Finally, Obesity and overweight were the most serious health problem in the north of Iran and suffered more than half of adult people with it. Urbanization and gender are risk factors for obesity morbidity. The difference of overweight between gender is remarkable in this area and should be studied in the future.

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Surgical management of ventricular septal defect with pulmonary stenosis with idiopathic thrombocytopenic purpura

Abstract

Patients with idiopathic thrombocytopenic pupura (ITP), when under goes any cardiac surgery face an increased risk of postoperative haemorrhagic complications. A 28 years old female patient with idiopathic thrombocytopenic purpura(ITP) and Ventricular septal defect (VSD) with pulmonary stenosis (PS) was operated. We treated her with oral steroid for three weeks immediately before surgery. During surgery under extracorporeal circulation bleeding was controlled meticulously and she was administered methyl prednisolone, injection hydrocortisone, fresh frozen plasma, platelets and whole blood. Steroid was continued postoperatively for two weeks. She did not suffer from any haemorrhagic complication and her recovery was uneventful. Congenital heart disease with idiopathic thrombocytopenic purpura can be operated for heart surgery if appropriate pre, intra and postoperative measures are taken.

Introduction

Though bleeding episode is inevitable that surgical procedure under cardiopulmonary bypass is the only treatment option this patient had. Post-operative bleeding remains a major problem after cardiopulmonary bypass. The increased bleeding tendency after cardiopulmonary bypass is a complex reflection of multiple haemostatic defects including coagulation factor deficiency, inadequate reversal of heparinization, increased fibrinolytic activity and platelet deficiency in quantity and quality[1]. If this condition associated with ITP chance of major bleeding increases, as immune thrombocytopenic purpura (ITP) is primarily a disorder of increased platelet destruction mediated by auto antibodies to platelet membrane antigen. We report here the strategy we used to manage a

unique case of ITP with ventricular septal defect (VSD) and pulmonary stenosis (PS) in our institute.

Case report

A 28 years female patient was admitted to our hospital with chest pain and effort dyspnoea which had started three years ago and increased progressively. On physical examination there was a pansystolic murmur on the left 3rd and 4th intercostals space lateral to sternal margin. Patient's functional capacity was class-II that is ordinary activity results in fatigue, palpitation, dyspnoea, according to New York Heart Classification (NYHA). No abnormality was detected on all other systemic examinations. Echocardiography revealed doubly committed perimembranous ventricular septal defect and pulmonary stenosis, Right coronary cusp was prolapsing with mild aortic regurgitation. Preoperatively complete blood count showed that she had 11.7 g/dl haemoglobin, total count of white blood cell 4.27K/µL, platelet count 49k/µL. All the coagulation tests were normal .We asked for a preoperative consultation with haematologist and he advised for bone marrow testing to identify presence of any abnormal cells .Bone marrow examination revealed megakaryocytes with scanty cytoplasm and relatively few granules than normal platelets. The clinical haematologist confirmed the diagnosis of chronic immune thrombocytopenic purpura. Following the advice of haematologist she was treated with oral prednisolone at a dose of 40mg/kg for 21 days to prevent destructions of the platelets from antigen antibody reaction. Preoperative steroid therapy increased the platelet count to 120k/µl. Haematologist recommended to keep the platelet count over 70k/µl for a safe operation and this count is safe for going to operation.

She underwent VSD closure with polytetrafluoroethylene (PTFE) patch, resection of infundibular tissue of the right ventricle, right ventricular out flow tract augmented by pericardial patch under hypothermic cardiopulmonary bypass (CPB). She received Injection Methyl Prednisolone 30 mg/kg just before termination of CPB. One unit of whole blood was required in pump when patient was on cardiopulmonary bypass (CPB). Patient was weaned from cardiopulmonary bypass (CPB) with low dose dopamine, adrenaline and glycerin trinitrate support .The durations of operation was five hours, cross- clamping and CPB were 56 and106 minutes, respectively. One unit of fresh frozen plasma, two units of platelet rich plasma and two units of whole blood were transfused after the patient was shifted to ICU immediately after the surgery was completed. Extubation was done on the 1st post operative day. The total drainage from the chest tubes were 890ml for last twenty four hours from the end of operation and the chest tubes were removed on the 1st post operative day. Ionotropic support was needed upto 2nd post operative day and two units of whole blood were transfused on the 2nd and 3rd postoperative day. Postoperatively injection hydrocortisone was given 400mg/day up to 4th postoperative day. Then 15mg/day oral prednisolone was given upon consultation with the hematologist. Postoperative platelet counts were 109k/µL, 150k/µL, 90k/µL, 110k/µL, 150k/µL, 160k/µL on the postoperative zero, 1st, 2nd, 3rd,6th,8th post operative days, respectively. The patient was discharged on the 9th post operative day with oral steroid tapering in eleven days.

During follow up visit after one month, she had a platelet count 160k/µL with 11.70 gm/dl haemoglobin. Her post operative echocardiogram reveals no residual shunt. She was asymptomatic with no medication for idiopathic thrombocytopenia and her platelet count was normal.

Discussion

ITP is an autoimmune disorder that causes the body to destroy its platelets. Acute ITP usually has a very sudden onset and the symptoms usually last between a few weeks to 6 months and rarely reoccur and the symptoms of chronic ITP last a minimum of 6 months and can persist for many years. Females are two to three times more likely to have the disease than males. With treatment, the risk of serious life threatening bleeding is very low[2].

The American Society of Hematology panel defined idiopathic thrombocytopenic purpura as "isolated thrombocytopenia with no clinically apparent associated conditions or other causes of thrombocytopenia, e.g. systemic lupus erythematosus" and stressed that the diagnosis of idiopathic thrombocytopenic purpura is primarily one of the exclusion.[3] Current treatment strategies for ITP include oral or intravenous corticosteroids, immunoglobulin and observation alone[4].

Platelet consumption and dysfunction is common sequelae of cardiopulmonary bypass (CPB) technique among the whole array of potential complications. Resultant bleeding diathesis compounded by an accompanying cascade of coagulopathy can become a major perioperative concern, culminating in significant transfusion and re-exploration.[5] ITP can itself contribute to a very low platelet count leading to complications like

intra cranial hemorrhage.[6] The association of congenital heart disease, deranged platelet function, coagulation factor dysfunction and increased incidence of excessive post operative bleeding is well known.[7] That's why intensive perioperative management should be planned for patients with ITP in an attempt to avoid the depletion of platelets as well as the coagulation factor.

Thrombocytopenia has been variably managed during the cardiac surgery with platelet transfusion, or intravenous immunoglobulin, autologuous blood predonation, using centrifugal pump, heparin coated circuits and simultaneous splenectomy.[8]The physicians used corticosteroids, immunosuppressive agents and high dose gamma globulin in the preoperative period of cardiac surgery. Some other recommend gamma globulin instead of immunosuppressive and corticosteroids in order to avoid any post operative infectious complications.[9] Our patient was managed with pre-surgery oral corticosteroid therapy and put her on steroids postoperatively and did not have any infectious complication.

Hemorrhagic diathesis due to ITP may cause considerable risk of bleeding and aspiration into lungs. Trauma during mask ventilation and laryngoscopy and even trivial trauma by the adhesive electrodes and adhesive tapes used for the fixation of the endotracheal tube may precipitate bleeding in patients with ITP.[10]In our patient intubation was smooth and atraumatic with an appropriate size of endotracheal tube with expert help and good muscle relaxation.

Strict vigilance and optimum care should be taken during cardiopulmonary bypass and thereafter to avoid bleeding due to dilutional anemia and low platelet count. Our patient needed platelet transfusion, Fresh frozen plasma and whole blood after coming of bypass and in ICU. With this strategy, she had a successful outcome.

Idiopathic thrombocytopenic purpura patients, with preoperative corticosteroid therapy and near normal preoperative platelet count may have an uneventful recovery after an open heart operation if meticulous bleeding control is done intra-operatively.

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