

术前红细胞分布宽度与淋巴细胞数比值(RLR)、D-二聚体在甲状腺癌患者的临床价值分析

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收稿日期: 2021年1月17日; 录用日期: 2021年2月2日; 发布日期: 2021年2月24日

摘 要

目的: 探讨术前红细胞分布宽度与淋巴细胞数比值(Red blood cell distribution width and lymphocyte number ratio, RLR)、D-二聚体在甲状腺癌诊断中的价值。方法: 回顾性收集2013年12月~2015年9月在广西医科大学附属肿瘤医院头颈外科收治的80例术后病理诊断为甲状腺良性疾病作为对照组和90例术后病理诊断为甲状腺癌患者作为观察组的临床资料, 比较两组的一般资料、术前RLR、术前D-二聚体。运用受试者工作特征曲线(receiver operating characteristic curve, ROC)分析术前RLR、术前D-二聚体诊断甲状腺癌的临床价值、灵敏度和特异度、阳性似然比(Positive likelihood ratio, +LR)、阴性似然比(negative likelihood ratio, -LR)、曲线下面积(area under ROC curve, AUC); 分析术前RLR、术前D-二聚体及术前RLR联合术前D-二聚体诊断甲状腺癌的临床价值。结果: 观察组RLR和D-二聚体水平均较对照组显著升高, 差异具有统计学意义($P < 0.05$); 观察组患者中RLR、D-二聚体及RLR联合D-二聚体的阳性检出率明显高于对照组, 差异具有统计学意义($P < 0.05$); RLR联合D-二聚体的AUC值高于RLR、D-二聚体。结论: RLR、D-二聚体在甲状腺癌的诊断中具有一定的价值, RLR联合D-二聚体有助于提高甲状腺癌诊断。

关键词

甲状腺良性疾病, 甲状腺癌, 术前红细胞宽度数值与淋巴细胞比值, 术前D-二聚体

Analysis of the Clinical Value of Preoperative Erythrocyte Distribution Width to Lymphocyte Number Ratio (RLR) and D-dimer in Patients with Thyroid Cancer

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文章引用: 郭玉军, 唐孝准, 汪多平, 包钰玲, 黄成忠, 许坚. 术前红细胞分布宽度与淋巴细胞数比值(RLR)、D-二聚体在甲状腺癌患者的临床价值分析[J]. 临床医学进展, 2021, 11(2): 626-632. DOI: 10.12677/acm.2021.112091

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Received: Jan. 17th, 2021; accepted: Feb. 2nd, 2021; published: Feb. 24th, 2021

Abstract

Objective: To explore the value of preoperative red blood cell distribution width and lymphocyte number ratio (RLR) and D-dimer in the diagnosis of thyroid cancer. **Methods:** A retrospective collection of 80 patients with pathological diagnosis of benign thyroid disease after operation in the Head and Neck Surgery Department of the Affiliated Tumor Hospital of Guangxi Medical University from December 2013 to September 2015 as a control group and 90 patients with pathological diagnosis of thyroid cancer. Observe the clinical data of the observation group and compare the general data, preoperative RLR, and preoperative D-dimer of the two groups. Receiver operating characteristic curve (ROC) was used to analyze the critical value, sensitivity and specificity, positive likelihood ratio (+LR) of preoperative RLR and preoperative D-dimer in the diagnosis of thyroid cancer, negative likelihood ratio (negative likelihood ratio, -LR), area under ROC curve (AUC); analysis of preoperative RLR, preoperative D-dimer, and preoperative RLR combined with preoperative D-dimer. The clinical value of thyroid cancer diagnosis. **Results:** The levels of RLR and D-dimer in the observation group were significantly higher than those in the control group, the difference was statistically significant ($P < 0.05$); RLR, D-dimer and RLR combined with D-dimer in the observation group. The positive detection rate was significantly higher than the control group, the difference was statistically significant ($P < 0.05$); the AUC value of RLR combined with D-dimer was higher than that of RLR and D-dimer. **Conclusion:** RLR and D-dimer have certain value in the diagnosis of thyroid cancer. RLR combined with D-dimer can help improve the diagnosis of thyroid cancer.

Keywords

Benign Thyroid Disease, Thyroid Cancer, Preoperative Red Blood Cell Width Value and Lymphocyte Ratio, Preoperative D-dimer

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1. 引言

甲状腺癌是我国较为常见内分泌恶性肿瘤之一,发病率呈现快速增长且年轻化,因而越来越受大家关注;有研究统计,甲状腺癌患者5年生存期仅为67.5%,因此对甲状腺癌早期诊断、治疗以及术后监测以达到延长患者生存期尤为重要[1][2]。目前已有研究报道证实外周血红细胞分布宽度(Red blood cell distribution width, RDW)、淋巴细胞、D-二聚体与多种恶性肿瘤预后有关[3]-[8];也有研究结果显示D-二聚体在甲状腺癌患者治疗评价、疾病监测及预后有着重要临床意义[9]。然而RLR联合D-二聚体在甲状腺癌中尚无相关报道,本研究对比分析甲状腺良恶性疾病术前RLR、D-二聚体水平,探讨其对甲状腺癌的患者临床意义。

2. 资料与方法

2.1. 临床资料

选择2013年12月~2015年9月在广西医科大学附属肿瘤医院头颈外科收治的80例术后病理诊断为

甲状腺良性疾病患者(对照组)和 90 例术后病理诊断为甲状腺癌患者(观察组)作为研究对象。纳入如下: ① 术前凝血功能、血常规资料完整患者; ② 无手术禁忌证的患者; ③ 其他临床资料齐全的患者。④ 术后病理诊断为甲状腺良性疾病或甲状腺癌患者。排除标准: ① 存在其他肿瘤的患者, 特别是血液系统肿瘤患者; ② 有凝血功异常性疾病, 严重心肺肝肾等重要器官功能障碍或不全的患者。本研究经广西医科大学附属肿瘤医院伦理委员会批准, 患者知情同意。

2.2. 观察指标

两组患者年龄、性别、红细胞宽度、淋巴细胞计数、RLR、D-二聚体。

2.3. 统计学处理

应用 SPSS17.0 统计学软件, 计数资料以率(%)和频数表示, 组间比较采用 χ^2 检验或 Fisher 精确概率检验; 计量资料以均数 $\pm$ 标准差表示, 组间比较采用 t 检验。以 $P < 0.05$ 为差异比较具有统计学意义。受试者工作特征曲线(ROC)计算 D-二聚体及 RLR 判别甲状腺癌的曲线下面积(AUC)、灵敏度、特异度、+LR、-LR 及约登指数。

3. 结果

3.1. 两组患者一般资料比较

对照组纳入了 80 例患者, 观察组纳入了 90 例患者, 两组患者的年龄、性别、BMI 统计学无明显差异, 见表 1。

Table 1. Comparison of general information between the two groups of patients [n (%)]
表 1. 两组病人一般资料比较[n (%)]

feature	Observation group ($n = 90$)	Control group ($n = 80$)	t/χ^2	P 值
gender			0.191	0.662
male	24 (26.7)	19 (23.7)		
Female	66 (73.3)	61 (76.3)		
Age (year)	50.02 $\pm$ 10.93	52.50 $\pm$ 12.98	1.336	0.183
BMI (kg/m^2)	22.37 $\pm$ 3.07	22.43 $\pm$ 3.00	0.139	0.890

3.2. 两组患者术前指标比较

观察组 D-二聚体水平、RLR 比对照组明显升高, 组间比较差异具有统计学意义($P < 0.05$); 淋巴细胞计数较对照组降低, 组间比较差异有统计学意义($P < 0.05$); 红细胞分布宽度较对照组升高, 组间比较差异没有统计学意义($P > 0.05$), 见表 2。

Table 2. Comparison of preoperative red blood cell distribution width, lymphocyte number, D-dimer and RLR data between the two groups
表 2. 两组病人术前红细胞分布宽度、淋巴细胞数、D-二聚体、RLR 资料比较

feature	Observation group ($n = 90$)	Control group ($n = 80$)	t	P 值
D-dimer	0.623 $\pm$ 0.88	0.281 $\pm$ 0.30	5.171	0.000
RDW	39.03 $\pm$ 3.02	38.70 $\pm$ 2.79	0.740	0.460
Lymphocyte count	1.97 $\pm$ 0.61	2.23 $\pm$ 0.79	2.415	0.017
RLR	22.55 $\pm$ 11.62	18.52 $\pm$ 4.31	4.429	0.000

3.3. ROC 曲线分析

图 1 显示术前 RLR、D-二聚体、RLR 联合 D-二聚体的 ROC 分析，表 3 结果表明 RLR 联合 D-二聚体的 AUC 值高于 RLR、D-二聚体。

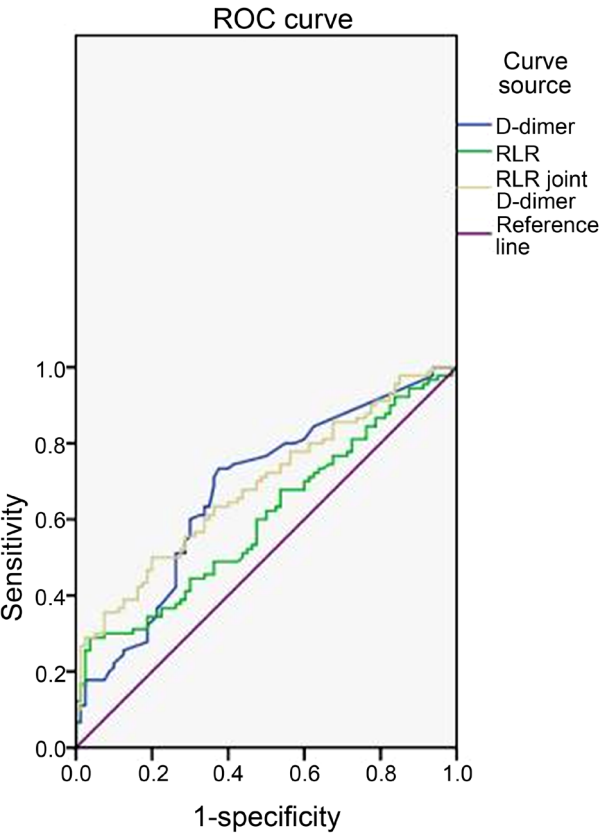


Figure 1. ROC curve analysis of preoperative RLR and D-dimer for differential diagnosis of thyroid cancer
图 1. 术前 RLR、D-二聚体对甲状腺癌鉴别诊断的 ROC 曲线分析

Table 3. Comparison of the area under the curve (AUC) of D-dimer, RLR, D-dimer combined RLR
表 3. D-二聚体、RLR、D-二聚体联合 RLR 曲线下面积(AUC)值的比较

Test result variable	Area under the curve			Asymptotic 95% confidence interval	
	Area	Standard error ^a	Progressive Sig. ^b	Lower limit	Upper limit
D-dimer	0.675	0.041	0.000	0.594	0.756
RLR	0.602	0.043	0.022	0.517	0.686
RLR joint D-dimer	0.685	0.040	0.000	0.606	0.764

Test result variable: D-dimer, RLR has at least one knot between the positive and negative actual state groups. Statistics may be biased.
a. Under non-parametric assumptions.
b. Zero hypothesis: real area = 0.5.

3.4. 两组患者 D-二聚体、RLR、及 D-二聚体联合 RLR 阳性率比较

依据图 1 ROC 曲线和表 4，取灵敏度和特异度相加最大值作为最大截断点，即最佳截点：D-二聚体 ≥

0.175 为阳性, $RLR \geq 25.35$ 。观察组 D-二聚体水平、RLR 及 D-二聚体联合 RLR 阳性检出率均较对照组显著升高, 差异具有统计学意义($P = 0.000$), 见表 5。

Table 4. Related statistical indicators of D-dimer, RLR, D-dimer combined with RLR

表 4. D-二聚体、RLR、D-二聚体联合 RLR 的相关统计学指标

feature	Sensitivity	Specificity	Youden Index	+LR	-LR
D-dimer	0.733	0.625	0.358	1.985	0.409
RLR	0.289	0.962	0.251	5.777	0.749
RLR joint D-dimer	0.500	0.800	0.3	4.444	0.788

Table 5. Comparison of positive detection rates between the two groups [n (%)]

表 5. 两组患者检测阳性率比较 [n (%)]

feature	Observation group ($n = 90$)	Control group ($n = 80$)	χ^2	P 值
D-dimer			23.593	0.000
Positive	67 (74.4)	30 (37.5)		
Negative	23 (25.6)	50 (62.5)		
RLR			16.631	0.000
Positive	26 (28.9)	4 (5.0)		
Negative	64 (71.1)	76 (95.0)		
RLR joint D-dimer			17.205	0.000
Positive	20 (22.2)	1 (1.2)		
Negative	70 (77.8)	79 (98.8)		

4. 讨论

在我国随着经济迅速发展, 社会环境及生活环境发生巨大变化, 甲状腺癌发病率不断增加, 严重威胁人们健康。虽然对甲状腺癌诊断及综合性治疗已经取得很大的进步, 然而寻找便捷有效的诊断指标仍十分必要。红细胞分布宽度(RDW)反应红细胞大小的离散程度指标之一, 临床用于评估红细胞异质性[7]。目前有研究指出 RDW 可用评估多种肿瘤预后[10] [11] [12], 然而对于其中甲状腺癌预后评估中的作用尚鲜有报道。炎症因子和细胞因子是肿瘤局部微环境的主要组成部分。红细胞分布宽度的变化可能与肿瘤慢性炎症反应有关, RDW 被证实和 CRP IL-6 等有关[13]。炎症因子通过多种信号通路既能诱导前炎症反应又能诱导癌前病变, 有研究报道慢性炎症反应与肿瘤的形成有关[14] [15]。白细胞是人体血细胞重要组成部分, 淋巴细胞具有免疫功能, 病毒感染时其指标通常升高, 发生严重细菌感染时, 其往往下降。多个研究提示, 淋巴细胞与多种肿瘤预后密切相关[16]。D-二聚体是纤维蛋白原水解产生的特异性降解产物, 在正常人体血浆中含量低, 临床上其水平增高提示体内继发性纤溶活性增强[17]。有文献报道肿瘤基质重建中存在频繁的纤维蛋白原降解过程, 其 D-二聚体水平升高明显, 因此有研究提出 D-二聚体水平可作为恶性肿瘤患者疾病的进展和预后指标[18]。本研究选取甲状腺癌患者和甲状腺良性疾病患者作为研究对象, 通过检测患者外周血获得 RLR 值和 D-二聚体水平, 分析 RLR、D-二聚体及 RLR 联合 D-二聚体诊断甲状腺癌的敏感度和特异度。通过表 2 和表 5 得出, 观察组 D-二聚体水平较、RLR 比对照组明显升高, 差异具有统计学意义($P < 0.05$); 淋巴细胞计数较对照组降低, 差异有统计学意义($P < 0.05$); 红细胞宽度较对照组升高, 组间比较差异没有统计学意义($P > 0.05$)。观察组 D-二聚体水平、RLR 及 D-二聚体联合 RLR 阳性检出率均较对照组显著升高, 差异具有统计学意义($P = 0.000$)。通过图 1 和表 3 得出, RLR 联合 D-二聚体的 AUC 值高于 RLR、D-二聚体。研究结果表明, RLR、D-二聚体在甲状腺癌的诊断中具

有一定的价值,RLR 联合 D-二聚体有助于提高甲状腺癌诊断,且 RLR、D-二聚体的获得途径方便快捷,普通血常规、D-二聚体检查成本低,在早期甲状腺癌的筛查中具有一定的临床应用价值。本研究有一定的局限性,病例数相对少;缺陷在于研究的临床因素不够全面,单中心研究。后续该方面的研究还需更深入、多样本、大数据、多中心的回顾性分析、前瞻性研究去验证与完善。

基金项目

神经监测装置在甲状腺手术中保护喉返神经的应用及不良反应监测。

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