

改良早期预警评分与简明急性生理功能评分Ⅱ在恶性肿瘤急诊患者近期死亡中的预测价值

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摘 要: [目的] 探讨改良早期预警评分(MEWS)与简明急性生理功能评分Ⅱ(SAPS Ⅱ)在恶性肿瘤急诊患者近期死亡中的预测价值。[方法] 采用回顾性研究方法,选取 2015 年 1 月 1 日至 2016 年 12 月 31 日中国医学科学院肿瘤医院综合科急诊就诊的 200 例恶性肿瘤患者,按转归分为死亡组(14 天内死亡)100 例和存活组(14 天内未死亡)100 例。绘制 MEWS 评分与 SAPS Ⅱ评分对所有患者近期死亡预测的工作特征曲线(ROC 曲线),计算约登指数,以最大约登指数时的评分为临界值。通过对比两种评分 ROC 曲线下面积评估两种评分方法对恶性肿瘤急诊患者近期死亡的预测价值。[结果] KPS 评分在死亡组显著低于存活组,MEWS、SAPS Ⅱ评分在死亡组均显著高于存活组。三种评分均对患者 14 天内死亡具有一定的预测价值(P 均为 0.00)。其中以 SAPS Ⅱ评分的 ROC 曲线下面积最大,为 0.874。[结论] SAPS Ⅱ评分能够更好地预测恶性肿瘤急诊患者的 14 天内死亡,而 MEWS、KPS 评分系统虽然对于预测恶性肿瘤急诊患者 14 天内死亡的价值相对较低,但由于其方法简便快速,亦对评估患者病情具有重要意义。

关键词:改良早期预警评分;简明急性生理功能评分Ⅱ;恶性肿瘤;急诊;病死率;预后

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Value of Modified Early Warning Score and Simplified Acute Physiology Score Ⅱ in Predicting Short-term Mortality of Emergent Patients with Malignant Tumor

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Abstract: [Purpose] To evaluate the application of modified early warning score(MEWS) and simplified acute physiology score Ⅱ(SAPS Ⅱ) in predicting short-term mortality of emergent patients with malignant tumor. [Methods] Clinical data of 200 emergency patients admitted to General Department of National Cancer Center/Cancer Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College from January 2015 to December 2016 were retrospectively reviewed. The patients died with 14 days after admission were classified as fatal group($n=100$) and those survived in 14 days after admission were classified as survival group ($n=100$). The receiver operator characteristic curve (ROC) and the areas under the curve(AUC) were applied to analyze the value of MEWS and SAPS Ⅱ in predicting short-term mortality of patients. Youden index were calculated to get the best cut off values. [Results] KPS in the fatal group was significantly lower than that in the survival group. MEWS and SAPS Ⅱ in the fatal group were significantly higher than those in the survival group. The 3 scores were all of value in predicting short-term mortality of emergency patients with malignant tumor($P=0.00$). AUC of SAPS Ⅱ(0.874) was larger than that of KPS and MEWS(0.737 and 0.742). [Conclusion] SAPS Ⅱ can better predict short-term mortality of emergency patients with malignant tumor than MEWS and KPS, but MEWS and KPS are more convenient and easy to be used.

Key words: modified early warning score; simplified acute physiology score Ⅱ; malignant tumor; emergency; mortality; prognosis

改良早期预警评分(modified early warning score,

MEWS)与简明急性生理功能评分Ⅱ(simplified acute physiology score Ⅱ, SAPS Ⅱ)是目前用于急诊患者预后评估的两种有效的评分方法,对于早期识别危

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重症患者、及时对其进行干预、改善临床预后具有重要意义^[1,2]。其中,MEWS 所需的参数简单,只需要患者的心率、收缩压、呼吸、体温和意识状态便可以进行评分;而 SAPS II 则由 17 项变量构成,方法相对复杂。恶性肿瘤急诊患者作为特殊人群,目前没有特定的预后评估工具。本文将探讨 MEWS 与 SAPS II 对于恶性肿瘤急诊患者近期死亡的预测价值。

1 资料与方法

1.1 一般资料

本研究为回顾性研究。将 14 天内死亡定义为近期死亡。随机选取 2015 年 1 月 1 日至 2016 年 12 月 31 日中国医学科学院肿瘤医院综合科急诊就诊并在 14 天内死亡的 100 例恶性肿瘤患者作为死亡组,随机选取同时期就诊未在 14 天内死亡的 100 例恶

性肿瘤患者作为存活组。入组标准:①经影像学和/或病理学确诊为恶性肿瘤的急诊患者;②知情同意者。排除标准:资料收集不全者。本研究符合医学伦理学标准,所有治疗及数据采集获得患者或家属的知情同意。

1.2 观察指标

采集患者的一般资料(包括性别、年龄、原发肿瘤、就诊原因)、Karnofsky 功能状态(karnofsky performance score,KPS)评分(Table 1)、MEWS 评分(Table 2)和 SAPS II 评分(Table 3)。

1.3 统计学方法

数据资料采用 SPSS24.0 软件统计分析,正态分布计量资料以均数±标准差($\bar{x}\pm s$)表示,呈偏态分布的计量资料以中位数(四分位间距)[M(P₂₅,P₇₅)]表示。两组间比较,正态分布的计量资料采用独立样本 *t* 检验,非正态分布的计量资料采用秩和检验。绘制

Table 1 Karnofsky performance score scale

Physical performances	Score
Able to carry on normal activity and to work;no special care needed. Normal no complaints;no evidence of disease.	100
Able to carry on normal activity and to work;no special care needed. Able to carry on normal activity;minor signs or symptoms of disease.	90
Able to carry on normal activity and to work;no special care needed. Able to carry on normal activity;minor signs or symptoms of disease.	80
Unable to work;able to live at home and care for most personal needs;varying amount of assistance needed. Cares for self; unable to carry on normal activity or to do active work.	70
Unable to work;able to live at home and care for most personal needs;varying amount of assistance needed. Requires occasional assistance, but is able to care for most of his personal needs.	60
Unable to work;able to live at home and care for most personal needs;varying amount of assistance needed. Requires considerable assistance and frequent medical care.	50
Unable to care for self;requires equivalent of institutional or hospital care;disease may be progressing rapidly. Disabled; requires special care and assistance.	40
Unable to care for self;requires equivalent of institutional or hospital care;disease may be progressing rapidly. Severely disabled;hospital admission is indicated although death not imminent.	30
Unable to care for self;requires equivalent of institutional or hospital care;disease may be progressing rapidly. Very sick; hospital admission necessary;active supportive treatment necessary.	20
Unable to care for self;requires equivalent of institutional or hospital care;disease may be progressing rapidly. Moribund; fatal processes progressing rapidly.	10
Dead	0

Table 2 Modified early warning score scale

Items	MEWS			
	0	1	2	3
Heart rate(beats per minute)	50~100	41~50 or 101~110	≤40 or 111~130	>130
Systolic pressure(mmHg)	101~199	81~100	71~80 or ≥200	≤70
Respiratory rate(times per minute)	9~14	15~20	<9 or 21~29	≥30
Temperature(℃)	35.0~38.4		<35.0 or ≥38.5	
Consciousness	Clear	Responsive to sound	Responsive to pain	Irresponsive

Table 4 Patients' general information

Factors		Survival group	Death group
Gender	Male	73	71
	Female	27	29
Age(years)		60(51~66)	63(55~69)
Cancer	Respiratory system	49	38
	Digest system	42	44
	Urinary and genital system	7	10
	Nervous system	0	1
	Others	2	7

Table 5 KPS,MEWS,SAPS II scores of survival group and death group

Groups	KPS	MEWS	SAPS II
Survival group	60.65±22.72	1.35±0.86	26.49±4.91
Death group	39.20±22.50	3.31±3.05	43.73±16.58
P score	0.00	0.00	0.00

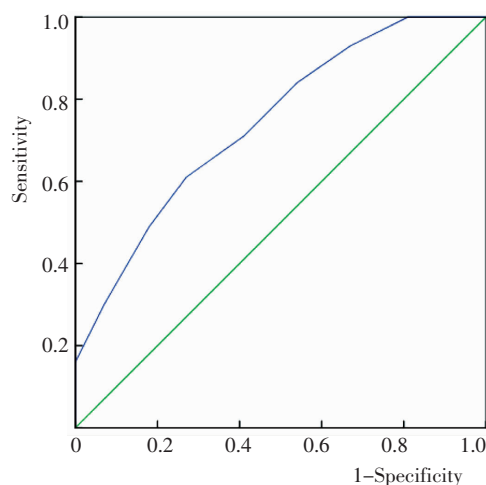
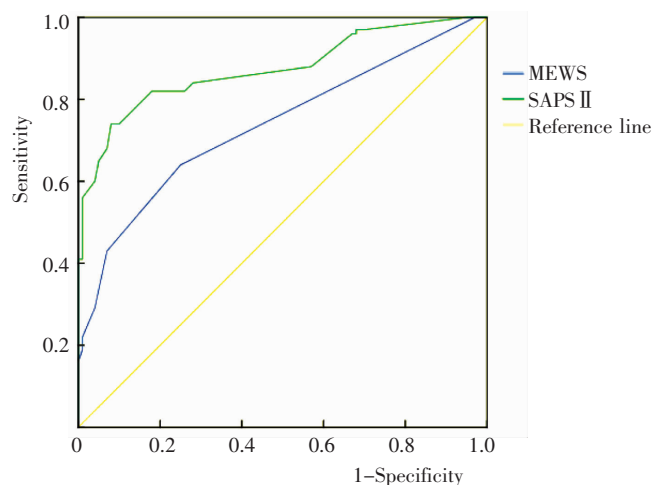
Table 6 Data of KPS,MEWS and SAPS II of survival group and death group predicting prognosis

Methods	Data	Value
KPS	AUC(95%CI)	0.742
	Cut off	45
	Youden index	0.34
	P score	0.00
MEWS	AUC(95%CI)	0.737
	Cut off	1.5
	Youden index	0.39
	P score	0.00
SAPS II	AUC(95%CI)	0.874
	Cut off	33.5
	Youden index	0.66
	P score	0.00

些症状中有五项,就预示着患者会在3天内死亡^[5]。

目前尚无专门针对恶性肿瘤患者的病情评估方法。MEWS、SAPS II、KPS评分是常用于普通急诊的病情评估方法,已经被证实能够早期识别危重患者,进而改善患者的预后^[1,2,6]。

自1997年英国的Morgan等提出了早期预警评分(early warning score,EWS)后,基于心率、收缩压、呼吸、体温和意识状态这五项生命体征的评分手段便广泛应用于急诊患者,用于识别重症患者,以期对其进行早期干预,改善其预后^[7]。该评估手段由于简便易行,数分钟内便可在患者床边获得相关数据、对其病情作出判断。而随着EWS评分方法的广泛使用,学者们也在不断对其进行完善修订。2001年Subbe等^[1]提出了改良早期预警评分(MEWS),将原有评分标准略作修改,制定出更为精准判断病情的评分方法。我国学者针对中国患者人群进行了研究,证实了MEWS在中国人群中的信度和效度^[8]。目前,MEWS也广泛应用于我国的临床工作中,尤其是评估急诊患者的病情危重程度^[9]。对于MEWS评分的临界值说法不一。普遍认为,MEWS≥5分的患者出现院内死亡、转入ICU的风险显著增高^[2,10,11]。本研究中MEWS评分的临界值为1.5分,即MEWS>1.5分的患者14天内死亡风险增高。分析其原因可能与肿瘤患者的抗应激能力较低有关,一旦出现生命体征不平稳,可能很快会危及生命。因此,当发现恶性

**Figure 1 ROC curve of malignant tumor emergency patients' KPS predicting prognosis****Figure 2 ROC curve of malignant tumor emergency patients' MEWS and SAPS II predicting prognosis**

肿瘤患者出现生命体征不稳定时,一定要及时查明原因、对症处理,避免情况进一步恶化、危及生命。

简化急性生理评分(SAPS)是由 Le Gall 等^[12]在 1984 年提出并开始应用。此后在对 12 个国家 137 个重症监护病房的 12 997 例患者进行研究后,Le Gall 等对 SAPS 进行更新、补充和完善,于 1993 年提出了 SAPS II 评分系统。该评分系统由 17 项变量构成,包括生理学变量 12 项、年龄、住院类型及 3 种慢性疾病(获得性免疫缺陷综合征、转移癌和血液恶性肿瘤)。每项变量分值不等,最低 0 分,最高 26 分,总分 0~163 分。总分越高,表示病情越重,预后越差^[2]。本研究中,SAPS II 评分对于恶性肿瘤急诊患者 14 天内死亡预测的 AUC 高于 MEWS 及 KPS 评分,这与其评估的参数涉及人体多个系统有关。但由于其评估方法相对复杂、所需的检查项目较多、时间较长,限制了其在急诊的应用。

需要特别提出的是,作为国家级肿瘤专科医院,外地患者可能在最后一刻离开医院返回家乡,本文病例选择可能存在偏倚。但在选择入组病例时,已尽量排除上述情况的病例,减少该因素对研究结果的影响。

综上,SAPS II 评分能够更好地预测恶性肿瘤急诊患者的 14 天内死亡,而 MEWS、KPS 评分系统虽然对于预测恶性肿瘤急诊患者 14 天内死亡的价值相对较低,但由于其方法简便快速,亦对评估患者病情具有重要意义。

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