

# COMMENTS ON THE CONCOMITANT EPIDEMICS OF CESAREANS AND CHILDHOOD ASTHMA

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## INTRODUCTION

One of these epidemics may be explained, but the other one remains mysterious. Is there a link between them?

The prerequisite for the skyrocketing rates of caesareans has been the safety of this operation. We have reached the time when some doctors are ready to offer *routinely* a scheduled c-section to all pregnant women.(1) However the deep-rooted reason for such high rates is a widespread and quasi-cultural lack of understanding of birth physiology in medical circles and among many natural childbirth groups as well.

The extent and undoubted reality of the childhood asthma epidemics, on the other hand, is puzzling. Let us recall, for example, that physician-diagnosed asthma was reported to be as high as 24 percent in Chicago (2), and 26 percent in Sydney.(3) It is around 20 percent in the UK. This global phenomenon was documented by the publication of the 'ISAAC' study (International Study of Asthma and Allergies in Childhood). (4) This study involved 13- to 14- year-old children in 155 centers in 56 countries and 6- to 7-year-old children in 91 centers in 38 countries.

## FIRST STEP

The first step of our inquiry has been to explore the Primal Health Research Data Bank via the key-word 'caesarean' (or cesarean). Surprisingly enough, this does not lead to a great number of citations. It is noticeable, however, that the most significant hard data we can find in the bank via this key-word connects *'being caesarean born' with the risks of developing asthma in childhood and adulthood.*

Finnish researchers looked at the risks of having asthma and allergic diseases among adults aged 31 (in a population born in 1966). It appeared that the risk of having asthma among those born by caesarean was multiplied by 3.23 compared with those born vaginally.(5) On the other hand, the risks of having allergic diseases such as hay fever or eczema, or the risks of having an allergic tendency detected by skin tests, were not increased. The same team looked at the risks of having asthma in childhood, at age seven.(6) They found that birth complications in general, and caesarean births in particular, were risk factors. Another Finnish team linked data from the 1987 National Birth Register with data from several health registers to obtain information on asthma. This study, involving nearly 60 000 children, confirmed that the risks of

having asthma in childhood were increased among those born by caesarean.(7) A Danish study also found that a caesarean birth is a risk factor for asthma, but not for allergic rhinitis,(8)

When evaluating such convergent findings, I note the well-documented significant increase in respiratory problems of the newborn baby after a scheduled 'non-labour' caesarean, compared with a vaginal birth or a caesarean during labour. Unfortunately none of these studies included in our data bank compared 'labour caesareans' and 'non-labour caesareans' . Today we are in a position to understand that the fetus participates in the initiation of labour. One of the probable ways is the release in the amniotic fluid of a substance (probably 'Platelet Activating Factor' ) indicating that its lungs are mature. Furthermore it seems that hormones released by both mother and baby during the birth process provide the final maturation of the lungs (prolactin released by the mother and noradrenaline released by the fetus). It can therefore be expected that babies born by non-labour caesarean are more at risk of respiratory difficulties not only immediately after birth, but also later on in life(9). It is noteworthy that a caesarean birth appears as a risk factor for asthma as a respiratory disease, but not as an allergic disease

At a time when about one million Americans and several millions Chinese are born every year 'from above' , one can wonder why the key-word caesarean, compared with many other key-words, does not lead us to a greater number of references. The first reason is that Primal Health Research is a *new discipline* that has difficulties at establishing itself: scientists are human beings who had not been genetically programmed for long-term thinking. It is significant that all papers relating caesarean and asthma have been published *after the dawn of the twenty-first century*. Another reason is that most research protocols that explore risk factors in the period surrounding birth use imprecise concepts such as 'birth complications' or 'birth optimality' (scores measuring how a person was born compared with what is considered optimal).

The results of this group of studies suggest that the way we are born has life long consequences and open the way to another generation of research that would meet some of the main preoccupations of those who are familiar with the concept of Primal Health Research. In the current obstetrical climate, we need answers to such urgent questions as: 'What are the long-term effects of being born after labour induction?' or 'What are the long-term effects of being born by 'non-labour caesarean' .

## OTHER PERSPECTIVES

Although caesarean birth appears as a risk factor for asthma, we cannot conclude that the main cause for the asthma epidemic has been identified. We need to combine data from several perspectives. Since the prevalence of childhood asthma and the rates of

c-sections vary markedly by geographic regions worldwide, one can first explore these correlations.

First we can look at Brazil, where the caesarean became a status symbol and a desired consumer product. In this huge country whose population equals the total of the German, French and Spanish populations, the overall rate of C-sections is well above 50%. Of course there are differences between cities and rural areas, and also between private and public hospitals: in the private hospitals of big cities such as Sao Paulo and Rio, four out of five babies are born by caesarean - 80%! In some clinics, the policy is to perform a cesarean, unless the women request otherwise. A pro-caesarean culture is thus spreading. In Brazilian public hospitals, 'only' 35 or 40% of babies are born by caesarean and the prevalence of asthma in Brazil seems to be high. It is difficult to obtain national statistics, but the fragmentary data provided by the medical literature suggest that the rates are usually around 20 percent (10,11).

In China the rates of c-sections are usually above 30%. An important survey in Shunyi County, a suburban district of Beijing, concerned twenty-five primary schools.(12) It appeared that, among these schoolchildren, the rates of asthma were only 2.2%. Such results are consistent with those found for five Chinese cities reported in the International Study of Asthma and Allergies in Childhood (ISAAC).(5) In that study, the 12-month asthma prevalence rates for children, between 13 and 14 years of age, ranged from 1.5 percent to 3.5 percent based on responses to video questionnaires, and from 2.5 percent to 5 percent based on responses from written questionnaires.

The Chinese data should not lead to the hasty conclusion that there is no link between these two epidemics. We must keep in mind the importance of genetic factors in the genesis of asthma. Hong Kong is the right place to compare the predisposition to asthma between Chinese and Caucasian children. In Hong Kong the prevalence of asthma among Chinese children is much lower than among the Caucasian children. A research team of specialists was formed at the Faculty of Medicine of the Chinese University to investigate the possible genetic and environmental risk factors associated with childhood asthma.(13) Research on Caucasians has revealed several possible genetic alterations that may increase the chance of asthma. These genes also influence the effectiveness of different treatments. The assumption that Chinese children are to a certain extent protected against asthma is reinforced by the low rates in the highly urbanised and industrialised Japan, a population that is closely related genetically to the diverse Chinese populations. One epidemiological study found that the rate of childhood asthma in Tokyo is 0.7%, much lower than in Beijing.(14) The rates of C-sections are also much lower in Tokyo than in Beijing.

## USING THE KEY WORD, ASTHMA

Although the high rates of c-sections undoubtedly contribute to explain the worldwide increasing rates of childhood asthma, it is highly probable that other factors are involved. Let us explore the Primal Health Research data bank the other way round, by starting from the key-word 'asthma' .

We' ll find countless studies comparing the prevalence of asthma among children who had been either breastfed or bottle-fed. Such studies provide contradictory or non -significant results. Thus the method of infant feeding cannot explain the epidemic of asthma.

We' ll also find several studies detecting risk factors during fetal life. Most of these factors are not unique to our societies (fetal growth restriction in particular) and therefore cannot explain the epidemic either. Intrauterine pollution by fat-soluble chemicals (PCBs, dioxins, etc.) has not been explored as a possible risk factor. We must include in the field of intrauterine pollution the placental transfer of the dietary *trans fatty acids*. These man-made molecules, which are introduced into the food chain via processed oils, are abundant in a great variety of food, such as cakes, biscuits, French fries and fast food in general. The theory that intrauterine pollution with trans fatty acids might contribute to our understanding of the epidemic is supported by geographic variations.(16) When comparing different European countries there is a significant association between the intake of trans fatty acids and the prevalence of symptoms of asthma. In general, the current widespread imbalances in the intake of fatty acids undoubtedly influence the rates of childhood asthma: several studies support the assertion that greater consumption of *sea fish may protect against asthma* and can improve lung function.(16,17) *Exposure to antibiotics* during fetal life is an identified risk factor unique to our society. It undoubtedly plays a role in the current epidemic of childhood asthma.(18) Let us add that, according to a US study presented at the 2003 European Respiratory Society' s conference in Vienna, antibiotic treatment in the first six months also leaves children more susceptible to asthma.

The key word asthma also leads to our own studies suggesting that there is a link between *whooping cough vaccinations* and asthma, and suggesting also that BCG (TB vaccine) might protect whooping cough vaccinated children against the risk of asthma. It is significant that in the countries where the routine use of BCG has been abandoned (UK, New Zealand, Australia, Ireland, USA, etc) the rates of childhood asthma are the highest. A Brazilian team is currently exploring the possible protective effect of BCG against asthma.

One of the reasons why our data cannot be easily confirmed is that epidemiological *studies of asthma don' t look at the vaccination history*. We recently commented on an asthma seminar published in the Lancet. A reprint here of this short text

summarizes our current point of view. (From Odent M, & Culpin E. Effect of immunisation status on asthma prevalence. Lancet 2003; 361: 434.)

In their Seminar, AE Tattersfield and colleagues(1) refer to the factors that can cause the immune system of children to polarise towards a h2 rather Th1 lymphocyte phenotype. However they do not mention any study exploring the incidence of childhood asthma in relation to the immunisation protocols. BCG and other mycobacteria vaccines tend to facilitate this shift towards the Th-1 phenotype, whereas most other commonly used vaccines tend to have the opposite effect.

We investigated the possible link between early vaccinations and asthma in two homogeneous populations of children. In the first group (n=446), all children (mean age 8 years) had been breastfed for more than a year and had received only breastmilk during the first 6 months (2). In the second group, all 274 children were pupils of British Rudolf Steiner schools, and shared the same anthroposophic lifestyle. In both groups we found a significant correlation between pertussis vaccination and asthma

However, we could not find the same correlation among the 210 pupils of a French Rudolf Steiner school that did not follow the same immunisation programme as the British one. Most French pupils who had received pertussis vaccination (and the vaccinations usually associated with pertussis) had previously received BCG. We postulated that diphteria-tetanus-pertussis vaccination is a risk factor for asthma *if it is not preceded by BCG*(3). By combining the data from these three groups, we identified 214 children who had no vaccination at all: among them four were diagnosed as having asthma.

We conclude that, in the future, epidemiological studies of asthma should look at the immunisation status of the population under study.

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This overview of the data provided by the Primal Health Research Data Bank suggests that *the epidemic of caesarean is just one of the factors* that can explain the current high rates of asthma in childhood and also the geographical variations. Other factors need to be explored more in depth: exposure to antibiotics during the primal

period, intrauterine pollution (particularly with trans fatty acids), and early multiple vaccinations (particularly whooping cough).

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