

COMPUTERIZED MULTI-CHANNEL THROMBELASTOGRAPH Yozo Kanda and Akikazu Takada Hamamatsu University School of Medicine, Hamamatsu, 431-31, Japan. Widely used Thrombelastographs (TEG) made by Hellige Co. measure the coagulation and fibrinolysis of blood by an optical method. The light rays scan on the film according to the viscoelasticity of the blood. The result cannot be known until the film is developed at the end of the experiment. It is troublesome to develop and replace the film. The purpose of the present work is to overwhelm the inconvenience. A silicon photo diodes array is used as a photo sensor and placed in the position where the light hits. The array includes 128 diodes, each of which has a corresponding memory (128 bit shift resistor). These memories read in what parts of these diodes are exposed to the light when the rotary -sockets in the main instrument change the direction. These memories are read out by synchronizing clock-pulse and counted in binary code. The signals in binary code are converted into analog signals which correspond to the envelopes of TEG patterns. A microcomputer is added in order to calculate the maximum amplitudes of the envelopes. These components are assembled in the same space as the recording cassette. Therefore, by replacing the recording cassette by the newly made recording system and connecting to a dot printing recorder, we can get directly printed envelopes of TEG patterns. We can also get the digital values of reaction times, coagulation times and maximum amplitudes by connecting the recording system to a digital printer. The newly developed recording system could overwhelm the inconvenience of TEG currently used and save time. (This work was supported in part by a grant (149011) from the Ministry of Education, Japan)

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THROMBOLYTIC THERAPY WITH PORCINE PLASMIN: BIOCHEMICAL AND CLINICAL RESULTS. F. Asbeck and J. van de Loo. Medizinische Universitätsklinik, Münster, West Germany.

Preliminary results are presented on the systemic action of porcine plasmin which was used as a thrombolytic agent. Patients suffering from acute arterial thromboembolism (2) or deep venous thrombosis (4) received porcine plasmin (pp) in the following dose schedule: 2000 U given as an initial dose within the first 60 minutes, and 2000 U given as a maintenance dose by continuous infusion within the following 8 hours. The maintenance dose was repeated at each of the 2, 3, or 4 consecutive days.

Investigations of the plasmas showed a rapid drop of fibrinogen to 50% of the initial value. FDP raised up to 300 µg/ml. There was no change of the mean plasminogen concentration. Systemic fibrinolytic activity was very low and could only be demonstrated in traces during all stages of the therapy. Analysis of the inhibitors showed a continuous drop of the α_2 -macroglobulin to levels of 50-100 mg/dl. Plasmin-antiplasmin complexes were detected in considerable amounts.

The treatment was well tolerated by all patients. In one patient, a complete recanalization of a teflon bypass of an iliac artery could be achieved. In the other patients, only partial recanalizations could be demonstrated. A combination of porcine plasmin with streptokinase therapy is possible.

FIBRINOLYTIC SYSTEM AND FIBRINOLYTIC INHIBITORS IN BEHCET'S DISEASE. F. Asbeck, D. Meyer-Boernecke, and J. van de Loo. Medizinische Universitätsklinik, Münster, W.-Germany.

An increase of the inhibitory potential seems to be the generally accepted cause for the suppression of the fibrinolytic system in Behcet's disease. To prove this theory, we investigated 5 male patients (31-46 yrs.) suffering from severe Behcet's syndrome. Additionally, three of them were treated with Stanazolol (10 mg/d) and Phenformin (100 mg/d) during a period of one year. The following parameters were investigated in detail: Fibrinogen; plasmin (different fibrin plate assays); plasminogen, fast reacting antiplasmin, plasmin-antiplasmin complex, α_2 -macroglobulin, C_1 -esterase inhibitor, α_1 -antitrypsin, antithrombin III (different immunological methods).

In all patients, the concentration of fibrinogen and α_2 -antitrypsin were elevated. There were normal concentrations of plasminogen, fast reacting antiplasmin, plasmin-antiplasmin complex, α_2 -macroglobulin, C_1 -esterase inhibitor, and antithrombin III. Using the venous occlusion technique, a marked reduction of the in-vivo activation of the fibrinolytic system could be demonstrated. - During therapy with Stanazolol and Phenformin, a high fibrinolytic response was induced by venous occlusion. The analysis of the different inhibitors, however, could not explain this phenomenon. An increased production or release of vessel activator(s), therefore, seems to be the mechanism of fibrinolysis induction by anabolic steroids and Phenformin.