Anthrop. Közl. *43;* 113–116. (2002)

CHOREA MINOR AND SECULAR TREND

Ottó G. Eiben

Department of Biological Anthropology, Eötvös Loránd University, Budapest, Hungary

Astract: *The author provides an historical review of advance in timing of the peak onset of the chorea minor and its relation to the secular trend. In the first decades of the twentieth century, this phenomenon was thought as a result of the accelerated growth of children. Since chorea minor is considered as an illness of exogenous origin and today, in an era of antibiotics, it does not occur any more, chorea minor remains in the literature of the secular trend only because of its scientific-historical importance.*

Keywords: *Chorea minor; Secular trend.*

Chorea minor is a nervous system disorder with flinging, gross hyperkinesis characterized by irregular and involuntary action of the face and of the muscles of the distal limb segments (Numenthaler 1985). This kind of hyperkinesis becomes accentuated during active innervation (i.e. voluntary movement), it subsides at rest and in absent during sleep. Chorea minor is attributable to a circumscribed lesion of the extrapyramidal system (a lesion of the small cells of corpus striatum, nucleus caudatus and putamen).

Secular trend is a characteristic auxological world phenomenon of the 20th century. It is long-term, systematic changes in a wide variety of human biological traits, in successive generations, living in the same territory (Eiben 1988). The well-known secular changes are observable in (1) new-born babies, (2) in childhood (in the most researched period) and (3) in adolescence (may be observed in young adults, university students, conscripts and soldiers, etc.), and – in their consequences – (4) also at population level.

The most important characteristics of the secular trend during growth and maturation process are: (a) the so-called "acceleration" i.e. changes in the growth rate of height, (b) weight, and (c) some other body measurements; (d) an earlier onset of puberty, both for menarche and andrenarche; (e) an earlier appearance of peak height velocity in girls as they outgrow their male peers, and (f) a shortening of this period; (g) an earlier onset of myopia. And, Bennholdt-Thomsen (1941) added to all these a gradual shift of chorea minor incidence toward younger ages as a concomitant sign of growth "acceleration".

E. W. Koch, a German school doctor of Leipzig was the first to call attention to the accelerated tempo of growth in children (Koch 1935). In the German literature, however, Bennholdt-Thomsen 's name became much more known in this respect, probably because he published several papers about the "acceleration" between 1938-1943 and later on. Bennholdt-Thomsen (1941) wrote that also chorea minor began to occur at an earlier age.

Chorea minor is the most frequent form of chorea, and it can be associated with acute arthritis and endocarditis. Recent medical attitude considers it an allergic disease following a streptococcus infection (Juhász 1977), although the recognition of its post-streptococcus origin is not new. In childhood, it may appear also after 2-3 weeks of sore

throat. It often occurs also in the course of rheumatic fever (febris rheumatica) with a streptococcal origin. It is also a disease entity and as such is identical with Sydenham's chorea, St. Vitus dance, choromania or dancing chorea.

Chorea minor can occur at any age but it is typically an illness of school-age, 6-14 years. Its prevalence in girls is 2-3 times higher than in boys. The permanent agitation of the sick child upsets his/her school behaviour and they have difficulties with writing (De Rudder 1941). Chorea minor has been observed in all human races, ethnical groups (Koch 1966) and spring and winter peaks were described in its occurrence (Walker 1948).

The attribute "minor" in the name of this illness relates to the fact that this form is not so severe as chorea major (Huntingston's chorea) and, indeed, sooner or later it ceases; the child will "out-grow" it.

On the other hand, according to an earlier school of thought, chorea major was a typically endogenous neuropathy of adults. Today it is regarded as a dominantly inherited, degenerative disease entity. The symptoms of chorea minor in puberty were very similar to the major illness in adulthood. It is no wonder that earlier their common aetiological identity was presumed since the same groups of elementary neurological symptoms was dominant in both forms. Nowadays, however, it is clear that chorea minor is far from being a dominantly heritable neuropathy (as chorea major is!). Instead it is a banal syndrome influenced by pyogenic bacteria so its decline in incidence can be influenced by pharmaceutics.

In his papers, Bennholdt-Thomsen (1938a, 1938b, 1940, 1941) reported the somatic changes of 7–14 year-old urban children. These papers have been systematically cited, chiefly by German authors but not much referenced in English language literature. Bennholdt-Thomsen discussed the "acceleration" of growth and the earlier onset of puberty. He investigated early and late maturing children (based on eruption of permanent teeth, and some body measurements and sexual maturation characteristics), whether their neurological reaction-ability was different. He voiced the opinion that the early-maturing ones have the "strongest vasomotor" responses.

Since children were observed to undergo remarkable changes already in the 1930s, Bennholdt-Thomsen (1941) raised the question of whether there was any causal interrelation between the accelerated biological development of children and youth and the onset of new illnesses, especially ones of the nervous system, respectively the timing when (already) known illnesses would occur. He investigated this problem for the onset of St. Vitus dance in childhood in the German city Halle. This town had become industrialized quickly and there were some data available for the accelerated growth and the secular trend in maturation of children and the accelerated tempo of life of the population for the previous decades. He provided evidence that the age at peak prevalence of the illness had shifted toward younger ages, from 11 to 8 years of age between the turn of the 19/20th century (data of Kleist 1907) and the period of 1925-1940 (data of Bennholdt-Thomsen and Schmidt-Voight 1940). Therefore, Bennholdt-Thomsen estimated the extent of this shift to be about three years (Figure 1).

It is a though-provoking date that a similar phenomenon has been observed also in regard to other illnesses. The mean age of prevalence of scarlatina advanced from primary-school-age to preschool-age. The same tendency has been established in all forms of rheumatic fever. On the other hand, it is true that about 85% of Hungarian children attend kindergartens by their 3-4 years of age (Eiben at al. 1991) and they are exposed a number of infections, although they are well supplied with gamma-globulin.

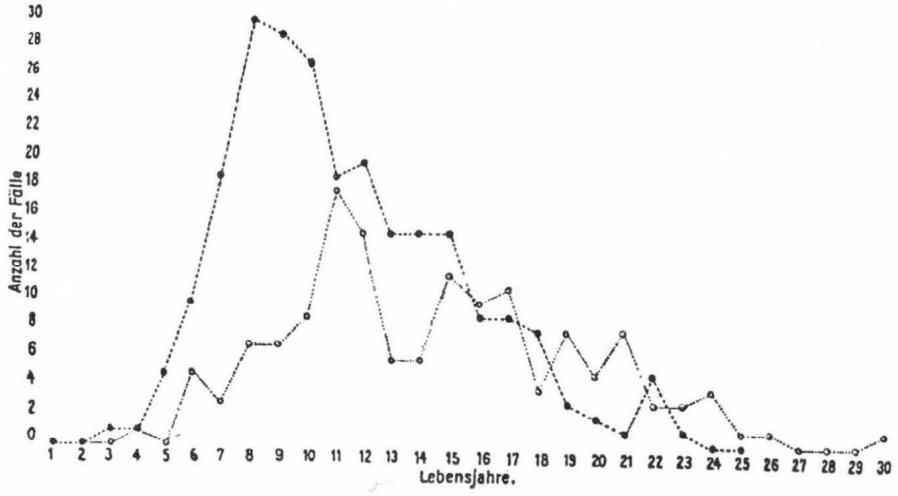

Figure 1: Original figure of Bennholdt-Thomsen (1941):
The age at peak prevalence of chorea minor had shifted toward younger age.

Anyway, the cited "three years difference of timing", shall we say over 30 years between 1910 and 1940 in case of chorea minor, corresponds more or less to that manifested by some other part-phenomena of the secular trend, to the so-called "acceleration" of growth.

All these are remarkable from a human biological point of view by referring to the historical fact that in the middle of the 20th century an illness of the nervous system was considered an ontogenetic age-index. This made its way into the international (chiefly German) literature focussing on the secular trend. Today, chorea minor is regarded as an illness of exogenous origin, and practically, it no longer occurs in our era of readily available antibiotics.

As a result of all these, *chorea minor will survive in the literature of the secular trend only because of its importance for the history of science.*

*

Acknowledgement: This paper was funded by the Hungarian National Foundation for Scientific Research (OTKA grant T 13098 and T 22599).

References

Bennholdt-Thomsen, C. (1938a): Über die Akzeleration der Entwicklung der heutigen Jugend (Kritik ihrer auslösenden Momente). *Klinische Wochenschrift, 1938:* 865.

Bennholdt-Thomsen, C. (1938b): Bevölkerungsschichtung und Entwicklungsbeschleunigung der Jugend. *Monatschrift der Kinderheilkunde, 85:* 85.

Bennholdt-Thomsen, C. (1940): Entwicklungsbeschleunigung des Großstadtkindes. In: De Rudder, B., Linke, F. *Biologie der Großstadt.* Dresden.

Bennholdt-Thomsen, C. (1941): Die somatische Wandlung des Großstadtkindes. *Zeitschrift für Rassenkunde und die gesamte Forschung am Menschen, 12;* 248-255.

Bennholdt-Thomsen, C., Schmidt-Voight, J. (1940) Krankheitsdisposition und Entwicklungsbeschleunigung der heutigen Jugend (Untersuchung über Chorea minor). *Klinische Wochenschrift, 1940:* 1337.

De Rudder, B. (1941): Rheumatic illnesses in Childhood (in Hungarian). In: Belák, S. (Ed.) *Rheumatologia* pp 93–101. Magyar Orvosi Könyvkiadó Társulat, Budapest.

Eiben, O.G. (1988): *Secular growth changes in Hungary* (in Hungarian). *Humanbiologia Budapestinensis,* Suppl. *6.* p. 133.

Eiben, O.G., Barabás, A., Pantó, E. (1991): *The Hungarian National Growth Study I. Reference Data on the Biological Developmental Status and Physical Fitness of 3–18 Year-old Hungarian Youth at the 1980s. Humanbiologia Budapestinensis,* Vol. *21.* p. 123.

Juhász, P. (1977): Neurology and psychiatry (in Hungarian). In: Trencséni, T. (Ed.) *A gyakorló orvos enciklopédiája* pp 1231–1420. Medicina, Budapest.

Kleist, K. (1907): Über die psychischen Störungen bei der Chorea minor nebst Bemerkungen zur Symptomatologie der Chorea. *Allgemeine Zeitschrift für Psychiatrie und psychisch-gerichtliche Medizin, 64:* 769–855.

Koch, E.W. (1935): *Über die Veränderung menschlichen Wachstumgs in ersten Drittel des 20. Jahrhunderts.* Johann Ambrosius Barth, Leipzig. p 56.

Koch, G. (1966): Krankheiten mit vorwiegender beteiligung des extrapyramidalen Systems. In: Becker, P.E. (Ed.) *Humangenetik,* V/1. pp 130–207. G. Thieme, Stuttgart.

Numenthaler, M. (1985): *Neurologie* (7. Aufl.) G. Thieme Verlag, Stuttgart.

Welker, E.R.C. (1948): Psychological and social aspects of Sydenham's chorea. *Edinburgh Medical Journal, 55:* 17.

Mailing address: Ottó G. Eiben
Böszörményi út 3/A I.5
H-1126 Budapest
Hungary
e-mail address: otto.eiben@axelero.hu