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the mechanism of the intramolecular binding of the N-terminal peptide of Glu-plasminogen (Glu-plg) to its kringle, which results in its tight conformation, we synthesized peptides of the N-terminal portion of Glu-plg molecules and analyzed their effects on the activation of Glu-plg and its conversion to Lys-plasminogen (Lys-plg) by plasmin. Three peptides of Ala<sup>44</sup>-Lys<sup>50</sup>, Ala<sup>44</sup>-Glu<sup>51</sup> and Ala<sup>44</sup>-Ser<sup>49</sup> were synthesized in order to examine the effect of lysine residue in the peptide. Ala<sup>44</sup>-Lys<sup>50</sup> and Ala<sup>44</sup>-Glu<sup>51</sup> enhanced the activation of Glu-plg by urokinase, whereas the activation of Lys-plasminogen (Lys-plg) was slightly inhibited. The conversion of Glu-plg to Lys-plg by plasmin was also enhanced by these peptides. The results suggest that Ala<sup>44</sup>-Lys<sup>50</sup> and Ala<sup>44</sup>-Glu<sup>51</sup> worked on Glu-plg in a similar manner as lysine analogues by making its conformation looser. The third peptide Ala<sup>44</sup>-Ser<sup>49</sup> did not have any effect on the activation of Glu-plg by urokinase or the conversion of Glu-plg to Lys-plg by plasmin. Ala<sup>44</sup>-Lys<sup>50</sup> residue of Glu-plg is, therefore, strongly implicated as a candidate for the responsible site of the intramolecular binding in Glu-plg.

Key words: plasminogen, lysine binding site, amino-hexyl site.  
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This study examined the role of fibrinolytic components in the process of restenosis after percutaneous transluminal coronary angioplasty (PTCA). Seventy-two patients with single-vessel disease who underwent successful PTCA were prospectively selected. Tissue plasminogen activator (tPA), free plasminogen activator inhibitor-1 (free PAI-1), tPA/PAI-1 complex, and total PAI-1 antigen levels were measured before, at 1 week after, and at 3 months after PTCA. Six months after PTCA, the study patients were divided into two groups: 41 patients without restenosis and 31 patients with restenosis. There were no significant differences with regard to sex, age, coronary risk factors, or morphologic changes in the target lesions between the two groups. There were no significant differences in plasma tPA, tPA/PAI-1 complex, or total PAI-1 levels at each sampling period, or in the time courses between the two groups, except for total PAI-1 levels at 1 week after PTCA. Although no significant differences in free PAI-1 levels before PTCA were observed, free PAI-1 levels after PTCA in the patients with restenosis were significantly higher than those in the patients without restenosis. In addition, each group had a significant change in the time course of free PAI-1 levels. The results suggest that impaired fibrinolysis early after PTCA might affect the repair process of vascular injury, which leads to restenosis, and also that serial determination of free PAI-1 levels could help predict restenosis. (*Am Heart J* 1999; 131:1-3.)

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Restenosis after successful percutaneous transluminal coronary angioplasty (PTCA) remains one of the most important unresolved problems, with an overall incidence of 25% to 50%.<sup>1-6</sup> Therefore, early identification or prediction or both of patients with developing restenosis has important prognostic and therapeutic implications.

Many studies<sup>7-12</sup> have focused on investigating the mechanism of restenosis after PTCA. Recently several reports<sup>13-15</sup> demonstrated that lesion progression early after PTCA was highly correlated with late restenosis, indicating that the process of restenosis begins or least within 1 month of PTCA. According to experimental and clinical studies,<sup>16,17</sup> two important steps involving the mechanism of restenosis or repair of vascular injury after PTCA have been proposed. In the early phase after PTCA (immediately to a few days after PTCA), platelets adhere to the vascular injury site. Subsequently platelets release several factors that cause vascular spasm and smooth muscle cell proliferation. At the same time, arterial injury and platelet accumulation can activate the coagulation system and impair the fibrinolytic system, leading to intracoronary thrombus formation. In the late phase (a few days to several weeks after PTCA), mitogenic factors released from platelets, monocyte, endothelium, and smooth muscle cells stimulate smooth muscle cell proliferation and migration to the area of vascular injury, which finally