

BCG SSI Vaccine Induced Adverse Reactions and Their Surgical Treatment Options

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Introduction. According to World Health Organization (WHO) in 2010 incidence of tuberculosis in Latvia was 39 cases to 100 000 population, 890 new cases were reported, including 45 children and 16 teenagers. 74 patients died from tuberculosis in the year 2010. Due to the high incidence rate, BCG vaccination is recommended in Latvia for every child at birth. BCG vaccination serves as the prevention of tuberculosis. It is one of the most used vaccines and more than 90% children in the world receive it. Though there are controversies regarding its efficacy, it is generally agreed that the vaccine is effective against the disseminated disease and meningitis in childhood tuberculosis. BCG vaccination in Latvia has been compulsory since 1962 and is included in the governmental immunization program. BCG vaccine Aventis Pasteur SA (France strain 1077) was used in Latvia from 1991 to 2005. BCG vaccine SSI (Danish strain 1335) was used in 1994 and 1995 and since 2005 to present time. Since the introducing of SSI vaccine, an increased number of adverse reactions has been reported in numerous publications.

Aim. The aim of the study is to rate the incidence of BCG adenitis in children after vaccination since 2005 and to evaluate the possible reasons and treatment methods used.

Material and methods. A retrospective study was undertaken and medical histories of all children admitted to Children's University Hospital between 2005–2013 were reviewed. The study includes children from 1 to 25 months of age with diagnosis of suppurative BCG lymphadenitis. All children received BCG vaccine SSI (Danish strain 1335). All diagnoses were histological proven. Statistical analyses were performed using SPSS software, version 20.0 (IBM Company, Chicago, IL, USA). Results were expressed as mean \pm SD. P values < 0.05 were considered statistically significant.

Results. A total number of 194 patients were admitted for surgical treatment with median age of 5.9 months \pm 2.77 ($p = 0.05$). All children received the same type of vaccine accepted by the Ministry of Health of the Republic of Latvia, BCG vaccine SSI (Danish strain 1335). 180 patients had suppurative axillar lymphadenitis, 8 had suppurative supraclavicular lymphadenopathy but 12 patients had both localizations. All patients underwent surgical treatment, and lymph node extirpation was performed in all cases. All children had complete healing at the end of the study period. One patient had prolonged lymphorea. An increase in BCG induced lymphadenitis in the period of 3 years (2010–2012) was observed. However, in the 9-year period the mean rate of BCG adenitis is 0.11%, which is very close to the WHO accepted normal incidence (up to 0.1% of all vaccinated population).

Conclusions. BCG lymphadenitis incidence varies widely during the study period. The reasons for the development of BCG adenitis should be considered to be multi-factorial, including vaccine, care and host related factors.