Respiratory functions and cardiopulmonary dynamics before and after esophageal variceal sclerotherapy

Amr Hosny Abd El Samie

Endoscopic esophageal variceal sclerotherapy has become awidely accepted treatment for bleeding esophageal varices because it isenough effective and relatively free of major complications comparedwith surgical alternatives. However the use of sclerotherapy forprophylactic treatment of varices remains controversial regarding thepossible sequalae of injection sclerotherapy. Bleeding, perforation,mediastinitis, mesenteric thrombosis, transverse myelitis, sepsis anddeath, among others constitute major complications which may have acombined incidence of 10-20%. Minor complications includingretrosternal pain, pleural effusion, esophageal ulceration, and dysphagiamay occur in over 50% of patients.The ann of this work is to find if routine elective iJtiectionsclerotherapy of esophageal varices is associated with any measurabledeterioration of respiratory functions and pulmonary haemodynamicspost-operatively and if any changes Occur after sclerotherapy incirculating platelets and leukocytic concentration.In our study, pulmonary functions are studied shortly afterscelrotherapy and cardiac dynamics are studied three months later andafter completing the schedule of injection sclerotherapy.Accordingly, the study was carried out on 50 patients with livercirrhosis and portal hypertension. 20 patients (group A) were treated byinjection sclerotherapy. Another 20 patients (group B) were completedthe schedule of injection sclerotherapy. In addition to 10 patients (controlgroup) were without history of bleeding or injection sclerotherapy.All patients were subjected to the following:1. Proper history taking and clinical examination.2. Liver function tests for assessment of hepatic decompensation.3. Arterial blood gases.4. Respiratory function tests (vital capacity)5. White cell and platelet count.6. Echocardiography with doppler study.Patients of group A were tested before sclerotherapy and one dayafter scelrotherapy for arterial blood gases, respiratory function tests,white cell and platelet counts and were tested before sclerotherapy andthree months later for Echo-doppler.The results of our study were tabulated and subjected to -statisticalanalysis. The main findings can be summarized as follows:Cardio pulmonary manifestations among patients of group A aftersclertherapy were found in only 5 patients (25%) as retrostemal pain, butthere was no cough, no dyspnoea, nor haemoptysis in any of our patients.The mean values of forced vital capacity (pVC) was 1.81+0.64liters in group A before sclerotherapy, 1.36+0.50 liters one day aftersclerotherapy, 1.89+0.45 liters in group Band 1.48+0.24 liters in controlgroup.

FVC one day after sclerotherapy was significantly decreased thanthat before sclerotherapy and significantly decreased than that aftercompleting the schedule of sclerotherapy, but with no significantdifference with control group.The mean values of arterial blood oxygen (P02) was 82.74+9.25mmHg in group A before sclerotherapy, 73.57+9.87 mmHg one dayafter sclerotherapy, 86.11+7.48 mmHg in group B and 81.35+7.45mmHg in control group. O2 saturation before injection sclerotherapy was96.57±1.65, after sclerotherapy 93.87±2.85, in group B 95.7±2.19 and incontrol group 95.74±2.18.P02 and O2 saturation one day after sclerotherapy weresignificantly decreased than that before sclerotherapy, and significantlydecreased than that after completing the schedule of sclerotherapy. Therewas a significant positive correlation between the decrease in P02 andthe percentage decrease in FVC in group A.This means that FVC and P~ temporarily decrease one day afterinjection sclerotherapy but rapidly returns normal again and returnsnormal after completing the schedule of sclerotherapy. This can be dueto embolization of the sclerosant to the lung or intravascular plateletaggregation.In our study, there were no significant Echocardiographic changesbefore or after sclerotherapy.The mean values of white cell count was 5965+3287 in group Abefore sclerotherapy, 8120+3057 one day after sclerotherapy, 3350+809in group B and 4130+2486 in control group. White cell count, one dayafter sclerotherapy was significantly increased than that beforesclerotherapy and than that after completing the schedule ofsclerotherapy, and control group.The mean values of platelet count were 116960+54029 in group Abefore sclerotherapy, 156500+53820 one day after sclerotherapy,106950+35099 in group Band 157900+68326 in control group. Plateletcount, one day after sclerotherapy was significantly increased than thatbefore sclerotherapy and than that after completing the schedule ofsclerotherapy, but with no significant difference with control group.The temporary increase in white cell and platelet count one dayafter sclerotherapy can be due to foreign body reaction and increasedplatelet and coagulation activation following variceal sclerotherapy andthis transient rise disappeared after completing the schedule ofsclerotherapy.