DOI:10.16016/j.1000-5404.1987.02.009

急性心肌梗塞近期的预后评价——多因素逐步回归分析

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提 要 本文介绍用多因素逐步回归法探讨影响急性心肌梗塞（AMI）病人预后的各种因素，从中筛选出对近期预后有显著影响的六项指标：心力衰竭；心源性休克；ST段抬高；房室传导阻滞；室内阻滞；严重室性心律失常。并建立了预测方程，经临床验证，存活与死亡预测符合率分别为95.35%和93.75%。作者认为应用多元预测式对判别AMI近期预后，简单、实用、准确。

关键词 心肌梗塞；回归方程；预后指数

近年来随着诊疗技术水平的不断提高，急性心肌梗塞（AMI）的预后已逐年改善，晚近文献对急性期的临床表现与其预后的因素评价不一。本文就我院近7年来共收治的59例AMI患者住院期间的临床资料，采用多因素逐步回归分析，探讨影响AMI急性期预后的主要因素。

临床资料和方法

本组59例AMI，男性48例，女性11例。年龄32～82岁，平均59.16岁，＞65岁20例，＜65岁39例。诊断标准根据典型的临床症状、心电图变化及血清酶学升高予以确诊。本文收集的为发病后一周内临床资料。

临床特点：1. 发病后＜24小时入院34例，＜3天内入院10例，＞3天入院15例。2. AMI合并高血压32例，有反复心绞痛23例，糖尿病史2例。3. 疼痛分级[1]：Ⅰ级6例，Ⅱ级15例，Ⅲ级22例，Ⅳ级16例。4. 心衰分三度，轻度7例，中度11例，重度6例。5. 心功能按NYHA分级，Ⅰ级4例，Ⅱ级21例，Ⅲ级19例，Ⅳ级15例。6. 心源性休克轻度11例，中度8例，重度6例。7. 心肌梗塞部位：前壁（前壁9例，前＋间壁13例，前＋侧壁4例，广泛性前壁9例）35例，前壁＋下壁4例，下壁（下壁15例＋后壁2例）17例，心内膜下梗塞3例。8. 血清酶学SCPK轻度升高38例，重度升高21例。9. 心电图：ST段抬高按Njelso标准[2]，ST段抬高25例，ST段不抬高31例，Q波以心度图12导联划分，少Q波组有Q波导联＜3个35例，多Q波组有Q波导联＞3个21例。10. 心脏X线检查：心胸比例＞0.50 32例，＜0.50 27例。11. 心律失常：房室传导阻滞，Ⅰ度6例，Ⅱ度3例，Ⅲ度1例；室内传导阻滞10例（完全性左束支阻滞4例，完全性右束支阻滞6例）；室性心律失常（多源性室早6例，室速3例）9例。

59例AMI患者急性期（2个月内）死亡16例，存活者43例，为了便于电子计算机处理对于收集的定性资料及半定性资料均数量化处理（见表1）。

将59例患者数量化后的指标输入APPLE-Ⅱ型微型计算机按SPMR的医用统计程序进行逐步回归分析，根据对上述变量的筛选，选出对AMI近期预后有显著的影响的因素，建立多元回归方程。

结 果

一、多因素逐步回归结果分析

为检验预后因素XI的回归效果是否显著，首先应给定显著水平（$\alpha=0.05$），即取不同的F值水平（$F=1.5\sim2.5$）对不同F值水平所选因素及复相关系数分析比较，当$F>2.5$时所选因素较小，建立的方程简单，不符合临床实际；当$F<1.5$则所选因素较多，所建立的多元回归方程过于复杂，不便于临床应用。故确定F值为2.0，此时共选出6个对AMI急性期预后有显著影响的因素，按其偏向系数依次为X_{16}室性心律失常(0.789058)，X_{15}室内传导阻滞(0.777264)，X_{14}房室传导阻滞(0.765065)，X_{12}ST段抬高（0.750164），X_{10}心源性休克（0.724066），X_8心衰（0.650079）。

$$Y=-0.142629+0.106766X_8+0.11348X_{10}+0.15068X_{12}+0.182093X_{14}+0.204654X_{15}+0.401575X_{16}$$

方程的重相关系数为0.789058，可决系数为0.622612。

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表1 预后因素的数量化

变量XI	预后因素	指标数量化			
X_1	性别	男0	女1		
X_2	年龄	<65岁0	>65岁1		
X_3	入院时间	<24小时0	<3天1	>3天2	
X_4	高血压史	无0	有1		
X_5	糖尿病史	无0	有1		
X_6	心肌缺血史	无0	有心绞痛1	心梗2	
X_7	疼痛分级	Ⅰ级0	Ⅱ级1	Ⅲ级2	Ⅳ级3
X_8	心力衰竭	轻度1	中度2	重度3	
X_9	心功能	Ⅰ级0	Ⅱ级1	Ⅲ级2	Ⅳ级3
X_{10}	心源性休克	轻度1	中度2	重度3	
X_{11}	血清酶学	正常0	轻度1	重度2	
X_{12}	ST段	不抬高0	抬高1		
X_{13}	Q波	少Q波0	多Q波1		
X_{14}	房室传导阻滞	无0	有1		
X_{15}	室内传导阻滞	无0	有1		
X_{16}	室性心律失常	无0	有1		
X_{17}	X线心脏扩大	C/T<0.50 0	>0.50 1		
X_{18}	心肌梗塞部位	心内膜下1	下壁2	前壁3	
Y	预后	死亡1	存活0		

表2 回代结果与临床结果比较

例数	估计正确例数	估计错误例数	符合率%
死亡者16	15	1	93.75
存活者43	41	2	95.35
合计59	56	3	94.92

二、对多元回归方程的验证

将本组59例AMI患者的6个预后因素的数量化值代入回归方程，将所得结果与实际临床资料结果作比较。本文规定y表示AMI患者急性期的预后指标，如患者的$y \geq 0.5$则急性期内有可能死亡，$y < 0.5$则可能存活，检验结果如表2。

三、组外病例对回归方程的验证

选取本院1976～78年6例及1985～86年5例符合本文规定条件AMI患者共11例（8例存活，3例死亡）相应的临床资料，代入回归方程，将所得的结果与实际结果相比较，全部估计正确，可见本方程的预测精度较高。

讨论

AMI预后受多种因素影响，这些因素之间存在着复杂的相互关系，正如Feil[3]所指出："正确判断心肌梗塞预后是不大可能的，有些病人康复很好可以突然死亡，反之有些病情经过凶险然而恢复很好。"根据本组资料分析验证结果，我们认为下列因素对AMI预后影响较大，特异性较高，按其作用大小依次为X_8心衰，X_{10}心源性休克，X_{12}ST段抬高，X_{14}房室传导阻滞（Ⅱ～Ⅲ度），X_{15}室内传导阻滞，X_{16}恶性室性心律失常。应用本回归方程对死亡组和存活组的预测正确率分别为93.75%和95.35%，总的正确率94.92%。一般而言，影响预测的正确率与所选入的因素多少有关。选入因素过多，则预测的精度较低，多元回归方程过

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于复杂不便临床应用，选用因素过少，精度虽高但与临床实际不符。因而要筛选出多少因素才能组合成一个又简便又准确的多元回归方程是值得进一步探讨。

AMI急性期三大并发症：严重心律失常、心力衰竭和心源性休克是影响死亡的重要因素，其中以左心泵功能衰竭为最主要因素，一般估计[4]无心力衰竭者病死率在10%以下，严重心力衰竭者约半数死亡，合并心源性休克时病室率高达70～90%。本文资料分析基本上符合这一论点。上述六项指标按其影响作用大小依次排列，以心力衰竭和心源性休克影响最为显著。但左室泵功能是与心肌梗塞范围（IS）大小密切相关[5]，IS越大，左心泵功能损害越重，临床症状也严重，病死率也越高，有的作者提出充血性心衰，心源性休克发生与否主要取决于IS的大小。当IS超过左室10%时EF下降，超过15%时LVEP升高，超过25%则有心衰表现，多有左室广大，心源性休克者一般超过40%。我们体会应用多元回归方程筛选出各项指标，有助于指导我们临床实践，可作为筛选重危病人进行及时抢救治疗的依据，

AMI预后判别式的主要临床意义，在于能够客观预计病人病情严重程度，定量表达指标，提供正确评价病人病死率的客观标准，虽然我们经过逐步回归筛选出影响AMI急性期预后6项主要因素，但并不排除其它因素的影响，例如高龄，既往高血压史及心肌缺血史，血清酶重度升高，心脏增大，及多Q波患者等因素均可影响病情的预后。因为影响AMI预后的因素错综复杂，除主要因素外还要结合其它因素综合考虑，全面分析，这样更有助于提高预测的正确率，更好地指导临床。

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Some Special Problems concerning Idiopathic Hypoparathyroidism

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There have been more than 100 cases of idiopathic hypoparathyroidism(IHP) reported in our country. The 8 cases reported in this paper showed some special features in the clinical manifestations, the biochemical parameters, and the response to treatment.

Clinical, one case was complicated with Klinefelter's syndrome. Another case suffered from subcorneal pustulosis prior to the onset of idiopathic hypoparathyroidism. Two cases were misdiagnosed as epilepsy and admitted to the department of neurology. Generalized exfoliative dermatitis was induced in one case by large doses of antiepileptic agents to control the convulsive seizures.

Biochemically, both CPK and LDH were elevated in one case. Serum calcium was as low as 2.4 mg/dl in one case, and serum phosphrus was as high as 11.7 mg/dl in another. These phenomena were rarely encounted in IHP.

Therapeutically, transplantation of homogenous parathyroid gland with blood vessels was the method of choice. Two cases were treated in this way with good results. A third case received a dog's parathyroid gland, which also showed good results. The mechanism of heterogenous parathyroid transplantation needs further investigation.

In addition, the diagnosis and differential diagnosis of IHP were discussed.

Key words: Idiopathic hypoparathyroidism; Parathyroid transplantation

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Short-term Prognostic Evaluation of Patients with Acute Myocardial Infarction: An Analysis with Multivariate Progressive Regression

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This paper is to introduce the application of multivariate progressive regression in the prognostic evaluation of 59 cases of acute myocardial infarction admitted to this hospital in the period from 1980 to 1986. The clinical features of the 59 cases were carefully studied and analyzed. Six important features including heart failure, cardiogenic shock, ST elevation, atrio-ventricular block, fascicular

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bloock, and severe ventricular arrhythmia were selected to work as the variables. An equation of progressive regression was established with these 6 variables. The prognostic index of any patient with acute myocardial infarction could be obtained by the calculation of this equation. The applicaton of this equation in the prognostic evaluation of this series of patients yielded a reliability of 93.75% and 95.35% of the patients' mortality and survival respectively. It is considered that multivariate progressive regression is a simple, practical, and accurate method in the short-term prognosis of patients with acute myocardial infarction.

Key words. Myocardial infarction; Regression equation; Prognostic index

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Hemodynamic Changes after Oleic Acid Induced Lung Damage in Dogs

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In order to study the characteristics of the early cardiovascular responses after oleic acid induced lung damage, oleic acid (OA) 0.1ml/kg body weight was infused intravenously into 11 anesthetized and artificially ventilated dogs, and the effects were observed for 3 hours. After OA infusion, PaO_2 decreased progressively to a fairly low level with a coincident increase of the alveolar-arterial PO_2 gradient and decrease of the oxygen delivery. Cardiac index gradually decreased and reached only 49% of the baseline value at 180 minutes after OA injection. Mean systemic arterial pressure decreased transiently at 60 minutes after OA injection without concomitant increase of the pulmonary arterial pressure. The left ventricular stroke work, $+dp/dt_{max}$ and $-dp/dt_{max}$, and the impedance contractility index were inhibited throughout the experiment. The postmortem lung-body ratio was significantly increased.

These results suggest that the dogs following OA injection exhibit severe hypoxemia, reduced cardiae output, suboptimal cardiac performance and reduced oxygen delivery; the reduced cardiac outpur is associated with early and sustained inhibition of the myocardial contractility; and the pulmonary arterial pressure does not change significantly in the whole course of the experiment, so the edema formation does not result from the increase of the capillary hydrostatic pressure.

Key words. Oleic acid; Lung damage; Hemodynamics; Ventricular performance

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