

9.4 Electro-immunodiffusion studies on influenza virus: characteristics of the viral particles, the viral antigens and the antibody

TM Cheung

This work was carried out in February, 1972 in the Department of Laboratory Medicine and Wesley Medical Research Foundation, Wesley Medical Center, Wichita, Kansas, U.S.A., Leo P. Cawley, Director

The commercial availability of inactivated Influenza viral particles (Zonomune®; bivalent (A2 Hong Kong and B, Massachusetts) Influenza antigens extracts (Fluogen®) and the monovalent, specific antigens and antisera (Lederle) provided an opportunity to carry out electro-immunodiffusion (EID) studies on the Influenza viral particles, the antigens, and the antibodies.

Twenty-six serum specimens from elderly hospital patients - aged between 49 and 81, with an average age of 65 - were tested by EID. The method of agarose-gel electrophoresis developed by Cawley and that of counter-electrophoresis by Gocke and Howe were used. Electrophoresis was carried out with buffered agarose pH 8.6 and 0.75 ionic strength. Current was at 75 milliamps for 20 minutes. Neutralization studies were also done to show the specificity of the electro-immunoprecipitations.

Twenty-one sera contained antibodies to the bivalent Influenza antigens. Sixteen sera reacted with Influenza viral antigen of the type A (PR 8 strain). Twenty-three sera gave a precipitate with the A1 antigen (FMI strain). Sixteen sera showed antibodies to the A2 (Hong Kong variant). With the viral antigen type B (Massachusetts) only 4 sera showed the presence of antibodies. EID could demonstrate Influenza viral antigens and antibodies. The method could distinguish the viral antigen and its antibody of group A from that of group B. There was cross reactivity between strains of the same group: EID could not differentiate the various strains in the same group of Influenza.

EID could not demonstrate the intact but inactivated viral particles (Zonomune®). EID was a low cost and quick means of demonstration of Influenza antigens and antibodies. The suggestion is made that EID can be a low cost alternative in population studies in an outbreak such as that of the Influenza A H5N1.

9.5 Diffuse panbronchiolitis: the Hong Kong experience

KWT Tsang, *CGC Ooi, B Lam, *E Chan, *BR Hawkins, MSM Ip, WK Lam
University Departments of Medicine, *Radiology and *Pathology, The University of Hong Kong, Hong Kong, China

Objectives: Diffuse panbronchiolitis (DPB) is a rare chronic progressive suppurative small airway disease only sporadically reported in Chinese and other non-Japanese patients. Patients often progress rapidly from chronic sinobronchial sepsis to death in respiratory failure from original symptoms of chronic rhinosinusitis, recurrent sputum production and wheezing. As DPB is highly responsive to low dose macrolide, it is important that it is not missed in non-Japanese patients although little is known of the features of DPB in Chinese patients. We have therefore evaluated our DPB patients systematically with particular reference to the Japanese diagnostic criteria.

Methods and results: We have studied seven Chinese DPB patients (3F; mean age±SD, 48±18.6 yrs; all never smokers; mean ciliary beat frequency 12Hz) at the University of Hong Kong. Lung function assessment showed typical obstructive pattern (n=5) and air trapping (n=7). Typical bronchiolar infiltration by lymphocytes and plasma cells, and accumulation of foamy macrophages in the intra-luminal tissue were detected in open lung biopsy (n=2). Chest radiographs and HRCT revealed hyperinflation, diffuse nodules, bronchial thickening and dilatation, peripheral hypo-attenuation, and bronchiolectasis (n=7). Radiological improvement, manifested as a reduction in the nodular density and bronchial thickening, and persistence of other abnormalities such as air-trapping, were not accurately depicted by the classical Nakata or Akira classifications. Whilst the diagnostic features above were satisfied, the additional characteristic features analysed were absent including: HL-A-B54 (n=0), IgG subclass deficiency (n=0), raised CD4/CD8 T-lymphocyte ratio (n=0), cold haemagglutinaemia (n=0), raised IgA and IgG (n=0), and rheumatoid factor (n=0). Treatment with erythromycin (250 mg b.i.d.) led to excellent response in symptoms, lung function indices, and radiologically.

Conclusions: This Chinese series of well characterized DPB patients who have "uncharacteristic" investigation profiles should help alert other clinicians in the investigation and management of this treatable condition in non-Japanese patients.