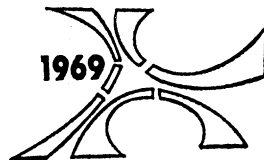


Is There a Secular Increase in the Incidence of Cleft Lip and Cleft Palate?



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Some authors have assumed that the incidence of cleft lip and cleft palate has increased during the past decades, because in recent times, due to better treatment, more patients have been able to get married and to produce similarly affected children. v. Verschuer (2) stated in 1945 that the incidence has doubled during the last 100 years. Fogh-Andersen (1) reported in 1963 that the frequency in the living population has doubled within the past 50 years or trebled within 100 years. He demonstrated that the proportion of operated patients in Denmark rose steadily from 1.31 to 1.64 per 1000 live births during the years 1938–1957. He concluded from these figures that there was a rising incidence at birth. Since, however, an appropriate analysis of incidence among newborn children is lacking, any real increase remains to be proved.

We have confined our investigation to cleft lip with or without cleft palate, because incidence figures for this type are more reliable than those for isolated cleft palate, an anomaly which can be easily overlooked at birth. Apart from our own observations in the administrative area of Münster, numerous estimates reported in the literature from obstetric clinics or local health authorities are available for the years 1900–1960 in Germany.

Figure 1 presents incidence figures for Berlin, calculated for successive five-year groups from 1915–1956. The first two values are based on numbers smaller than 10, and therefore may be somewhat unreliable. The other figures seem to show a slight and rather continuous increase in incidence. The χ^2 -test for heterogeneity, however, reveals no significant differences.

Figure 2 presents estimates of incidence given by various authors for different periods in Hamburg. Each value is based on at least 35 cases. The figures indicate a rising incidence. The χ^2 -test for heterogeneity gives a highly significant value.

Table 1 provides incidence figures for different periods and places in

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FIGURE 1. Incidence of cleft lip with or without cleft palate (Berlin, 1915-1956, % total births).

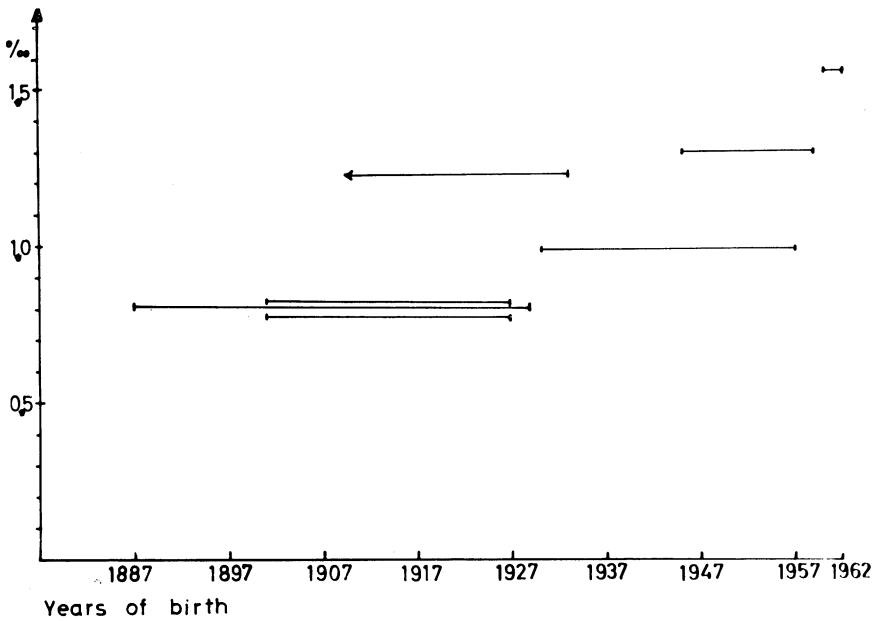


FIGURE 2. Incidence of cleft lip with or without cleft palate (Hamburg, 1887-1962, % total births).

TABLE 1. Incidence of cleft lip with or without cleft palate.

<i>district</i>	<i>period</i>	<i>incidence (% total births)</i>
München	1912-1931	0.67
Stuttgart	1915-1937	1.01
Leipzig	1932-1941	1.12
Köln	1931-1941	1.27
Münster	1950-1961	1.13

Germany. The figures for the earliest periods in München and Stuttgart appear to be somewhat lower than those for later groups of years.

Twelve series were grouped according to three longer periods of observation. The results obtained by the analysis of each period are given in Table 2. The figures indicate that since the beginning of our century incidence of cleft lip with or without cleft palate has apparently increased by about 50% of the original value.

Further analysis has shown a high peak of 1.5% during or after the Second World War occurring in Eastern Germany and in Hamburg. A similar, but much smaller peak, might have occurred from 1945-1950 in Berlin.

Discussion

We have compared incidence figures for cleft lip with or without cleft palate for different periods and places in Germany. There seems to be no serious objection to such a comparison. Cleft lip is a readily diagnosed anomaly which in general cannot be overlooked at birth. All cases have been observed among newborn children registered in obstetrical departments or by local health authorities, so that the number of cases and the size of the related population of all children are clearly defined. As the analysis is confined to children born in Germany, possible geographical differences are minimized.

In Berlin a slight increase can be detected in successive five-year groups from 1920-1956.

In Hamburg, the analysis of successive five-year groups from 1901-1957 does not show a continuous rise in incidence. Immediately after the Second World War, however, a disproportionately high peak was observed, which will be discussed later. A comparison between some other incidence figures in Hamburg covering longer periods demonstrated that the incidence

TABLE 2. Incidence of cleft lip with or without cleft palate.

<i>period</i>	<i>incidence (% total births)</i>
1901-1931 (4 series)	0.74
1930-1949 (5 series)	1.11
1950-1961 (3 series)	1.09

during the last four decades is in general higher than during the first three decades of this century. This increase may be influenced by a peak during or after World War II, but is not completely explained by it.

The analysis of incidence figures for different periods and places in Germany gives further evidence that the incidence before 1930 has been somewhat lower than afterwards. The study of figures calculated from pooled series for three successive periods reveals an increase in incidence by about 50% during the years 1901–1961.

A peak during or immediately after World War II was observed in Hamburg, Eastern Germany, and possibly also in Berlin. Exogenous factors causing cleft lip with or without cleft palate in man are unknown.

It is generally agreed that cleft lip with or without cleft palate is a predominantly genetical malformation. Nevertheless, we cannot exclude the possibility that unknown exogenous factors associated with conditions during or after a war may cause this type of cleft in some instances.

Summary

The result of the analysis from this study may be described as follows. The available data show a secular increase in the incidence of cleft lip with or without cleft palate which cannot easily be explained by under-reporting. A rise of the average incidence by about 50% of the original value appears to be a fairly good estimate. No specific agents which might have produced this secular increase in the incidence of cleft lip with or without cleft palate, are known. The assumption that changes in nutrition or the widespread use of drugs are of etiological importance is highly unlikely, since such causative factors would be reflected by a very high incidence of cleft deformities in children of specifically exposed groups of women. Since it is generally accepted that the etiology of this type of cleft is predominantly genetical, it might be suspected that the increase in incidence was due to greater fertility of patients treated by modern methods. As, however, only about 2% of patients with cleft lip with or without cleft palate have one likewise-affected parent, even a change from complete sterility to normal effective fertility in all patients could have had a maximum effect of a two per cent increase. The cause of the observed increase by some 50% must be due to some unknown factors.

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