MEDICAL EDUCATION

Failure to Thrive

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FAILURE to thrive is not a diagnosis but a descriptive phrase for infants and children who fail to grow and develop physically. The only universal criteria used to assess failure to thrive is the child's weight gain; these children are below the 3rd percentile on a standard growth chart. Other criteria that co-exist in addition to the above include : height below the third percentile, developmental retardation with improvement following appropriate stimulation, clinical signs of deprivation which improve with an appropriate nurturing environment, significant environmental, psychosocial disrruption and lack of organic causes for initial growth failure.[15]

HISTORY

Historically, the term was applied to growth disorders of specific organic causes. It is only within the past thirty years that the emotional causes of this condition have been fully recognized. Dr. Holt used the term thrive in describing infants with malnutrition (marasmus) in his book "Diseases of Infancy and Childhood" (first edition 1899). It was only in the year 1933 that the term failure to thrive first appeared in pediatric literature, in the tenth edition of the book "Diseases of Infancy and Childhood". In the beginning of this century, Dr. Chapin, a pediatrician, described growth failure in hospitalized children. He called this condition "Cachexia of Hospitalism", thinking it was the result of a combination of infection and poor physical care in the hospital. Later, he noted that these children did poorly upon their return to their natural homes as well.[26]

Another important contribution to the assessment of the role of the environment in promoting growth and development was the work of Rene Spitz (1945), with groups of babies reared under different psychosocially disrupted situations. He used the term hospitalism to describe growth failure that occurred in children raised without their mothers.[27] Later, other psychiatrists noted that children, who failed to receive sufficient nurturing in institutions were unable to obtain warm, loving personalities.

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EPIDEMIOLOGY

There are no available figures regarding the prevalence of this disorder, but hospital records showed that admission with failure to thrive diagnosis constitute 1 - 5% of total admissions, depending on the area.

English, 1978, reviewed admissions to New York hospitals, from 1964 - 1977, and found that 1% fit the criteria of failure to thrive.[5] The finding was similar to a report from Boston Floating Hospital. Elmer, in 1969, found that 5% of total admissions were diagnosed as failure to thirve.[4] The ratio of organic to non-organic causes for failure to thrive seems to be changing with time, with more non-organic failure to thrive being detected. This might reflect more awareness among pediatricians of the environmental factors that could lead to this condition. Most authors found non-organic failure to thrive in 20 - 40% of all cases of failure to thrive.[8] Holmes (1979) in a recent study of 70 children with this diagnosis, could not identify an organic cause in 85% of his sample.[11] Also, Sills (1978) in a retrospective review of 185 patients with failure to thrive found only 18% had organic causes.[25] One of Holmes criteria for inclusion in his study was the absence, on physical examination, of an obvious physical cause for growth failure — something that might explain his lower proportion of the organic subgroup.

CLINICAL PRESENTATION

Besides weight below the third percentile and the presence of developmental lags, children with failure to thrive show clinical signs of deprivation. Certain children exhibit signs of poor body hygiene such as diaper rash, skin lesions and cradle cups. These infants show some degree of apathy, lack of response to stimulation or intense irritability when approached. Some present with symptoms involving the gastro-intestinal tract, such as anorexia, vomitting, diarrhea or symptoms suggestive of upper respiratory tract infection or pneumonia. Usually these are not of a severity or duration to explain the severe growth retardation. It is also a characteristic of the children with failure to thrive to have improvement of these symptoms with hospitalization.

ETIOLOGY

The etiology of failure to thrive is not clearly understood, but it appears to involve an interaction of physical, nutritional and psychological factors. However, the actual cause might be the underlying social and emotional disorder in the family. Some consider these as the primary cause.[20] Bowlby, in the fifties, described similar conditions to failure to thrive which he termed "hospitalism". He believed that this was the result of maternal deprivation that was caused by lack of prolonged contact with a primary caretaker.[2] A support of this hypothesis came from a new study of Gordon and Jameson (1979) who explored the pattern of attachment of infants diagnosed as non-organic failure to thrive and found them to be at a greater than average risk for insecure attachment.[10]

The emphasis has shifted from maternal deprivation to a mother-infant interaction as the underlying cause. Pollitt, Gilmore and Valcarcel, 1978 showed in a recent study that certain behaviours of mother and infant during feeding correlated with positive or negative weight gain during the first month of life. Also that the availability of nutrients is itself not a sufficient condition to meet the infant's nutritional needs.[22] Others have noted that mothers of these children lack the nurturing skills to feed their babies, especially noted was that the feeding behaviour of these babies was often disturbed. This resulted in a vicious circle that accelerated with time (16 - - 18 - 19).

Mothers of non-organic failure to thrive children have been assessed, with controversial results. Fischoff and co-workers, 1971, reported that a high proportion of these mothers had a character disorder.[7] The sample was small (N — 12) and so it is difficult to make any generalizations. Others described these mothers as anxious, depressed and coming from unstable homes. Pollitt and co-workers, 1975, showed that such mothers do not suffer from a significantly greater number of psychiatric disorders.[21] Kerr (1978) compared the psychosocial functions of these mothers with a control group and did not find a single distinguishing factor, although they generally showed more chronically disrupted lives.[13]

Endocrinologists have postulated that the growth failure may be the result of a failure of the pituitary hormones secretions, as babies with non-organic failure to thrive diagnosis have a low level or absence of growth hormones, which usually returns to normal level as the child starts to grow and develop normally. However, these children do not grow if given growth hormones alone.[23]

Alternatively, others argued that failure to thrive results from inadequate intake of calories. Fischoff provides some support to this in his study of groups of babies under different psychosocial stresses. All babies in his groups improved after providing adequate food.[7] D.P. Davies (1979) found the cause in 9 out of 21 children diagnosed as failure to thrive was inadequate lactation, another 5 cases with bottle-feeding problems.[3] Two problems with this study was the small sample size, and the fact that the effect of psychosocial functions of these mothers, as a possible contributing factor, was not assessed.

TREATMENT

The treatment of these children is long and difficult. Hospitalization is necessary in most cases for both diagnosis and treatment. Early detection is an important step in the process of intervention; treatment plans should be individualized. The infant and the mother should be treated as one unit, by a multidisciplinary team, including a pediatrician, psychiatrist, social worker and nurses. It is important not to undermine the role of the mother in the care of these babies while in hospital, and establishing a working relationship with the parents is essential for successful intervention[6]. Occasionally these children need to be removed from their homes, depending on the mother's psychological state and the feasibility of producing a change in the family living situation.

Some of these mothers need direct instruction about feeding their babies and individual variations of temperament and needs.

Such a relationship with parents should be encouraged to continue after the child is discharged.

Barbero, 1967, suggested halfway houses to be used after the period of hospitalization, for rehabilitation and for further planning for the family and the child.[1]

LONG-TERM FOLLOW-UP

Longterm follow-up of children with non-organic failure to thrive indicated that they are at risk for having stunted growth, intellectual impairment, and behavioural problems, especially feeding behaviour problems. They tend to eat less regularly and consume fewer calories than controls. Shaheen (1968) found 22% of children (diagnosed below 2 years of age) to be below the 3rd percentile for weight at their 6 - 40 month follow-up[24] Glasser and Hagarty (1968) found 42% were below the third percentile for either height or weight, 25% had persistant emotional problems and only one-third of his sample were in good physical and emotional condition at 5 year follow-up.[9]

Elmer's study, in 1969, showed over half had persistent growth failure and two thirds had subnormal intelligence; only 14% (2 out of 15) were well in 3 - 11 years interval period after diagnosis.[4] Hufton (1977) reported that 21 children (aged 8 - 11 years) admitted between 1967 and 1969 for failure to thrive, had reached normal weight and height, at the 6 year follow-up, but half had abnormal personalities, two-thirds had delayed reading and one-third had verbal I.Q. scores significantly lower than performance scores.[12]

A more recent study by W.G. Mitchell and R.W. Correll compared children with failure to thrive with their normal-sized peers in the same social setting. They were found to be significantly lighter and shorter. This group of children were examined at 3 - 6 years of age and compared to a matched control. Although they were found to be lighter, there were no behavioural or developmental deficits that could be attributed to failure to thrive.[17]

In these follow-up studies, the type and intensity of intervention during the follow-up period was not made clear. This is something that could have influenced their findings.

Generally speaking, the outlook for these children is at best grim and prevention, at the present time, seems to be far from a reality. Longterm follow-up studies have shown that these children are at risk; Koel (1969), in a short-term follow-up, found these children are at risk for serious injury or violent death within the ensuing months after discharge.[14] Given this outcome, future research should be geared toward identifying high-risk mothers and children, as the nature of the infant's behaviour, coupled with his mother's response, play a crucial role in determining whether or not a synchronous relationship develops.

Future investigations should also focus on identifying the factors that differentiate the various subgroups within this population and that determine the outcome of each.

REFERENCES

1. Barbero, G.J. and Shaheen, E. : Environmental Failure to Thrive. *J. Pediat., 71 : 639, Nov. 1967.*

2. *Bowlby, J. : Attachment and Loss. Vol. 1, Attachment,* New York, 1969, Basic Books Inc., publishers.

3. Davis, D.P. : Is Inadequate Breast-Feeding an Important Cause of Failure to Thrive? *Lancet,* 1979, 10 March, 1(8115) : 541 - 2.

4. Elmer, E., Gregg, C. and Ellison, P. : Late Results of Failure to Thrive Syndrome. Clin. Pediat., 8(1969), 584 - 588.

5. English, P.C. : Failure to Thrive without Organic Reason. *Pediat. Ann.,* 1978 Nov., 7(11) : 774 - 81.

6. Finke-Furber, J., and Romer, C. : Failure to Thrive. *Can. Nurse* 1978 Dec; 74(11) : 30 - 4.

7. Fischhoff, Whitten, C.F., and Petit, M.C. : A Psychiatric Study of Mothers of Infants with Growth Failure Secondary to Maternal Deprivation. Vol. 79, No. 2, Journal of Pediat., 1971, 209 - 215.

8. Gardner, L. : The Nosology of Faioure to Thrive — Why is Psychosocial Deprivation, Its Major Cause, Underdiagnosed ? Am. J. Dis. Child, 1978, Oct., 132(10) : 961.

9. Glaser, H., and Heagarty, M. : Physical and Psychological Development of Children with Early Failure to Thrive. *J. Pediatric,* 73(1968), 690 - 698.

10. Gordon, A.H., and Jameson, J.C. : Infant-Mother Attachment in Patients with Non-Organic Failure to Thrive Syndrome. J. Am. Acad. Child Psychiatry, 1979 Spring; 18(2) : 251 - 9.

11. Holmes, G.L. : Evaluation and Prognosis in Non-Organic Failure to Thrive. South Med. J., 1979 Jan, 72(6) : 693 - 5, 698.

12. Hufton, I.W., and Oates, Kim. R. : Non-Organic Failure to Thrive — A Longterm Follow-Up. *Pediatrics,* Vol. 59, No. 1, Jan. 1979, 73 - 77.

13. Kerr, M.A., Bogues, J.L. and Kerr, D.S. : Psychosocial Functioning of Mothers of Malnourished Children. *Pediatrics,* 1978 Nov., 62(5), 778 - 84.

14. Koel, B.S. : Failure to Thrive and Fatal Injury as a Continuum. *Am. J. Dis. Child,* Vol. 118, Oct. 1969, 565 - 7.

15. Levine, M.I. : Failure to Thrive — Introduction. *Pediat. Ann.* 1978 Nov., 7(11), 737 - 42.

16. Magnus, P.D., and Frantz, K.D. : Breast-feeding and Failure to Thrive. Lancet, Letter, 1979, 19 May, 1(8125), 1080 - 1.

17. Mitchell, W.G., Gorrell, R.W., and Greenberg, R.W., and Greenberg, R.A. : Failure to Thrive : A Study in a Primary

Care Setting, Epidemiology and Follow-Up. *Pediatrics,* 1980 May, 65(5), 971 - 7.

18. O'Callaghan, M.J., and Hull, D. : Failure to Thrive or Failure to Rear ? *Arch. Dis. Child,* 1978, Oct., 53(10), 788 - 93.

19. O'Connor, P.A. : Failure to Thriva with Breast Feeding. *Clin. Pediatr. (Phila), 1978 Nov, 17(11), 833 - 5.*

20. Parks, K.M. : Failure to Thrive as a Result of Maternal Deprivation. *Curr Pract. Obstet. Gynecol. Nurs.,* 1978 (2), 190 - 6.

21. Pollitt, E., Eichler, A. and Chanic, R. : Psychosocial Development and Behaviour of Mothers of Failure to Thrive Children. *Am. J. Orthopsychiatry,* 45(1975) 525- - 537.

22. Pollitt, E., Gilmore, M., and Valcarcel, M. : Early mother-Infant Interaction and Somatic Growth. *Early Hum. Dev.,* 1978 Feb., 1(4), 325 - 36.

23. Powell, G.F. and Blizzard, R.M. : Emotional Deprivation and Growth Retardation, Stimulating Idiopathic Hypopituitarism. *N. Engl. J. Med.,* 276 (1976), 276 - 278.

24. Shaheen, E., Alexander, D., Truskowsky, M. and Barbero, G.J. : Failure to Thrive, A Retrospective Profile. *Clinical Pediatrics,* 7 : 2551, 1968.

25. Sills, R.H. : Failure to Thrive : The Role of Clinical and Laboratory Evaluation. *Am. J. Dis. Child,* 1978 - Oct., 132(10) : 967 - 9.

26. Smith, C.A., and Berenberg, W. : The Concept of Failure to Thrive. *Pediatrics,* Vol. 46, No. 5, Nov. 1970, 661 - 663.

27. Spitz, R. : Hospitalism : An Inquiry into the Genesis of Psychiatric Constitutions in Early Childhood. *Psychoanal. Study of Child,* 1(1945), 53 - 74. □□