Hepatitis C Virus Infection in Polytransfused Thalassemic Children in Pakistan

In developing countries including Pakistan, due to lack of resources for universal and effective screening of blood donors for antibodies to hepatitis C virus (anti-HCV), blood transfusion is still a major source of HCV transmission. Therefore, in addition to other potential recipients of blood transfusion, the thalassemic patients on a long-term transfusion therapy continue to be at high risk of acquiring HCV infection(1). In this study we assessed HCV seroprevalence among poly transfused thalassemic children registered at a charity clinic and blood bank of a non-governmental organization (NGO) at Karachi for regular blood transfusion therapy. Between November 1998 and January 1999, consecutive 256 registered children were included and a serum sample for evaluation of anti-HCV from each participating child was obtained. Anti-HCV was detected by HCV microparticle enzyme immunoassay 3rd generation kit according to the manufacturer's instructions (Abbott, Chicago, USA). HCV ribonucleic acid (RNA) was tested in sera of a subset of anti-HCV positive patients using amplicor HCV RNA assay as suggested by the manufacturer (Roche Diagnostic System, USA). Eighty nine of 256 (34.8%) thalassemic children were anti-HCV positive. HCV RNA was detected in 15 of 38 (39.5%) anti-HCV positive children who were tested for HCV RNA. The mean (± SD) age of HCV seropositive children was 11.9 ± 4.6 years. Fifty eight (67%) HCV infected children were male, 44 (51%) belonged to Urdu speaking families, remaining children were distributed in nearly equal proportions of Sindhi, Punjabi, Pushto, Balouchi speaking families. Of HCV seropositive children, majority (73%) of them tended to live in families having monthly income less than 10000 rupees and 83% lived in households of size of 5 or more. Despite mandatory screening of blood donors at study blood bank, we found 35% HCV seroprevalence among poly 'transfused thalassaemic children, which is relatively lower than 61% reported from Italy(2). This may be because of difference in assay systems used to test for anti-HCV. Other risk factors on the study subjects from both the studies were not available for evaluation. The incidence of thalassemias in developing countries continues to be very high(3). Therefore, high HCV seroprevalence in thalassemic patients renders the familial contacts at high risk of contacting HCV infection. Family members of such patients have been reported to be at elevated risk of acquiring HCV infection(4,5). It is therefore imperative that highly sensitive sero-assays be used universally in screening donors in Pakistan and other developing countries in the region.

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CSFC-Reactive Protein Estimation for Bedside Diagnosis of Pyogenic Meningitis

Pyogenic meningitis is a major pediatric problem all over the world, especially in developing countries like India. Antibiotics have reduced the mortality from almost 100% to 8%-30%(1). Early and reliable diagnosis is the key to successful out come. The rapid diagnostic tests including counter immuno-electrophoresis and enzyme linked immuno-sorbent assay are helpful in establishing etiologic diagnosis(1,2). But these tests are costly, difficult to perform and not easily available. In such circumstances, the estimation of cerebrospinal fluid C-reactive protein concentration provides a new dimension to the specific diagnosis of meningitis.

One hundred children suffering from meningitis and other neurological disorders admitted over a period of one year were studied. The patients admitted with suspicion of meningitis that later proved to be having either tubercular or pyogenic meningitis were included in the study group. Control group consisted of patients with febrile convulsions, acute respiratory tract infection with meningismus and acute flaccid paralysis. A qualitative slide test utilizing latex agglutination method was used. The minimum concentration of C-reactive protein that can be detected by this kit is 1.2 mg/dL. Observations were tested statistically by the Chi-square test and Student 't' test, and for sensitivity, specificity and predictive value of cerebrospinal fluid C-reactive protein in different types of meningitides.

We found that C-reactive protein test was able to detect 80% cases of pyogenic meningitis and 15% cases of tubercular meningitis and was negative in all controls. The positive predictive value of the test for pyogenic and tubercular meningitis was 100%. Similarly, negative cerebrospinal fluid C-reactive protein test was 100% specific for absence of pyogenic and tubercular meningitis. Cerebrospinal fluid culture showed growth in 16 cases (52%) with pyognic meningitis (*Table I*).

This test appears to be promising in view of its rapidity, simplicity and relative low cost(3,4). The present study was planned to verify this contention and evaluate its relative importance amongst conventional diagnostic methods. In this study, 80% cases of pyogenic meningitis revealed a positive latex agglutination test for C-reactive protein, there was a striking absence of any positive case in the non-meningitis group.

Our findings show that estimates of C-reactive protein in cerebrophinal fluid is a valuable, rapid, beside diagnostic test for pyogenic meningitis with reasonably good sensitivity and 100% specificity and positive