TITLE: INFLUENCE OF SKF 96148 ON VASOCONSTRICTOR RESPONSES IN THE PULMONARY VASCULAR SYSTEM OF THE CAT.

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The objective of this research is to improve our current understanding of the responses to a thromboxane A_2 (TXA_2) mimic, U 46619, using SKF 96148 (4-2-[(chlorobenzenesulphonylamino)-ethyl] benzene-acetic acid) a new thromboxane receptor antagonist, on the pulmonary vascular bed of the intact chest cat. With written approval from the Animal Care Committee, fourteen mongrel cats unselected as to sex weighing 1.9-2.4 kg were sedated with ketamine 10-15 mg/kg IM and were anesthetized with pentobarbital sodium 30 mg/kg IV. The left lower lung lobe was instrumented and perfused at constant flow with pressures in the perfused lobar artery, the left atrium and the aorta measured. Responses to the TXA_2 mimic, U 46619 were obtained in the control period and after administration of SKF 96148, 5 mg/kg IV. In these experiments during the control period, injections of the TXA_2 mimic, U 46619 into the perfused lobar artery in doses of 10, 30, and 100 ng caused dose related increases in lobar arterial pressure. After administration of SKF 96148, injections in doses of 10, 30, and 100 ng caused little to no increase in lobar arterial pressure. The reduction in response to U 46619 was greater than 95% at each dose. Larger doses elicited responses that were similar to those elicited at the 30 and 100 ng doses of U 46619 before administration of SKF 96148. These results indicate that SKF 96148 has significant thromboxane receptor blocking activity. The inhibitory effects of the TXA_2 receptor blocking agent were surmounted with higher doses of U 46619 and the dose-response curves were shifted to the right in a parallel manner. The observation that the blockade could be overcome by larger doses of U 46619 suggest that the antagonism is competitive in nature. SKF 96148 in a dose that shifted the dose-response curves for U 46619 and to the right by more than a log unit had only small effects on responses to a number of agonists. SKF 96148 had no apparent intrinsic activity on the pulmonary vascular bed of the cat. SKF 96148 can be used as a probe to investigate the role of TXA_2 in physiologic and pathophysiologic states.

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TITLE: ROUTINE AUTOTRANSFUSION PLEURI-VACS: HYPE OR HELP

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INTRODUCTION. In an attempt to avoid the numerous potential iatrogenic complications associated with the administration of non-autologous blood, methods for reinfusion of shed mediastinal blood (SMB) were developed.[1] When first introduced, the autoransfusion of SMB promised to reduce the necessity for homologous blood transfusions. However, the development of more efficient methods for intraoperative blood conservation have greatly reduced the need for non-autologous transfusion. In an attempt to evaluate the efficacy of the routine use of the one reinfusion system, the pleuri-vac system, we designed a prospective study in postoperative cardiac surgical patients.

METHODS. Following a protocol approved by the institutions Human Investigational Committee, 31 patients were enrolled in this study. The study group, eighteen (N=18) patients received autotransfusion of SMB via closed collection system by defined criteria. Criteria for reinfusion of SMB include surgeon preference, amount of SBM collected ≥250 ml and a total time of collection <4 hours. The control group (N=13) were patients having undergone similar cardiac procedures but not receiving SMB. A DeKantel(R) (model #5000 ATB) autotransfusion pleuri-vac was employed following cardiac surgery for delivery of SMB in the study population. The control patients had a nonautotransfusion DeKantel(R) (model A-4005) pleuri-vac inserted for mediastinal drainage. To evaluate the impact of autotransfusion of SMB between controls and study patients, the following parameters were recorded. Hct, platelets, PT and PTT both pre and post-autotransfusion, as well as the volume of SMB transfused, the total amount of chest tube drainage and the amount of homologous blood and blood products administered. The frequency with which the autotransfusion device was utilized (e.g., when collected SMB was actually transfused) was also recorded.

Statiscial analysis was performed using an ANOVA for analysis of variance and student T-test with $p<0.05$ being significant.

Results. The analysis of this data showed no significant difference between the groups studied with regard to amount of homologous blood or blood products transfused postoperatively. In addition, there was no correlation betwen the hematological parameters measured between the study groups. Only 28% of patients with an autotransfusion pleuri-vac utilized this to transfuse the SMB collected.

DISCUSSION. Our data suggest the routine use of autotransfusion pleuri-vac systems, particularly the cost of this devices may not be justified. At our institution, a non-transfusion pleuri-vac system cost $130 vs $425 for an autotransfusion system. This results in an expenditure of $130,000 vs $425,000 per year at a center performing 1000 cases/yr. This is compounded by the low utilization (28%) of the device.

From this study, we conclude that the routine use of an autotransfusion pleuri-vac system for the purpose of delivery SMB does not significantly reduce the amount of homologous blood or blood products administered following cardiac surgery. However, the system does result in an increase in patient costs. Therefore, stringent patient selection should be employed to optimize the cost/benefit ratio of these systems.

REFERENCE. 1. Ann Thorac Surg 36: 173-179, 1983