Prevalence of Hepatitis C Viral Antibodies in Blood Donors, Pregnant Women and Haemodialysis Patients in the Eastern Province of Saudi Arabia: A Preliminary Study

Sir,

For a 1-year period (December 1990 to November 1991) 811 subjects were studied for anti-HCV among blood donors, pregnant women and end-stage renal disease patients under haemodialysis programmes. All subjects were residing in the Eastern Province, and we used the Abbott’s HCV EIA (c 100-3) kits for this assay (the then available test). As seen in Table 1, the overall prevalence rate among blood donors was 3.3%, while the rates per nationality were 1.7%, 1.5%, 1.9% among Saudi, Filipino, and Indian donors respectively. These figures match those four previous Saudi studies in the Central Province, that varied between 0.5% and 1.5%.4,5 From our findings we can conclude that there is a large number of asymptomatic carriers of HCV in the Eastern Province, that could possibly progress to chronic hepatitis, cirrhosis and/or hepatocellular carcinoma.6 A very high prevalence rate was seen among Egyptian blood donors namely 15.8% (12 of 76). This figure agrees with Saeed et al. in Riyadh who gave 19.2%.5,7 This HCV infection among Egyptians had been discussed by one of us (SEF) recently,8 however, it needs more detailed research in the future. Also a very strikingly high rate was seen among haemodialysis patients (46.5%, 54 of 116) which matches a similar study in the Riyadh area (53.7%).8 This high prevalence rate reflects the risk of repeated transfusions of non-HCV screened blood to this group of patients, and raises the possibility of cross-infection through the haemodialysis units.

Table 2 shows that concurrent infection of both HCV and hepatitis B virus was evident in 13.6% of the blood donors, while in a similar study in Riyadh it was 9.1%.8 This could be explained by the fact that the mode and route of infection of both viruses are more or less similar, though there is still considerable debate about HCV transmission.

In this limited study, the absence of a single case of HCV among pregnant women may be due to the very limited number of our sample (28 women only), though in one study in the UK, zero level was also reported among 40 pregnant women;9 however, this group of patients needs more studies.

As seen in Table 2, we tried to check the efficiency of HCV surrogate markers (anti-Hbc and alanine aminotransferase (ALT) level). These two markers were positive in 63.7% and 15.6% among the anti-HCV positive and negative specimens respectively, which can explain some contradictory reports on the issue of correlation between the surrogate markers and the HCV positivity. The present limited study showed that these surrogate markers are not as helpful as expected. The authors of this letter, being aware of the limitation of the first generation test, are now preparing a broad study of HCV using the second generation test (c 100-3, c 22) and the third generation test (supplementary test c 100-3, c 22 & c 33). These two newly introduced tests for HCV are more sensitive and specific than the current test. We expect this new study to appear in the Saudi Medical Journal very soon.

The authors would like to express their thanks to Mrs Priscilla Jimenez, Claire Galima and Marlin Regalado, medical technologists, Virology Department, Dammm, for their technical help.

SAMI E. FATHALLA MB BCH MS PhD
ABDULAZIZ A. AL-JAMA MPH ScD
Dammam Regional Laboratory and Blood Bank
PO Box 4103, Dammam 31491,
Saudi Arabia

Saudi Medical Journal 1993; 14(3): 265

References


Surgical Implications of Sickle Cell Anaemia

Sir,

With reference to the article ‘Surgical implications of sickle cell anaemia’,1 we note that the author has completely missed out cardiac diseases in patients with sickle cell anaemia. With
more development in medical technology, the number of diagnostic and therapeutic cardiac catheterizations as well as open heart surgery are increasing in this group of patients. In view of the above facts and from our experience gained at Riyadh, we would like to add that cardiac invasive and surgical procedures can be carried out successfully in patients with sickle cell anaemia.

For safe diagnostic and therapeutic cardiac catheterization we recommend, to use (a) adequate hydration, warmth and oxygenation, before, during and after the procedure (b) minimal amount of nonionic dye (c) optimal balloon inflations to avoid hypotension (d) long interval between balloon inflations (e) continuous monitoring of oxygen saturation during and after the procedure with a percutaneous pulse oximeter and (f) intensive postprocedural care.

We were able to carry out near normal cardiopulmonary bypass (CPB) in five patients with sickle cell anemia by using total exchange transfusion prior to the start of CPB. Our priming solution was made up of donor packed cells, fresh frozen plasma, 25% albumin, lactated Ringer's solution, sodium bicarbonate and heparin. During CPB we maintained the cardiac index at 2.4 litres/m² or above, perfusion pressure above 60 mmHg and carefully avoided/corrected the hypoxia and acidosis.

Moderate total body hypothermia, aortic cross-clamping, topical hypothermia and cold crystalloid cardioplegia were used in all our cases and mechanical valve prostheses were implanted in two of these patients. A cell saver was used to separate the drained blood. The plasma rich in platelets and clotting factors was retransfused to the patient after completion of CPB and the concentrated sickle cells were discarded. None of these patients showed evidence of haemolysis during CPB or in the postoperative period. During the postoperative period no blood transfusion was given and no evidence of wound infection was seen in these patients.

SENGODA G. BALASUNDARAM MS FRCS
Cardiovascular and Thoracic Surgeon,
RANGASAMY MUTHUSAMY MRCP(UK) MRCP(IRE)
Cardiologist,
Department of Cardiovascular and Thoracic Diseases,
Kovai Medical Center and Hospital,
Coimbatore—641 014,
India

References


Sir,

I would like to thank Drs Balasundaram and Muthusamy for their letter and their valuable suggestions. They are quite right that we left out the cardiac disease in patients with sickle cell anemia. This is because we do not have open heart surgical facility in our hospital. Also I quite agree with their guidelines and would like to draw the attention of readers to their letter as an adjunct to my article.

BAKER H. AL-AWAMY
Department of Paediatrics,
King Faisal University,
PO Box 5438, Dammam 31422,
Saudi Arabia

Saudi Medical Journal 1993; 14(3): 265–266

Sir,

In the article ‘Surgical implications of sickle cell anemia’ the author’s failure to refer to local experience is surprising. As this experience is of paramount importance for those who manage patients with sickle cell disease in the Kingdom of Saudi Arabia, I believe that the following comments are warranted. 1. Cholelithiasis: The author states that hepatic crisis is ‘typically characterized by progressive jaundice, abdominal pain, nausea and serum bilirubin level of 2-15 mg/dl and transaminases of 100-400 IU/litre’. In our experience, however, patients with hepatic crises typically are severely jaundiced but otherwise active and healthy with no pain or fever. They have significantly higher levels of conjugated bilirubin when compared with patients with viral hepatitis. Transaminases are only modestly elevated (< 500 IU/litre). Similar findings were reported by Buchanan. I believe that liver biopsy is rarely, if ever, indicated to differentiate hepatic crisis from viral hepatitis.

2. Acute splenic sequestration crisis (ASSC): The author states that this complication is less likely in Saudi patients. In our experience, ASSC is not uncommon. I believe that many of these episodes are misdiagnosed—as many patients in Saudi Arabia with sickle cell disease have large spleens, ‘more enlargement of the spleen’ may be easily missed. A modest increase in the size of an already large spleen can accommodate a significant amount of blood and result in a significant drop in haemoglobin level. Even though most episodes of ASSC in our population are of the ‘minor’ type, some cases have been devastating. In the last 10 years we have lost two children with this complication. We have recently managed two children who presented with haemoglobins of 1.8 g/dlitre and 2.0 g/dlitre respectively.

3. Indications for splenectomy: The author mentioned ‘severe anaemia’ as an indication for splenectomy. I believe that unless this anaemia is caused by other indications mentioned by the author (hypersplenism, acute splenic sequestration crisis and massive splenomegaly), splenectomy for anaemia by itself is of no value.

4. Priapism: Even though I agree with the author that this complication is rare in our population, I believe that it is underreported. In a 5-year period, seven patients with priapism secondary to sickle cell disease have been treated at Saudi Aramco—Dhahran Health Center.

5. Osteomyelitis: The author states that an aggressive approach to management of osteomyelitis in patients with sickle cell disease is adopted at some centres. I would like to point out that we were the first to suggest this aggressive approach not only for management but also for diagnosis. \textsuperscript{7} This approach was endorsed in a textbook\textsuperscript{4} and, more recently, an almost identical recommendation was suggested by Dr Charles Epps in Washington, DC, USA.

6. Central nervous system: The author implies that fever, acidosis, dehydration and hypoxia are necessary to produce cerebrovascular accident (CVA). It is known, however, that most cases of CVA are spontaneous without known predisposing factors. The author also states that the respiratory tract is the most common site of infection. This is in contrast
to our experience\(^1\) in which septicemia, meningitis and osteomyelitis are still the most serious infections. When clinical and radiographic manifestations of respiratory system infection are present it is difficult to tell if this is a viral infection, a bacterial infection or a pulmonary infarction.\(^2\)

AHMAD A. MALLOUH MD
Paediatric Haematologist/Oncologist,
Saudia ARAMCO Medical Surgical Organization,
Paediatric Services Division, Room A-406, Box 76,
Dhahran Health Centre, Dhahran 3131, Saudi Arabia

References
6. Ayyat FM. *Priapism (abst) Proceeding*; the first scientific symposium on sickle cell anemia (Qatif Central Hospital), 1990; 22.

Sirs,

I thank Dr A. Mallouh for his comments on my Review Paper 'Surgical implications of sickle cell anemia' (*Saudia Med J* 1992; 13: 93–98). Before I give an itemized response to Dr Mallouh's points, I must emphasize that sickle cell anemia is a heterogeneous disease even within a population group; investigative differences are not unusual when studies are performed at different points in time. The geographical variability of sickle cell disease is such that it is hard to be too dogmatic about the severity of its pathophysiology.\(^1\) The clinical presentation and the sequelae of the disease have been greatly modified by improved standards of health care and rational drug treatment, in addition to environmental and genetic influences.\(^2\)

1. *Cholelithiasis*: Dr Mallouh's experience on hepatic crisis happens to be different from our own. The patients under our care were not only deeply jaundiced but also experienced abdominal pain of moderate severity and nausea in addition to moderate rises in the serum levels of bilirubin and transaminase—a picture not too different from those with acute manifestations of gall stones. Moreover a number of patients exhibit considerable degree of tenderness in the subcostal region which in case of hepatic crisis is an enlarged and tender liver. The reference to hepatic crisis was essentially to emphasize the diagnostic difficulty it may cause in patients with gall stones.

What Dr Mallouh appears to refer to is the experience of some workers who consider patients with hepatic crisis as suffering from 'regurgitant jaundice' or 'sickle cell hepatopathy'. These crises may not be associated with abdominal and/or joint pains.\(^3\)

2. *Acute splenic sequestration crisis (ASSC)*: We will continue to hold the view that ASSC in patients from the Eastern Province is relatively infrequent only when considered in a series of patients; in a cohort of 291 patients the incidence of ASSC was only 1%—a marked contrast with a frequency of 25% in Jamaica.\(^4\) Anecdotal management of critically ill individual patients, of course, leaves a lasting impression!

3. *Indications for splenectomy*: The attitude towards splenectomy, particularly in children, has grown to be conservative. In sickle cell disease, and I agree with Dr Mallouh, splenectomy is only indicated when local complications like splenic abscess develop, or when SS disease coexists with thalassaemia major—a combination often associated with splenomegaly. Sickle cell anaemia alone would not be considered as an indication for splenectomy unless its response to repeated and frequent blood transfusions becomes recalculatible when splenectomy may prove to be a life saving procedure.

4. *Priapism*: Priapism as a complication of sickle cell disease is markedly prevalent amongst black Americans and Jamaicans with frequencies of 50% and 42% respectively.\(^5\) In our practice it appears not to be a common surgical emergency; in the six preceding years we have come across only 6 patients. In a previously published report its incidence was 8%.\(^6\) It seems likely that high levels of HBF and abundance of hypochromic microcytes have a possible role to play.

5. *Osteomyelitis*: Dr Mallouh's assertion that the idea of aggressive treatment of SS osteomyelitis originated at Dhahran is badly misplaced. Studies from other parts of the world where the disease is as endemic, indicate that this suggestion was in practice prior to 1985.\(^7\)

6. *Central nervous system*: As reported in our previous study\(^8\) we remain convinced that lungs are the most common site of infection in SS patients, though the severity is not of the magnitude seen in septicemia, meningitis, and osteomyelitis. Nowhere in the script has it been implied that chest infection predisposes to cerebrovascular accidents. The African experience shows that the commonest neurological complications of sickle cell crisis is acute hemiplegia or hemiparesis resulting from infarction, and that minute intracerebral haemorrhages are not unknown.\(^9\) Dural sinus thrombosis has also been implicated—a process akin to infarction seen in the spleen.

BAKER H. AL-AWAMY
Associate Professor,
Department of Paediatrics,
King Faisal University, PO Box 2114,
Dammam 31451, Saudi Arabia

References