Experience with BCG Vaccination in Cordoba, Argentina*

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I shall try to inform you about the controversial subject "BCG Vaccination," its use and results in our country. The epidemiological, clinical and anatomical investigations lately performed in different countries, with precise techniques and methods of undebatable value, have permitted us to confirm the importance of primary tuberculosis as the origin for initial forms of pulmonary tuberculosis, especially in the young adult. Both, the tuberculin testing and the roentgenphotographic methods used in places where chances of a primary infection in adults is great, permits us to consider the influence of the first infection as the origin of the disease. The tuberculin testing of individuals of ages varying from 10 to 16 years old showed a percentage of 42.8 reactors among those who live in the mountainous regions of Cordoba, and 49.2 per cent among those living in the city. The same testing in the age groups 16-20 showed a percentage of 47.3 reactors in the rural populations and 69.6 per cent in the city. In such conditions, the primary infection has a greater chance to influence the origin of pulmonary tuberculosis in the young adults and older adults.

In our former paper "The Beginning of Pulmonary Tuberculosis in the Adult" we have discussed the existance of pulmonary lesions detected in adults, after their conversion from non-reactor into reactors. In another paper, the "Anatomical Features of Pulmonary Tuberculosis and Its Epidemiological Relationships" we discussed necropsies performed in 231 adults who died of pulmonary tuberculosis; among them, 55 cases were found to be of the childhood type (23.8 per cent).

Our research in Rio Grande do Sul, Brazil, has allowed us to prove the existance of a high proportion of non-reactors to tuberculin among the population; more so, in certain rural areas, where the percentage of adult non-reactors reached 50.7 per cent. Our clinical research at the Sao Pedro Psychopathic Hospital in Porto Alegre (Brazil) revealed a high percentage of primary forms


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among the tuberculous inmates of that hospital. In Bangu, Federal District (Brazil), Dr. R. Fernandez found 22.9 per cent of primary phase tuberculosis among all autopsies performed in adults dying from tuberculosis in the hospital.

Our actual observation of the relationship between primary infection and the beginning of clinical pulmonary tuberculosis in the adult, permits us to assure that every young adult who is a non-reactor to tuberculin, must be protected against the danger of primary tuberculosis. We, therefore, think that BCG vaccination represents the most convenient method to avoid the danger of a primary infection in young adults. In Cordoba, BCG vaccination has gone through its experimental stage and its use is quite divulged. From 1935 through 1946, 50 per cent of the newborns in the city of Cordoba were vaccinated, reaching a total of 22,254 infants. This vaccination is given on a voluntary basis. The vaccination of non-reactor young adults has not yet been sufficiently divulged. Nevertheless, at the Centro de Asistencia Medico-Social de la Tuberculosis, the number of persons presenting themselves for vaccination progressively increases. The vaccination program for school children in Argentina, as well as in other Latin American countries, should be considered as of real importance due to the local epidemiological picture, mainly, when a primary infection at that age represents a danger not to be neglected. In our report to the Sixth Pan-American Congress of Tuberculosis, held in Habana, Cuba in January 1945, we discussed the use of peroral BCG vaccination with .20 mg. of vaccine in children and school children up to 13 years of age, and the use of intradermal vaccination in an orphanage with .15 mg. vaccine. The latter study began in 1938 and was conducted with control techniques and no tuberculosis deaths were observed.

The vaccination was performed in Cordoba in a great proportion of newborns who were given home care through the Assistensia Publica. This group belonged to the poorest strata of the population and the household conditions were not well known. Because of the fact that household conditions were not known, several newborns exposed to tuberculosis might have been vaccinated, however, our experience showed good results, even though we might have inoculated these exposed babies. We believe that isolation should be secured only when the newly vaccinated child is in danger of being exposed to tuberculosis in the household. The isolation of the vaccinated child up to the time when it becomes a tuberculin reactor is the right procedure and should be observed. The isolation of young non-reactors before vaccination, is observed as a preventive procedure of an unknown pre-allergic period. However, we think that in certain cases it is impor-
tant to vaccinate the children regardless of exposure conditions. The intradermal injection of 0.15 mg. BCG was used routinely in most of the newborns and children vaccinated. The oral, subcutaneous, multiple puncture and scarification methods of vaccinations have been carried out only in a small number of individuals.

CONCLUSIONS

From comparative investigations carried out in vaccinated and non-vaccinated children the following conclusions have been reached:

a) The general mortality within the first year of life was 8.3 per cent among the vaccinated and 15.6 per cent among the control group;

b) A mild degree of tuberculin sensitiveness was prevalent among vaccinated in contrast to the strongly positive results of Mantoux tests sometimes found in children belonging to the control group;

c) Chest x-ray films made on the vaccinated group disclosed 57.5 per cent lesions among children exposed to tuberculosis and 18.9 per cent among noncontacts, while in the control group there were 74.3 per cent lesions among exposed children and 47.6 per cent among noncontacts. In addition, the x-ray findings of the vaccinated group proved to be less important than that evidenced in the non-vaccinated. When primary infection was observed among vaccinated children, only glandular envolvement could be detected.

For the protection of the newborn, small children, school children, and young adult non-reactors, exposed or not to tuberculosis, the BCG vaccination represents a good weapon in the prophylactic campaign against tuberculosis. However, vaccination must be employed together with the other known measures used in the control of tuberculosis.

CONCLUSIONES

De las investigaciones comparativas llevadas a cabo en niños vacunados y no vacunados, las siguientes conclusiones han sido alcanzadas:

a) La mortalidad general dentro del primer año de vida, fue 8.3 por ciento entre los vacunados y 15.6 por ciento en el grupo testigo.

b) Un grado moderado de sensibilidad tuberculínica dominó entre los vacunados en contraste con los resultados fuertemente positivos de la reacción de Mantoux, a veces encontrada en niños que pertenecían al grupo testigo.
c) Las películas radiográficas hechas en el grupo vacunado, descubrieron 56.5 por ciento de lesiones entre los niños expuestos a la tuberculosis y 18.9 por ciento entre los no expuestos, en tanto que en el control fueron 73.3 por ciento de lesiones entre los expuestos y 47.6 por ciento entre los no expuestos. Además los hallazgos radiológicos del grupo vacunado demostraron ser menos importantes que los encontrados en los no vacunados. Cuando la infección primaria se observó entre los niños vacunados, solamente se pudo descubrir el crecimiento ganglionar.  

Para la protección del recién nacido, niños pequeños, niños escolares y adultos jóvenes negativos a la tuberculina, expuestos o no a la tuberculosis, la vacunación BCG representa una buena arma en la campaña profiláctica contra la tuberculosis. Sin embargo, la vacunación debe ser empleada en conjunto con otras medidas conocidas para dominar la tuberculosis.