PROCEEDINGS OF THE 50th ANNUAL SCIENTIFIC MEETING OF
THE JAPANESE CIRCULATION SOCIETY

March 1986, KYOTO

President: Chuichi Kawai, Kyoto University

FREE COMMUNICATIONS

(I)

March 27, 1986

Chairman

1-6 N. Kajiwara, *Tokyo*
7-12 S. Hosoda, *Tochigi*

Keiichi Kuwaki, Kiyoshi Inoue, Keiko Ueda,
Shoko Homma, Tetsuro Shirai,
Masafumi Kidokoro, Etsuko Takano

Cardiovascular Disease Center
Tokyo Metropolitan Police Hospital

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**EXPERIMENTAL THROMBUS FORMATION AND
THROMBOLYSIS IN CANINE CORONARY
ARTERY**

Takanobu Tomaru, Yasumi Uchida,
Hiroyuki Sonoki, Masatoshi Masuo,
Akihito Kato, Tsuneaki Sugimoto

2nd Department of Internal Medicine
University of Tokyo

The thrombolytic effects of urokinase (UK) on experimental coronary thrombosis and preventive effects of Defibrase (Batroxobin) on reocclusion were evaluated in anesthetized open-chest dogs. Luminal stenosis and endothelial injury using guide wire resulted in occlusive thrombi of LAD or LCx in 44 (59%) of 75 dogs. Coronary occlusion was judged by marked decrease in coronary arterial pressure and flow, ST elevation and epicardial cyanosis uninfluenced by Ca^{2+} blockers or nitroglycerin. Intravenous infusion of UK (10,000-20,000 IU/kg) recanalized the occluded artery in 19 (100%) dogs with thrombi of 1 hour old or less and in 5 (100%) with those of 3 hours old. Recanalization was observed in none of 6 dogs in which UK was administered 4 hours after thrombus formation. Within 6 hours, reocclusion was observed in 2 (22%) of 9 dogs pretreated with Batroxobin (1 BU/kg) and in 7 (64%) of 11 not pretreated. Histologically, thrombi were consisted of fibrin layers, platelet aggregates and blood cells simulating natural ones. In conclusion, UK induced coronary thrombolysis when it was given within 3 hours but not 4 hours or more after thrombus formation. Batroxobin lowered the incidence of coronary reocclusion.

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**IN VIVO ANGIOSCOPIC AND ANGIOGRAPHIC
OBSERVATION OF THE CORONARY
ARTERIAL THROMBUS**

The purpose of this study is to establish the criteria of angiographic findings of fresh, probably resolvable thrombus by comparing with angioscopic features in in vivo canine preparations. The thrombus was created by endothelial abrasion using a brushing catheter plus ligation. An ultrathin fiberoptic angioscopic catheter was introduced through guiding sheath via carotid artery. Angiography was performed by injecting dye through the sheath. The preparation was initially made on the femoral artery, then performed on the left circumflex coronary artery. The fresh thrombus were successfully created in these arteries and macroanatomical features were angioscopically and angiographically monitored on video display. An angiographic feature of totally obstructive thrombus showing abrupt cut off with fine frayed border was compatible with mixed thrombus mounted by soft red thrombus being easily resolved by urokinase (UK). After removal of these red thrombus, luminal obstructive hardly resolvable mixed thrombus was seen angioscopically. But if a crevice was seen on the thrombus angioscopically and dye impregnated through it showing endoluminal defects angiographically, it was resolved by UK at any rate.

The results indicate that penetration of thrombolytic agent through thrombus is essential for the successful thrombolysis.

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**CLINICAL SIGNIFICANCE OF ST SEGMENT
CHANGES AT REPERFUSION**

Mikihiro Kijima, Shuichi Matsumoto,
Kiyohiro Ikeda, Yoshihiro Miyazaki*, Kazuo
Ono*, Kenji Owada*, Shigeo Kariyone*

Division of Cardiology, Hoshi General
Hospital *The First Department of
Medicine, Fukushima Medical College

We studied clinical significance of ST segment changes at reperfusion of infarcted-related