

Abstract: Clinical Knowledge Discovery from Korean Acute Myocardial Infarction Registry

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Abstract

Many researchers have been studied the risk factors of Acute Myocardial Infarction (AMI) using various statistical analysis in typical AMI databases such as Global Registry of Acute Coronary Events (GRACE), OPERA registry, and Korean Acute Myocardial Infarction Registry (KAMIR). Our clinical database has been built on clinical information of Korean patients with Acute Myocardial Infarction (AMI) as KAMIR which is corrected by 51 participating hospitals capable of Primary Percutaneous Coronary Intervention. In this paper, we discover typical rules which involve the causality of blood factors, disease history and AMI patients on knowledge discovery process. The process consists of KAMIR database, removing missing data and errors, mining association rules and interpreting clinical rules. Since healthy blood vessel is significant important in AMI patients and the condition of blood vessel is strongly related to disease history such as hypertension, diabetes and hyperlipidemia, blood factors are possible to affect disease history. In order to discover association rules from KAMIR database, we divide into 3 AMI patient groups such as young, middle age, and older groups. Association rules which are discovered from KAMIR database are shown as following results: glucose level which is greater than or equal to 130 mg/dL is associated with hypertension and diabetes in young group under 45 years old. In middle group between 46 and 65 years old, creatinine which is greater than 2.0 mg/dL, triglyceride as 200 to 499 mg/dL, and smoking which is greater than or equal to 30pack/years are associated with hypertension and diabetes. In older patients over 65 years old, creatinine which is greater than 2.0 mg/dL, triglyceride as 200 to 499 mg/dL, smoking as 0 to 30 pack/years, and total cholesterol as 200 to 240 mg/dL are associated with hypertension. These results prove that each group indicates each different cause of disease history, and hypertension and diabetes affect AMI in all ages.

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