PRESS RELEASE
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1985/1405H KING FAISAL INTERNATIONAL PRIZE
In
MEDICINE

Topic: Viral Hepatitis

Professor Robert Palmer Beasley is recommended as a co-recipient of the King Faisal International Prize in Medicine, 1405H. (1985) for Viral Hepatitis in recognition of his pioneering studies on the epidemiology and prevention of Hepatitis B virus (HBV) infection and its sequelae, especially hepatocellular carcinoma.

In 1969 Dr. Beasley was appointed Associate Professor in the University of Washington and in 1972 he moved to Taiwan where he was able to utilize the then recent discovery of the surface antigen of HBV to investigate the epidemiology of infection with this pathogen. In the following decade he and his co-workers made two major discoveries that opened the way to the saving of untold thousands of lives in all parts of the World.

His first discovery, reported in 1975, was that HBV is passed from infected mothers to their infants at the time of birth. Over 90% of such infants become chronic HBV carriers. Subsequently Professor Beasley demonstrated that the protection of infants at birth by immune globulin confers a high degree of protection. This critical work, first published in 1983, has led to the complete revision of global strategies for the prevention of HBV infection through "vertical transmission" to neonates.

Professor Beasley's second major contribution was his proposal that hepatocellular carcinoma, which is a serious cause of mortality, and one of the prevalent forms of cancer in many developing countries of the tropics and subtropics, is directly associated with the chronic HBV carrier state. Among Taiwanese, for example, more than 40% of chronic carriers of HBV die from hepatocellular carcinoma, and a further 10% of cirrhosis, as compared with 3% from both conditions among non-carriers.
Using a new screening technique for the detection of early liver cancer, Professor Beasley and his colleagues initiated a long-term, prospective study of some 23,000 HBV carriers which has already led to the rapid detection and treatment of many people at a very early stage of the cancer when operative intervention can still save life. The continuation of this study will show to what degree vaccination against HBV infection will confer long-term protection against the development of the carrier state, and hence against liver cancer and cirrhosis. Professor Beasley has set the stage for this vital investigation. The benefits to mankind of his original intellectual and practical contributions to the study of viral hepatitis are likely to prove immeasurable.

Professor Mario Rizzetto is recommended as a co-recipient of the King Faisal International Prize in Medicine, 1405H. (1985) for Viral Hepatitis for his discovery and characterisation of the "delta antigen". This seminal discovery is of vital important from two aspects, the clinical and the biological.

In 1977 Professor Rizzetto described a new antigen-antibody system associated with hepatitis B virus (HBV) which was distinct from previously recognised components of that pathogen. He first detected the new delta antigen in liver cell nuclei by direct immunofluorescence. Antibody to this antigen was later found in the sera of chronic HBV carriers, with a higher prevalence in patients with liver damage, its detection being facilitated by Professor Rizzetto's development of a highly sensitive radioimmunoassay. He observed that the persistence of anti-delta antibody appeared to be associated with chronic hepatitis due to HBV and the development of progressive liver disease. Subsequently Professor Rizzetto developed another radioimmunoassay to detect IGM antibodies to the delta antigen. This test proved very valuable in defining the epidemiology of acute delta infection and the serological differentiation between active and past infection with this agent. Transmission of the delta antigen to chimpanzees by Professor Rizzetto and his collaborators in 1980 paved the way for its purification and characterisation. Delta particles were found to consist of delta antigen and RNA surrounded by the surface antigen of HBV.

Professor Rizzetto and his colleagues subsequently made major contributions to the elucidation of the clinical and epidemiological aspects of delta agent infection which has now been shown to occur globally, with high prevalence rates in parts of southern Europe, the Middle East, Africa and
Latin America. Clinically the association of delta infection with HBV can result in a high incidence of fulminant hepatitis, either in sporadic or epidemic form. Furthermore, chronic delta infection worsens the tissue damage and accelerates the progression of chronic liver disease.

In addition to their great prognostic significance in liver disease Professor Rizzetto's outstanding discoveries have far-reaching implication for the entire field of virology since the delta agent must be considered as the prototype of an entirely new class of infectious agents, perhaps the first since the description of the original HBV surface antigen by other workers in 1965.