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### Clinical impact of parvovirus B19: Pioneer work from India projecting B19 as multi-organ disease affliacter

Parvovirus B19 (B19) causes myriads of clinical diseases depending hosts immunological and haematological status. Still most B19 infections under diagnosed and seldom treated and largely ignored due to undefined clinical impact and its sinister complications besides limited diagnostic facilities and high cost of treatment by IVIG and even lack of awareness in clinicians of all varied spectrum of B19 clinical manifestations are additional riders. Cryptically, B19 causes significant morbidity/mortality and remains unrecognized global health problem. To unveil, we developed in-house diagnostic tools like DNA extraction from serum samples, PCR, nested-PCR, IgM ELISA and IgG ELISA for specific detection of B19 DNA and IgM antibodies to determine cases with acute infections and past infection. Then we determined B19 seroprevalence among 1000 voluntary blood donors and found 39.9% to be seropositive. Now this means that remaining 60% of Indians population and similarly half of world adult population are at risk of acquiring B19 infections. We reported B19 cases ending fatally with pure red cell aplasia, anaemia/thrombocytopenia with hepatitis and hemophagocytic syndrome. We detected B19 infections in 27.5% juvenile rheumatoid arthropathy (n=69), 19.8% recurrent aborters (n=116) in contrast to 11% of 136 pregnant-women and 5% of 120 non-pregnant women; another report found B19 in 60% high-risk pregnant women (n=60), 17.1% paediatric haematological malignancies (n=35), 41% beta-thalassemia major (n=90) besides transmission through donor units. Our novel clinical associations of B19 included cases of megakaryocytic thrombocytopenia, myositis, non-occlusive ischemic gangrene of stomach/bowel besides novel oncolytic property of B19. Cumulatively our data found 21.2% (135 of 639 cases) B19 infected patients. B19 primarily recognized as tropic for erythroid progenitor's due to binding to Gb4Cer and  $\alpha 5\beta 1$  integrins receptors. This first review highlights recent data by which B19 is causing non-erythroid and multi tissue or multiorgan disease owing to ability of B19 binding to multiple glycosphingolipids distributed widely; additionally B19 can infect vascular endothelial cells that lines all blood vessels hence can affect major organs by causing endothelitis and vasculitic injuries. Cytotoxicity, nuclease, helicase, gene transactivation by B19 NS1, antibody-dependent enhancement are basic mechanisms. Hence B19 infections should be investigated recognised, treated besides efforts on B19 vaccine.

### Biography

Janak Kishore is a Chief of Serology and Molecular Virology in the department of Microbiology, Sanjay Gandhi Post-graduate Institute of Medical Sciences, India. He was an Associate Editor Indian Journal of Virology, Member National Academy Medical Sciences, American societies and Fellow of JICA, Japan. His passion is on healing and minimising human sufferings; on unveiling emerging viral infections and finding aetiologies in viral epidemics and in investigating undiagnosed/missed clinical infections so that appropriate treatment is given and life is saved. He has taught for over 30 yrs with pioneer work on parvovirus B19, developed in-house molecular techniques and published three novel clinical associations besides finding novel oncolytic property of B19. He also worked on *cytomegalovirus*, enteroviral haemorrhagic conjunctivitis, rubella. He has published over 50 papers, served as reviewer for reputed journals, organized conferences, Chaired sessions and frequently invited to speak at international conferences.

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