Haematology

142. Quality of Anticoagulation After Mechanical Valve Replacement in a Teaching Hospital in Central India - An Observation Study

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Introduction: Oral anticoagulants are the drugs of first choice for an effective life-long anticoagulation after mechanical valve replacement. In recent years, randomized clinical trials using standardised prothombin time (International Normalized Ratio, INR) for the control of anticoagulant therapy have demonstrated that use of less intense therapeutic range decreases the rate of bleeding without reducing antithrombotic efficacy.

Objective: The present study was undertaken in 56 patients operated for mechanical valve replacements during last one year (18.6.03-17.6.04), majority (40 cases - 71.42%) of the operations were done in below poverty line patients under Maharashtra State Government’s Jeevan Dayi Yojna. The aim of this observation study was to analyze the quality of oral anticoagulation in non-randomized field.

Methodology: Prospectively all patients on oral anticoagulation after mechanical heart valve replacement were registered on discharge from the hospital. The low-dose target range (INR - 1.8 to 2.8 for aortic prosthesis and 2.5 to 3.5 for mitral as well as double valve replacements) was sought to be achieved as per results of “ESCAT II” trial (Early - Self - Controlled Anticoagulation Trial). The PT-INR as well as any possible complications were assessed on outpatient monthly basis and in any emergency. The study population comprised of:

- Mitral valve replacements - n=39 (18M, 21F, age : 30.79 ± 13.49 yrs)
- Aortic valve replacements - n=12 (07 M, 05 F, age : 36.16 ± 13.58 yrs)
- Double valve replacements - n=05 (04 M, 01 F, age : 29.80 ± 14.72 yrs)

Results: Of the 204 registered INR values, only 64 (31.31%) were within the recommended range. 131 (64.22%) were low and 9 (4.41%) were high as per the guidelines. 9 (16%) patients did not report for followup and 14 (25%) of patients stopped their follow-up midway because of distant home towns. 3 (5.35%) patients reported with hemorrhagic complications, whereas 2 (3.57%) patient developed peripheral embolisation.

Conclusions: The results of this observational survey shows that quality of oral anticoagulation after mechanical heart valve implantation is insufficient after discharge particularly in poor patients because of poor drug compliance. Intensive education of the patients and increasing the frequency of testing can contribute to improvement in these cases.

143. Study of Pituitary Endocrine Status in Transfusion - Dependant, Iron-Overloaded Thalassemic Patients

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Introduction: Thalassemias are the most common congenital hemolytic disorder worldwide. Both beta-thalassemia major and Hemoglobin E-beta thalassemia account for significant number of cases in Eastern India. Hemosiderosis due to iron overload is a dangerous complication in transfusion - dependent patients resulting in hepatic failure, cardiac dysfunction and disturbances in the functions of endocrine glands.

Aim: To study the prevalence and nature of imbalance involving the pituitary gland in patients of transfusion-dependent thalassemia.

Methods: 62 consecutive patients of beta-thalassemia major and Hemoglobin E-beta thalassemia, not receiving any form of chelation therapy were selected. Those with Hb > 9 gm% persistently in the preceding two years and serum ferritin > 1000 mcg/L (by ELISA) and no clinical evidence of pituitary hormone disturbances were included. All were in the age group of 15-25 years. Fasting clotted blood was tested for basal growth hormone (GH), T3, T4, and thyroid stimulating hormone (TSH). Follicle stimulating hormone (FSH) and leutinizing hormone (LH) were estimated in three pooled samples. Those with normal basal GH level were subjected to insulin stimulation test (soluble insulin @ 0.15 U/Kg injected every 15 minutes till blood glucose level < 40 mg/dl). In menstruating female, FSH and LH were estimated in early follicular phase. All the hormones were estimated by ELISA method.

Observations: Fasting GH was lower (< 1 ng/ml) in 6%, failed to rise (> 10 ng/ml) after insulin-induced hypoglycemia in another 6%, 55.6% of male patients and 30.0% of male patients showed decreased gonadotrophin level (FSH and LH). This group also included patients who have decreased basal GH values or decreased GH reserve. In contrast, not a single patient had low TSH values; rather 19% had been suffering from subclinical hypothyroidism (i.e. normal T3, T4, and high TSH). There was no significant difference between beta-thalassemia major and hemoglobin E-beta thalassemia groups. There was no correlation between the severities of endocrine failure with serum ferritin level. There was no correlation between groups showing covert pituitary dysfunction with those having subclinical hypothyroidism.

Conclusion: Subclinical endocrine deficiencies are present in significant number of transfusion-dependent thalassemic patients, who are iron-overloaded. To lead a normal or near-normal life patients need use of iron-chelators or different hormone supplementation.
144. Clinical Study of Pancytopenia with Special Reference to Bone Marrow Aspiration and Biopsy

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Objective: To find the common etiology for patients presenting with pancytopenia and to study their clinical presentation in our set-up. Also to compare the role of bone marrow aspiration and biopsy in evaluating patients with pancytopenia.

Method: Prospective study done over a period of two years. 50 cases of pancytopenia was studied. Relevant investigation was done in all cases. Bone marrow aspiration and biopsy was done in all cases.

Results: Megaloblastic anemia was the most common cause of pancytopenia noted. Other causes noted were hypersplenism, aplastic anemia, PNH, SLE, hematological malignancy. In 10% of cases the cause was not found. M/C mode of presentation was symptoms due to anemia (generalized weakness, breathlessness). Bleeding from various sites, purpura was seen in few. Symptoms due to decreased leucocytes was not a common manifestation. On comparing the bone marrow aspiration and biopsy, it was found that aspiration alone was inadequate to give a diagnosis. Bone marrow biopsy was helpful in arriving at a diagnosis in most cases. Even after extensive evaluation, in some cases the cause of pancytopenia remained elusive.

Conclusion: Megaloblastic anemia is the most common cause of pancytopenia. Most common symptom at presentation is due to anemia. Bone marrow biopsy was superior to aspiration in getting a diagnosis. 10% of cases the etiology was not found in spite of extensive investigation.

145. Prevalence of Major Transfusion - Transmissible Infections in Blood Donors

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Objective: To determine changes in infection rates of human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV) an syphilis in blood donors in the last six years.

Method: Data from 1998 onwards was collected from Blood Bank, Kasturba Hospital, Manipal, Karnataka. All donors were screened for HIV, HBsAg, HCV and syphilis.

Results: Table.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Donor</th>
<th>HIV (%)</th>
<th>HBsAg (%)</th>
<th>HCV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>12224</td>
<td>0.34</td>
<td>0.97</td>
<td>0</td>
</tr>
<tr>
<td>1999</td>
<td>11926</td>
<td>0.32</td>
<td>0.80</td>
<td>0</td>
</tr>
<tr>
<td>2000</td>
<td>11096</td>
<td>0.29</td>
<td>0.89</td>
<td>0.13</td>
</tr>
<tr>
<td>2001</td>
<td>10684</td>
<td>0.27</td>
<td>0.81</td>
<td>0.26</td>
</tr>
<tr>
<td>2002</td>
<td>9770</td>
<td>0.27</td>
<td>0.79</td>
<td>0.09</td>
</tr>
<tr>
<td>2003</td>
<td>9054</td>
<td>0.14</td>
<td>0.80</td>
<td>0.13</td>
</tr>
<tr>
<td>Total</td>
<td>64754</td>
<td>0.27</td>
<td>0.84</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Conclusion: Prevalence of HIV decreased from 0.34% to 0.14%, HBsAg from 0.97% to 0.80% and VDRL from 0.24% to 0.20%. HCV screening started only from late 2000. It is also showing downward tendency. The decrease in HIV, HBsAg and VDRL prevalence rates suggests the gradual decline in these infections in the target group studied due to better awareness programmes regarding transfusion related transmissible infections.

146. Seroprevalence of Hepatitis B Virus and Hepatitis C Virus Infection in Sickle Cell Haemoglobinopathy

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46 cases of SCD (M = 28, F = 18) and 50 cases of SCT M=34, F=16) in the age group of 15-50 years were studied against 100 healthy controls. The clinical presentation were painful crisis, fever, anaemia, jaundice, hepatomegaly, splenomegaly and bleeding manifestations. In all cases history of blood transfusion, physical examination, routine investigations were done besides Sickling test, Hb Electrophoresis. Liver function test, HBsAg, IgM Anti HBc were done. It was found 95% of SCD were in the age group of 15-40 years and 80% of SCT in the age group of 40-50 years.

In SCD Group
14 (30.4%) were positive for HBsAg and 08 (17.4%) were positive for both HBsAg and IgM anti HBc as compared to the control group of which only 4% were HBsAg positive.

08 (17.4%) were positive for Anti HCV compared to 2% in control group.
02 (4.3%) were positive for both HBV and HCV infection.

In SCT Group
02 (4%) were positive for both HBsAg and IgM anti HBC compared to 4% in control group and was statistically not significant (P > 0.05).

02 (4%) were positive for anti HCV compared to 1% in control group and was also statistically not significant (P > 0.05).

Conclusion: The prevalence of HBV and HCV infection in SCD was high compared to that of SCT patients and controls in this study (P < 0.05). Suitable preventive measures like hepatitis B vaccine to be taken in all cases of Sickles in early childhood to reduce the incidence of Hepatitis B virus infection besides judicious administration of blood transmission to reduce the incidence of Hepatitis C virus infection in Sickle Cell patients.

151. Effect of Fetal Hemoglobin on Vaso-Occlusive Crisis in Sickle Cell Anaemia

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Introduction: Sickle cell anaemia is an inherited multi-system disorder of global concern. The high morbidity, mortality and reproductive wastage associated with it has affected the economy and psycho-social behaviour in certain communities of Central India. Factors modifying the severity of this disease have been the subject of investigators. Fetal hemoglobin has been postulated to modify the severity of sickle cell disease with increasing search for safe pharmacological agents to raise Hbf level.

Method: A total of 238 patients were enrolled in this study of which 138 (71 male and 67 female) had AS and 100 (54 male and 46 female) had SS hemoglobin pattern. The exclusion criteria were: - Age < 12 years, blood transfusion in previous 6 months, chronic and persistent infection and patients on drugs modifying HBF levels. Detailed history including hospitalization and no. of vaso-occlusive crisis/year was recorded. Hemoglobin pattern by paper electrophoresis and quantitative HBF estimation by A-D test as described by Singer (1951) and other relevant investigations were done.

Results: The observations have been summarized in the following Tables.
of 1,50,000/cu mm. There were only 4 patients with less than 20,000/cu mm on the first post operative day. Day 8 platelets ranged from 11,000/cu mm to 13,56,000/cu mm with a median of 1,90,000/cu mm. Radionuclide scans were done in 24 patients and accessory spleen was seen in 5 cases.

Conclusions: This study shows that in refractory ITP splenectomy is beneficial in most patients. There is little risk of severe post operative bleeding, even in those who are not responders. About 25 percent patients will not respond to the procedure and adequate counseling should be done while discussing splenectomy options.

156. Study of Glycemic Status and Pancreatic Pathology in Sickle Cell Disease Patients in Western Orissa

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Objective: Vasculocclusive crisis (VOC) in sickle cell disease (SCD) can present with acute abdominal pain due to mesenteric vascular occlusion, avascular necrosis of vertebral marrow or rarely acute pancreatitis. There has been very few reports of impaired glucose tolerance in children with SCD, but not in adults. Moreover, the incidence of diabetes mellitus in SCD has been found to be rare. In view of the paucity of literature and high incidence of SCD in Western Orissa we studied the pancreatic pathology and glycemic status in SCD patients.

Material and Methods: Fifty one cases of SCD presenting with VOC or abdominal pain attending to the department of Medicine VSS Medical College, Burla, Orissa during the period August 2002 to December 2003 were taken up for the study. SCD was confirmed by Hb electrophoresis or chromatography. Following detailed clinical examination patients were subjects to investigations like Hb, DC, TLC, serum urea, creatinine, amylase, lipase, abdominal USG, plane X-ray abdomen and abdominal CT scan. Glycemic status was evaluated by FPG, OGTT and HbA1c estimation.

Discussion: The mean HbF was 9.22% in SS pattern, higher than compared to 1.88% in AS pattern (p = 0.00001). This significantly higher HbF levels in SS subjects is probably due to higher rates of sickling and hemolysis which recruits “F-cells” and raises HbF levels.

A significant correlation detected that raised HbF was associated with less number of vaso-occlusive crisis per year, (p < 0.001) 42%. SS subjects with HbF > 5% had VOC’s 0-3 year and had higher Hb% with low frequency of hospitalization probably because the HbF in these subjects reduces the polymerization of HbS and lowers counts of irreversibly sickled red cells and reduces frequency of hemolysis. These findings suggest a relatively mild course of disease in SS subjects with higher HbF.

Conclusions: This study shows that in refractory ITP splenectomy is beneficial in most patients. There is little risk of severe post operative bleeding, even in those who are not responders. About 25 percent patients will not respond to the procedure and adequate counseling should be done while discussing splenectomy options.
**Observation:** Of 51 SCD patients, 41 (80.4%) were male and 10 (19.6%) were female. Majority of the cases (37.27%) were in 15-20 yrs of age. 88.23% of SCD patients presented to the hospital with painful crisis which included abdominal pain. Serum amylase level was elevated in 4 cases (7.9%) beyond 110 IU/L. Serum lipase was more than 300 IU/L in one case (1.96%) indicating acute pancreatitis. Eleven (21.56%) SCD patients had abnormal oral glucose tolerance test, which was significantly high compared to control. Two cases (3.92%) had diabetes mellitus. This incidence was low in SCD patients compared to that of controls. Plain radiology of abdomen and USG did not reveal any structural abnormality of pancreas in these patients.

**Conclusion:** Patients of SCD presenting as acute abdomen should be evaluated for pancreatitis by estimation of serum lipase and amylase level. Though the incidence of diabetes mellitus is low in SCD patients the incidence of impaired oral glucose tolerance test is significantly high. Further work is needed in this area to establish its clinical implication.

**157. Study of L-Arginine Therapy in Sickle Cell Disease Patients**

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**Object of The Study:** To study the effect of L-Arginine in sickle cell pain crisis.

**Methodology:** Sixty consecutive known patients of sickle cell disease (ss) with vaso-occlusive pain crisis admitted to general medical ward were taken into study. Routine relevant haematological and other study were done for every patients. L-Arginine 8 gm/day in divided doses 8 hourly was given orally to 30 patients of trial group with consent of patients or their relatives along with current therapy of controlled gentle hydration, Oxygen and analgesic. Control group patients were managed with same current conservative therapy but without L-Arginine. Rating of pain scale was done daily 8 hourly.

**Observation:** There were 22 male and 8 females in trial group and 24 male and 6 Female in control group. Age range was between 15-35 yrs. 17 cases (56.7%) were age range between 15-20 years in trial group and 18 cases (60%) in control group. At presentation patients were classified in 3 group according to pain scale (0-10) into mild, moderate and severe pain. Trial group had mild pain in 2 cases (6.6%), moderate pain in 14 cases (46.7%), severe pain in 14 cases (46.7%) and in control group mild pain in 2 cases (6.6%), moderate pain in 15 cases (50%) and severe pain in 13 cases (43.4%). There was no adverse effects due to L-Arginine in this study in short term.

**Conclusion:** From this study it is concluded that administration of L-Arginine in sickle cell pain crisis along with conventional conservative therapy can lessen the duration of pain crisis in comparison to conservative therapy alone. Patients having severe pain at the time of admission took longer time to pain resolution in both group. However randomized double blind placebo controlled intention to treat trial should be done in large number of patients in multicentre to conclude its effectiveness.

*Adjudged Best Papers and got an award of Rs. 1000/- each from Chairman Scientific Committee, Diamond APICON 2005.*