

# 한국인에 있어서 허혈성 관동맥 질환과 혈소판 당단백 IIIa의 유전자 다형성과의 관계

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= Abstract =

## Genetic Polymorphism of a Platelet Glycoprotein IIIa as an Inherited Risk Factor for Coronary Artery Disease in Koreans

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**Background :** Platelet aggregation and thrombus formation within the coronary artery are major factors in acute coronary syndrome. The platelet glycoproteinIIb/IIIa receptor is a pivotal mediator of platelet aggregation. Recently there have been reports that the genetic polymorphism of GPIIIa is an inherited risk factor for coronary artery thrombosis. This study investigated the relation between the Pl A polymorphism and coronary artery disease in Korean patients.

**Method :** One hundred patients with acute myocardial infarction and unstable angina were enrolled. Coronary angiogram was performed in eighty-one cases. Genomic DNA from peripheral blood was amplified by polymerase chain reaction. Allele-specific restriction digestion was used to determine the Pl A genotype.

**Results and Conclusion :** The prevalence of Pl A2 genotype was zero percent in our study group. All patients had the Pl A1/A1 genotype. These results suggest that Pl A genetic polymorphism of GPIIIa is not an inherited risk factor for coronary artery diseases in Koreans.

**KEY WORDS :** Platelet GlycoproteinIIb/IIIa receptor · GPIIIa genetic polymorphism · Risk factor for coronary artery disease.

서 론

가

가

가

, (arterial and venous thrombosis), (acute coronary syndrome)<sup>1,2)</sup>

. GPIIb/IIIa GPIIIa

PI<sup>A1</sup> PI<sup>A2</sup> 가  
 PI<sup>A1/A1</sup>, PI<sup>A1/A2</sup>, PI<sup>A2/A2</sup> 가  
 . PI<sup>A1</sup> GPIIIa  
 33 position leucine 가 PI<sup>A2</sup>  
 GPIIIa gene axon 2 1565  
 thymidine cytosine leucine  
 proline 가 . GPIIIa genetic  
 (in-herited risk factor) 가  
 . PI<sup>A2</sup> 가 (PI<sup>A1/A2</sup>  
 PI<sup>A2/A2</sup>) PI<sup>A2</sup>  
 가 3).  
 GPIIIa genetic

## 대상 및 방법

### 1. 대 상

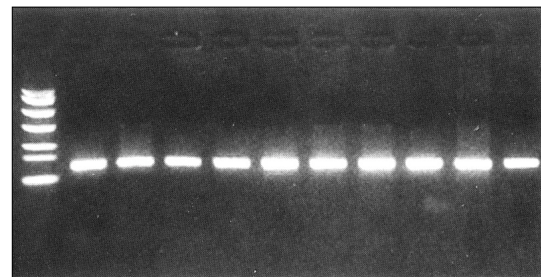
1996 6 1 1996 7 10  
 (47 )  
 (53 ) 100  
 가 70 가 30 55.8 ± 5  
 . 81

30  
 2 ST 0.1mV  
 Q 가

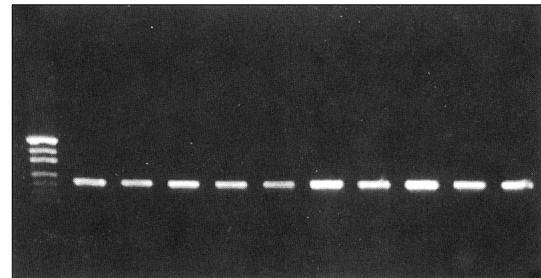
4)

### 2. 방 법

genomic DNA  
 platelet glycoprotein IIIa exon 2  
 PI<sup>A2</sup> 가 (PI<sup>A1/A2</sup>  
 PI<sup>A2/A2</sup>) Msp I cleavage site가  
 primer  
 (Polymerase chain reaction ;  
 PCR) PCR product



**Fig. 1.** Specific amplification of PI<sup>A</sup> gene. PCR was performed as indicated in experimental procedure and analyzed by 2.5% agarose gel electrophoresis. Lane M is DNA size marker(marker KBII) made by BIONEER CORP.



**Fig. 2.** Analysis of PI A genotype by Msp I restriction digestion. Butanol extracted PCR products(lane 1 - 10) and pUC18(lane M) was incubated with Msp I for 1 hour at 37 °C, and analyzed by 2.5% agarose gel electrophoresis. All PCR products of PI<sup>A</sup> gene were not digested.

가 210bp가 Sense primer  
 5' - TGATTGCTGGAGTTCTCTTTGGGC - 3' an-  
 tisense primer 5 - CAGTGAGTTCAG TCAGGG  
 GTCTC - 3'

## 결 과

32 , 2 27 ,  
 3 22 . 52  
 , 24 , 42  
 195.0 ± 62.0  
 mg/dl, 167.0 ± 83.4mg/dl, HDL -  
 33.2 ± 9.4mg/dl .  
 100 210bp  
 PCR (Fig. 1)  
 MSP I restriction enzyme  
 PI<sup>A1/A1</sup> (Fig.

2). MSP I restriction enzyme pUC18 1 50,000 가  
DNA control . Glanzmann's thrombasthenia  
(Fig. 2). 가  
GPIIb/IIIa  
고 찰 가  
GPIIb/IIIa (pharmacologic inhibitor)<sup>10)</sup>  
Polymorphism  
1,2) DNA  
(arterial and venous (inherited variation) . genomic  
thrombosis), DNA noncoding DNA sequencing coding sequence  
glycoprotein  
(platelet specific antigen)  
1959 Van Loghen ZW(PI<sup>A</sup>)가  
, GPIIb/IIIa , (coagulant activity) HPA(human platelet specific antigen) number HPA  
(intracellular pathway) thromboxane A<sub>2</sub>, thrombin, norepinephrin, collagen, ADP 가  
(agonist) ADP,  
serotonin, thromboxane A<sub>2</sub> recruitment<sup>5)</sup>  
(plug)  
, fibro-  
nectin, von Willebrand factor, thrombospondin (allele)  
GPIIb/IIIa  
von Willebrand factor DNA  
GPIIb/IIIa  
( ) DNA  
6,7)  
GlycoproteinIIb/IIIa  
(integrin) subunit  
136 - kd subunit heavy chain alloantigen - specific reagent  
light chain 92 - kd subunit  
762 polypeptide . Simsek allele - specific restriction enzyme  
subunits het - analysis immunotyping(serotyping) 98  
erodimeric PI A  
8,9) . GPIIb/IIIa 가 11)

PI<sup>A</sup> PCR event가 PI<sup>A2</sup> 3). Angela PI<sup>A2</sup> 18). PI<sup>A2</sup> PI<sup>A2</sup> PI<sup>A2</sup> PI<sup>A2</sup> GPIIb/IIIa GPIIIa PI<sup>A1</sup> PI<sup>A2</sup> 가 GPIIIa gene 가 PI<sup>A1/A1</sup>, PI<sup>A1/A2</sup>, PI<sup>A2/A2</sup> GPIIIa PI<sup>A</sup> Newman 가 Weiss PI<sup>A2</sup> 12). PI<sup>A1</sup> GPIIIa 33 position le- GPIIb/IIIa ucine 가 PI<sup>A2</sup> GPIIIa gene axon 2 1565 thymidine cyto- sine leucine proline 가 , GPIIIa GPIIb/IIIa 가 GPIIIa vitronectin integ- PI<sup>A2</sup> 가 PI<sup>A2</sup> 가 , rin 가 GPIIIa PI<sup>A2</sup> 26.5%, 15% 13). 14) 100 , PI<sup>A2</sup> prevalence PCR genotyping 20%, 16%, 1% GPIIIa PI<sup>A</sup> 3.7%, 0.15%, 1.8% PI<sup>A2</sup> 15,16) 17) 154 0% 14) 100 1% PCR 요 약

#### 연구배경 :

PI<sup>A1/A2</sup> PI<sup>A2/A2</sup> GPIIIa PI<sup>A</sup> GPIIb/IIIa 가 (PI<sup>A1/A2</sup> PI<sup>A2/A2</sup>) PI<sup>A2</sup> GPIIIa 가 . Weiss GPIIIa PI<sup>A</sup> 방 법 : 19.1%가 PI<sup>A2</sup> acute isch- 1996 6 1 1996 7 10 emic event가 PI<sup>A2</sup> 39.4% (47 ) (53 ) 60 acute ischemic 100 가 70

가 30 55.8 ± 5 .

81

PCR genomic DNA  
restriction enzyme allele - specific restr -  
platelet GPIIIa

결과 및 결론 :

3 22 .

52 , 24 , 42

195.0 ± 62.0

mg/dl, 167.0 ± 83.4mg/dl, HDL -

33.2 ± 9.4mg/dl . PCR

GPIIIa PI A1/A1 .

GPIIIa

PI<sup>A2</sup> PI<sup>A2</sup>

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