

POSTOPERATIVE PLATELET ACCUMULATION IN THE LUNGS: CAN IT BE MEASURED IN SURGICAL PATIENTS AND DOES IT MATTER? C.N. McCollum, R.J. Hawker, H.C. Norcott, C. Hail, Z. Drolc, M.R. Miller. Queen Elizabeth Medical Centre, Birmingham, U.K.

Pulmonary microembolisation as a result of trauma, sepsis or major surgery may be an aetiology for shock lung. The postoperative kinetics of ¹¹¹-Indium labeled autologous platelets have been studied to determine whether they accumulate in the lungs, and whether this relates to subsequent pulmonary function.

One day prior to major surgery platelets from 10 patients were labelled with ¹¹¹-Indium-oxine and reinjected. Isotope emissions were counted over the lungs and aortic arch preoperatively, 2.5 hours following surgery and daily for 7 days. Screen filtration pressure (SFP) measurements of aggregates in femoral vein blood was estimated 30 minutes and 3 hours postoperation. Arterial PO₂ was measured preoperation and on days 1 and 7 following surgery.

The ratio of isotope emissions lung/aortic arch increased following surgery indicating pulmonary accumulation of platelets. The preoperative ratio (mean \pm SEM) of 0.38 ± 0.017 rose to 0.47 ± 0.039 ($p < 0.05$) 2.5 hours following surgery and to 0.56 ± 0.052 ($p < 0.01$) the following day. This ratio had returned to preoperative levels by day 4. Immediate postoperative platelet accumulation in the lung (the rise in lung/aortic arch ratio) correlated closely with SFP measurements ($r = 0.89$, $p < 0.01$) and the fall in arterial PO₂ one week following surgery ($r = 0.69$, $p < 0.05$).

These results indicate that circulating platelets aggregate during surgical shock and then accumulate in the lungs. This process is associated with postoperative hypoxia.

PULMONARY EMBOLISM: TRENDS IN EDINBURGH SURGICAL UNITS OVER TWENTY YEARS. C. V. Ruckley. Peripheral Vascular Clinic and Department of Clinical Surgery, Royal Infirmary, Edinburgh, Scotland.

The annual statistical records (audit) of ten general surgical units for the years 1959, 1964, 1969, 1974 and 1979 have been analysed to find the trends in incidence of pulmonary embolism in patients who died - with particular reference to patients normally expected to have a good prognosis.

The operations for the 5 years totalled 59,880. There were 2,593 deaths and 1,181 autopsies (46%). The total annual operations rose from 9,757 in 1959 to 13,830 in 1979 while the death rate fell from 6% to 4%.

Pulmonary embolism proven at autopsy (150) plus clinical diagnosis when autopsy was not performed (41) was reported in 191. There was a fall in incidence from 0.4% of operations in 1959 to 0.2% in 1979; but the validity of this was obscured by a fall in autopsy rate from 59% to 34% over the same period. However in patients below the age of 80 who should have had a good prognosis (i.e. did not have metastatic malignancy or end-stage cardio-respiratory disease) the autopsy rate remained relatively constant at a mean of 76% throughout the period. In this important group the incidence of pulmonary embolism fell progressively from 0.27% in 1959 to 0.06% in 1979.

In general surgical patients who would normally be expected to have a good prognosis the risk of fatal pulmonary embolism has steadily diminished over the past twenty years, although prophylactic methods have only been in general use for the past 5 years.

DEEP VEIN THROMBOSIS DURING ORAL CONTRACEPTION. AN ANALYSIS OF 57 PATIENTS. A. Bergqvist, D. Bergqvist and U. Hedner. Departments of Gynecology, Obstetrics and Surgery and Coagulation Laboratory, University of Lund, Malmö General Hospital, Malmö, Sweden.

A phlebographic and haemostatic analysis has been made of 57 patients developing deep vein thrombosis while on combined oral contraceptives containing 30 or 50 μ g estrogen. The diagnosis was based on ascending phlebography. One patient had bilateral, 18 rightsided and 38 leftsided thrombosis. The leftsided dominance was seen only in patients taking 50 μ g estrogen daily. The thrombotic process was significantly more extensive and more proximally located in patients with leftsided thrombosis. Thirty-three percent of the rightsided and 8% of the leftsided thrombi embolised, a difference which is significant. Six to twelve months after the acute thromboembolic episode an analysis was made of platelet function, the coagulation and fibrinolytic systems. Only 5/57 patients had an excessive increase of f. VIII:C ($>250\%$) and none had low AT III levels. Thirty-two percent of the patients had a defect in their vessel wall fibrinolysis (a defective release capacity and/or a decreased fibrinolytic activity within the vessel wall) and these patients developed rightsided thrombosis significantly more often.

Judging from our findings a defective vessel wall fibrinolysis seems to be of pathogenetic significance for the development of deep vein thrombosis especially on the right side during oral contraceptive medication. The more extensive leftsided thrombi seemed to be dependent on the estrogen dose and not to the same extent associated with an impaired vessel wall fibrinolysis.

OBESITY IS NOT A RISK FACTOR IN THROMBOPHLEBITIS. M. D. Kerstein, R. C. O'Connell and N. E. McSwain. Department of Surgery, Tulane University School of Medicine, New Orleans, Louisiana

It is alleged that obesity is a risk factor in the occurrence of thrombophlebitis. It is the purpose of this investigation to study that inter-relationship.

One hundred consecutive patients (21 male, 79 female) with an average age of 34 years were the subjects for this study. All patients were candidates for surgical intervention (gastric bypass procedure) because of obesity with minimum of 100 lbs over predicted weight. The mean weight was 279.2 lbs with a range of 191 - 500 lbs. The mean body mass index was 48 (weight kg/ (height cm)²). The incidence of deep vein thrombophlebitis by history was 3/100. The history of documented thromboembolism was zero.

The incidence of post-operative clinical deep vein thrombophlebitis was zero. The incidence of post-operative thromboembolism was 3/100 (3.0%). None of these patients had a history of deep vein thrombophlebitis. The diagnosis of thromboembolism was confirmed by ventilation-perfusion scan. The mortality rate secondary to thromboembolism was 1/100 (1.0%).

Obesity is not a risk factor in the occurrence of post-operative deep vein thrombophlebitis and thromboembolism. The various prophylactic medications and therapies for this group of patients may be an inappropriate risk, an undue cost and un-necessary discomfort.