

## ***Immunization Dialogue***

*Dr. T. Jacob John, Professor Emeritus, Department of Clinical Virology, Christian Medical College and Hospital, Vellore 632 004 answers readers' questions in relation to immunization.*

### **BCG Vaccine**

Q. In the IAP's Immunization Time Table in Pediatrics(1) it is mentioned that BCG vaccine should be given at the level of the origin of the deltoid muscle. This appears to be incorrect. Deltoid muscle arises from the lateral third of the clavicle, the acromion and the crest of the spine of the scapula and is inserted into the deltoid tuberosity, which is lateral on the humeral midshaft(2). The preferred site for giving BCG is the outer side of the left upper arm at(3,4) or above(5) the insertion of the deltoid muscle. Would the IAP Committee on Immunization clarify the issue?

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### **REFERENCES**

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A. By convention BCG is given over the left shoulder, so that one does not have to search the anatomy looking for BCG scar in a child. Since BCG is to be given intradermally, it is given with ease when the skin is stretched or taut. This advantage exists over the convexity of the shoulder, but not in the shaft of the upper arm. Therefore, the level of insertion of the deltoid muscle misses the mark by a few centimeters even in the neonate, since deltoid is inserted on the humeral mid-shaft. So, in spite of some expert opinion to the contrary, the Immunization Committee stayed away from the 'insertion', as the recommended site for BCG. The tip of the acromion process of the scapula, which is the level of origin of the deltoid relevant to our issue (rather than the clavicle or the crest of scapular spina), is very close to the curved contour of the shoulder where the skin is naturally taut. It is with this intent the recommendation included an anatomical point of reference. If this anatomical reference point is a stumbling block in practice, I shall welcome any alternative suggestion(s). Any expert can err. What is printed is not necessarily true. All these and more are illustrated by the question and its answer.

### **Rabies Vaccine**

Q. There are two brands of cell-cultured rabies vaccines available, namely, *viz.*, Rabipur and Verorab. The respective manufacturers claim that these are developed by different methods and vary in the exact contents. I would like to know if a given patient has been started on an immunization schedule after exposure, with

say 'A' brand, then after the first two or three doses can, the 'B' brand be used to complete the rest of the course of 5 injections. This is of practical importance when =it it a given time, a particular brand may not be available with the chemist.

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A. There are 3 cell culture rabies vaccine in the Indian market-the human diploid cell vaccine' (HDCV), the 'purified chick embryo cell' vaccine (PCEC or Rabipur) and the ' Vero cell rabies Vaccine' (Verorab). All three products contain suspensions of killed rabies virus of one or another strain, grown on one or another cell culture, of human, avian or simian origin, and purified to the recommended level by one or another protocol. However, all products contain the rabies virus glycoprotein (G) antigen, the minimum dose per vaccine assured according to the World Health Organization standards. The active principle of all three vaccines is one and the same; the vaccine potency is measured by one method; all vaccines induce the production of rabies virus neutralizing antibodies measurable by one international reference strain of rabies virus. Therefore, when necessary, the vaccines can be interchangeably used within one course of post-exposure rabies prophylaxis. Obviously no one would recommend mixing and matching of vaccines deliberately; when no stock of one vaccine is available and another one is available, please use the second, without losing time.

Q. (i) In my practice I get more cases of cat scratch injury rather than cat bite. Does such cases need rabies vaccination since the nails of animals get contaminated with saliva? and (ii) what is the percentage of complications with

cell culture rabies vaccine?

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A, (i) If a cat was rabid, its scratches would certainly be assessed as exposure to rabies virus and post-exposure prophylaxis would be mandatory. However, most cat-scratch incidents involve healthy cats; therefore, one should not give rabies vaccine in every case of cat-scratch. As in the case of dog-bite injury, each incident should be evaluated for risk, by ascertaining the behavior of the cat, both before and after the incident and the circumstances leading to the scratch injury. When children play rough with pet cats they ' are liable to be scratched by the cat. Immediate washing of the wound with water and soap is the most important step in reducing the risk of rabies virus infection. Thereafter the pediatrician must ascertain the details and make a decision regarding the presence or absence of risk. All those who own pet cats should immunize them against the several common cat diseases, including rabies. The claws of indoor pet cats could be clipped. These issues must be discussed with the veterinarian. Scratch or bites of cats are the second commonest mode of rabies virus transmission, second only to dog-bites.

(ii) Cell culture rabies vaccines are among the safest of vaccines; they cause side-effects very infrequently. In some 2.5% of vaccinees local pain, redness and sometimes mild fever and malaise may occur. Very rarely urticaria has been observed. Anaphylaxis or similar episodes are indeed very rare; however, the usual precautions applicable to all injections must be observed with rabies vaccines also. Allergic encephalomyelitis is not a complication of cell-culture rabies vaccines, but only of animal brain rabies vaccines.