسة

استهدف هذا البحث دراسة تأثير مرض روماتيزم القلب المزمن على نسبة ذكاء الاطفال المصريين فى سن المدرسة و اثر الظروف الاقتصادية و الاجتماعية و خاصة الاسرية منها.

اجريت هذه الدراسة على عينة مكونة من (١٥٠) طفلا تتراوح اعمارهم بين سن

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(Page 69)