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Preoperative paclitaxel weekly combined with radical gastrectomy for gastric cancer: randomized controlled study

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Abstract: Objective To explore the clinical efficacy of preoperative paclitaxel weekly therapy as neoadjuvant chemotherapy combined with radical surgery for gastric cancer. **Methods** Using a randomized controlled study method, 120 gastric cancer patients admitted to Nanyang Nanshi Hospital from June 2022 to June 2023 were randomly divided into control group and study group, with 60 cases in each group. The patients in control group were treated with gastric cancer radical surgery, while the study group patients received neoadjuvant chemotherapy 2 weeks before surgery, using a paclitaxel weekly therapy mode with a dose of 175 mg/m^2 for 2 consecutive weeks, followed by gastric cancer radical surgery. The Barthel index, self-rating anxiety scale (SAS), self-rating depression scale (SDS), visual analog scale (VAS), carcinoembryonic antigen, carbohydrate antigen 199 (CA199) and total adverse reaction rate were compared between two groups. **Results** After treatment, the Barthel index of patients in the study group was higher, while the SAS and SDS scores were lower than those before treatment and control group(P<0.05). VAS score, carcinoembryonic antigen, and CA199 in the study group were lower than those before treatment and the control group (P<0.05). There was no significant difference in the incidence of adverse reactions between the study group and the control group (8.33% *vs* 6.67%, P > 0.05). **Conclusion** Preoperative paclitaxel weekly therapy as neoadjuvant chemotherapy combined with radical surgery for gastric cancer can improve the anxiety and depression status of patients and increase the overall effective rate.

Keywords: Gastric cancer; Paclitaxel; Neoadjuvant chemotherapy; Radical gastrectomy; Carcinoembryonic antigen; Carbohydrate antigen 199

Gastric cancer is one of the common malignant tumors in clinical practice with high incidence and mortality [1-2]. Radical surgery for gastric cancer is the primary clinical approach, but postoperative recurrence significantly impacts the efficacy and survival of patients [3-4]. Paclitaxel, commonly used as an anti-tumor drug in clinical settings for adjuvant chemotherapy in malignant tumors, has proven efficacy in gastric cancer treatment. Paclitaxel, as a foundational chemotherapy drug, can effectively control gastric cancer lesions, providing relief to patients in a short time. However, it does not completely cure gastric cancer [5-6]. Therefore, there is a need to find an effective treatment approach currently. This study explores a new neoadjuvant chemotherapy regimen with preoperative weekly paclitaxel combined with radical gastric cancer surgery for gastric cancer patients, to assess the impact of combined therapy on tumor diameters, markers and efficacy in gastric cancer, providing a reference for the treatment of this type of disease.

1 Data and methods

1.1 Clinical data

Patients with gastric cancer admitted to Nanyang Nanshi Hospital from June 2022 to June 2023 were selected and randomly divided into control group and study group, with 60 cases in each group. Inclusion criteria: patients met the diagnostic criteria of the Chinese Medical Association (CMA) for gastric cancer [7], no other major illnesses, no history of gastric surgery, no contraindications to chemotherapy, informed consent from family members and patients, and approval from the hospital's ethics committee (Ethics approval number: 2022-IEC-KY-009). Exclusion criteria: non-first chemotherapy, intolerance to chemotherapy, organ failure, presence of other malignant tumors, and existence of blood system disorders. There was no statistically significant difference in baseline data between the two groups (P > 0.05). See **Table 1**.

Tab.1 Comparison of clinical data（n=60, $\bar{x}\pm s$）

Group	male/female（case）	Gastric cancer type（case）			age（year, $\bar{x}\pm s$）	BMI（kg/m^2, $\bar{x}\pm s$）
		gastric antrum cancer	gastric body cancer	cardia cancer		
Control group	35/25	20	22	18	66.25±6.38	27.88±2.20
Study group	27/33	28	22	10	68.04±6.85	27.96±2.17

t/χ^2 value	2.136	1.105	1.481	0.200
P value	0.144	0.463	0.141	0.841

1.2 Treatment methods

Patients in the control group underwent radical gastrectomy, while those in the study group received a new neoadjuvant chemotherapy regimen with preoperative weekly paclitaxel combined with radical gastrectomy. The neoadjuvant chemotherapy method: intravenous infusion of paclitaxel (manufacturer: Xi'an Huilin Bio-tech Co., Ltd.; model number: 33069-62-4) 175 mg/m^2 on Mondays, the infusion time was 180 minutes, and one course was administered per week for two consecutive courses. Before surgery, patients underwent cardiopulmonary function examination and were instructed to control blood sugar to make the serum insulin meet the surgical conditions, and then underwent radical gastrectomy.

1.3 Observation indicators

1.3.1 Self-rating anxiety scale (SAS) and self-rating depression scale (SDS)

Before treatment and 3 days after treatment, SAS and SDS scales were used to assess the anxiety and depression status of patients. The maximum score for both scales was 100 points, and the scores were positively correlated with the anxiety and depression status of the patients.

1.3.2 Barthel Index and visual analog scale (VAS)

Before treatment and 3 days after treatment, the Barthel Index was used to evaluate the daily living activities of patients, with a maximum score of 100 points, and the scores were positively correlated with the patients' living ability. VAS scale was used to evaluate the patients' pain levels. The VAS scale had a maximum score of 10 points, and the scores were positively correlated with the patients' pain levels.

1.3.3 Tumor markers

Before treatment and 3 days after treatment, the tumor markers of patients were detected. A blood sample of 3 mL was collected from the elbow vein, and serum was separated. Chemiluminescent reagent kits (manufacturer: Shanghai Tellgen Life Science Co., Ltd.; model number: PH0353) were used to detect levels of carcinoembryonic antigen (CEA) and carbohydrate antigen 199 (CA199).

1.3.4 Adverse reactions

The adverse effects in both groups were measured by medical professionals, including myelosuppression (decrease in white blood cells and platelet counts in blood tests), gastrointestinal side effects (gastrointestinal neurosis or gastric vegetative system dysfunction), and hepatic and renal toxicity (digestive dysfunction, diarrhea, decreased urine volume, abnormal urine color, and edema).

1.4 Statistical Methods

SPSS 25.0 software was used for data analysis. Measurement data were described as $\bar{x}\pm s$, and independent sample *t*-test was used. Count data were described as cases, and the Chi-square test was used. *P* value less than 0.05 was considered statistically significant.

2 Results

2.1 Comparison of SAS and SDS scores

There was no statistical significance in SAS and SDS scores between the two groups before treatment ($P > 0.05$); After treatment, SAS and SDS scores of study group were lower than those before treatment and control group, the differences were statistically significant ($P < 0.05$). **See Table 2.**

2.2 Comparison of Barthel index and VAS score

There was no significant difference in Barthel index and VAS score between the two groups before treatment ($P > 0.05$). After treatment, the Barthel index of study group was higher than that before treatment and the control group, and the VAS score was lower than that before treatment and the control group, and the differences were statistically significant ($P < 0.05$). **See Table 3.**

2.3 Comparison of tumor markers

There was no significant difference in CEA and CA199 between the two groups before treatment ($P > 0.05$). After treatment, CEA and CA199 in study group were lower than those before treatment and control group, and the differences were statistically significant ($P < 0.05$). **See Table 4.**

2.4 Comparison of side effects

There was no significant difference in the incidence of side effects between the two groups ($P > 0.05$). **See Table 5.**

Tab.2 Comparison of SAS and SDS scores between two groups（n=60, point, $\bar{x}\pm s$）

Group	SAS		SDS	
	Before treatment	After treatment	Before treatment	After treatment
Control group	63.58±4.35	40.25±2.52[a]	68.63±3.62	40.55±3.00[a]
Study group	63.60±4.33	32.65±3.42[a]	68.65±3.33	31.52±1.00[a]
***t* value**	0.025	13.860	0.032	22.120
***P* value**	0.980	＜0.001	0.975	＜0.001

Note: Compared with before treatment, [a]$P < 0.05$.

Tab.3 Comparison of Barthel index and VAS scores between two groups （n=60, $\bar{x}\pm s$）

Group	Barthel index		VAS（point）	
	Before treatment	After treatment	Before treatment	After treatment
Control group	42.56±3.00	60.98±5.30[a]	8.01±1.25	3.62±1.35[a]
Study group	42.60±2.96	76.93±4.69[a]	7.96±1.33	2.45±1.08[a]
***t* value**	0.073	17.457	0.212	5.242
***P* value**	0.941	＜0.001	0.832	＜0.001

Note: Compared with before treatment, [a]$P < 0.05$.

Tab.4 Comparison of tumor markers between two groups （n=60, $\bar{x}\pm s$）

Group	CEA（μg/L）		CA199（KU/L）	
	Before treatment	After treatment	Before treatment	After treatment
Control group	10.72±3.00	7.82±1.78[a]	85.02±9.66	64.20±12.11[a]
Study group	10.70±2.36	5.34±1.65[a]	85.06±9.52	43.45±10.18[a]
***t* value**	0.041	7.915	0.023	10.160
***P* value**	0.968	＜0.001	0.982	＜0.001

Note: Compared with before treatment, [a]$P < 0.05$.

Tab.5 Comparison of adverse reactions between the two groups [n=60, case (%)]

Group	Myelosuppression	Gastrointestinal adverse reactions	Hepatic and renal toxicity	Total
Control group	2（3.33）	1（1.67）	1（1.67）	4（6.67）
Study group	1（1.67）	2（3.33）	2（3.33）	5（8.33）
χ^2 value				0.000
***P* value**				1.000

3 Discussion

Most gastric cancer patients are diagnosed at middle and advanced stages, missing the optimal surgical time [11-13]. Chemotherapy plays a crucial role in the treatment of advanced gastric cancer, extending both the overall survival and progression-free survival of gastric cancer patients [14]. In recent years, neoadjuvant chemotherapy combined with surgery for gastric cancer has become a research hotspot. As a cell cycle-specific agent, paclitaxel exerts anti-mitotic effects through polymerized microtubules, has strong anticancer activity and good tolerance, and is also a new type of artificial semi-synthetic and anti-tumor drug, but its central toxicity is Ⅲ～Ⅳ hematological toxicity [16]. Radical gastrectomy is currently the only possible curative method for gastric cancer, showing better efficacy in early-stage cases. However, the survival rate for advanced gastric cancer patients received radical surgery is only 20%, and the postoperative recurrence rate is high [17].

As a scientific, safe and practical evaluation method, Barthel index was used to comprehensively evaluate the patient's living ability through eating, dressing and other aspects [19]. Gastric cancer patients often experience negative emotions such as anxiety and depression due to pain. The SAS and SDS are commonly used to assess anxiety and depression states in clinical practice. The results of this study showed that Barthel index increased and SAS and SDS scores decreased in the study group, possibly because preoperative paclitaxel weekly neoadjuvant chemotherapy could effectively prevent postoperative changes in tumor blood supply, affect the chemotherapy effect, eliminate potential micrometastases, reduce postoperative recurrence and metastasis, and reduce anxiety and depression, which improved patients' daily living.

Preoperative paclitaxel weekly therapy neoadjuvant chemotherapy for patients can effectively control the tumor in a short period and promote tumor shrinkage. As a commonly used pain assessment scale in clinical practice, VAS is simple, convenient and easy to operate [20]. CEA and CA199 are common tumor markers [22-23]. In this study, it was found that the VAS scores, CEA, and CA199 decreased in study group than control group. The study also found that there was no statistically significant difference in side effects between the two groups, indicating that preoperative paclitaxel weekly therapy neoadjuvant chemotherapy combined with radical gastrectomy for gastric cancer patients had better therapeutic effect and certain safety.

The number of gastric cancer cases selected in this study is small, which is prone to bias. A large sample multi-center randomized controlled trial should be conducted in the later stage to provide certain data for advancing clinical treatment. In conclusion, preoperative paclitaxel weekly therapy neoadjuvant chemotherapy combined with radical gastrectomy effectively improves pain levels and enhances patient biomarkers, demonstrating good clinical treatment value for gastric cancer patients.

Conflict of interest None

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·论　著·

术前紫杉醇周疗联合胃癌根治术治疗胃癌的随机对照研究

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摘要：目的　探讨术前紫杉醇周疗的新辅助化疗方案联合胃癌根治术治疗胃癌的临床疗效。**方法**　采用随机对照研究方法，选取 2022 年 6 月至 2023 年 6 月南阳南石医院收治的胃癌患者 120 例，随机分为对照组和研究组，各 60 例。对照组患者给予胃癌根治术，研究组患者术前 2 周开始行新辅助化疗，采用紫杉醇周疗模式，剂量 175 mg/m^2，连续 2 周，后行胃癌根治术。对比两组患者 Barthel 指数、焦虑自评表（SAS）、抑郁自评表（SDS）、视觉模拟评分（VAS）、癌胚抗原、糖类抗原 199 及总不良反应发生率。**结果**　治疗后，研究组患者 Barthel 指数高于治疗前和对照组，SAS、SDS 评分低于治疗前和对照组（$P<0.05$）；研究组 VAS 评分和癌胚抗原、糖类抗原 199 低于治疗前和对照组（$P<0.05$）。研究组和对照组不良反应发生率比较差异无统计学意义（8.33% *vs* 6.67%，$P>0.05$）。**结论**　胃癌患者行术前紫杉醇周疗的新辅助化疗方案及胃癌根治术能够改善患者的焦虑、抑郁状态，提高疗效，且安全性高。

关键词： 胃癌；紫杉醇；新辅助化疗；胃癌根治术；癌胚抗原；糖类抗原 199
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Preoperative paclitaxel weekly combined with radical gastrectomy for gastric cancer: randomized controlled study

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Abstract: Objective　To explore the clinical efficacy of preoperative paclitaxel weekly therapy as neoadjuvant chemotherapy combined with radical surgery for gastric cancer. **Methods**　Using a randomized controlled study method, 120 gastric cancer patients admitted to Nanyang Nanshi Hospital from June 2022 to June 2023 were randomly divided into control group and study group, with 60 cases in each group. The patients in control group were treated with gastric cancer radical surgery, while the study group patients received neoadjuvant chemotherapy 2 weeks before surgery, using a paclitaxel weekly therapy mode with a dose of 175 mg/m^2 for 2 consecutive weeks, followed by gastric cancer radical surgery. The Barthel index, self-rating anxiety scale (SAS), self-rating depression scale (SDS), visual analog scale (VAS), carcinoembryonic antigen, carbohydrate antigen199 and total adverse reaction rate were compared between two groups. **Results**　After treatment, the Barthel index was higher, while the SAS and SDS scores were lower of patients in the study group than those before treatment and control group ($P<0.05$). VAS score, carcinoembryonic antigen, and carbohydrate antigen 199 in the study group were lower than those before treatment and the control group ($P<0.05$). There was no significant difference in the incidence of adverse reactions between the study group and the control group (8.33% *vs* 6.67%, $P>0.05$). **Conclusion**　Preoperative paclitaxel weekly therapy as neoadjuvant chemotherapy combined with radical surgery for gastric cancer can improve the anxiety and depression status of patients and increase the overall effective rate.

Keywords: Gastric cancer; Paclitaxel; Neoadjuvant chemotherapy; Radical gastrectomy; Carcinoembryonic antigen; Carbohydrate antigen 199

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胃癌具有较高的发病率及病死率,是临床上常见的恶性肿瘤之一[1-2]。胃癌根治术作为临床上治疗胃癌的主要手段,但胃癌术后复发严重影响了患者的疗效及生存期[3-4]。紫杉醇为临床上常用的抗肿瘤药物,其在胃癌治疗中疗效可靠,可有效控制胃癌病灶,短时间内可使患者达到缓解,但其不能完全根治胃癌[5-6]。因此,目前需要寻找一种更加有效的治疗方式。本文对胃癌患者行术前紫杉醇周疗的新辅助化疗方案,并联合胃癌根治术治疗,分析两者联合治疗对胃癌患者肿瘤直径、肿瘤标志物及疗效的影响,为该类疾病的治疗提供参考。

1　资料与方法

1.1　*临床资料*　选取 2022 年 6 月至 2023 年 6 月南阳南石医院收治的胃癌患者,随机分为对照组和研究组,各 60 例。纳入标准:患者均符合中华医学会对胃癌的诊断标准[7];无其他重大疾病者;既往无胃部手术史;无化疗禁忌证;家属及患者知情并签订同意书;经医院伦理委员会批准,严格遵循伦理原则(伦理审批号:2022-IEC-KY-009)。排除标准:非首次化疗治疗者;无法耐受化疗者;脏器功能衰竭者;存在其他恶性肿瘤者;存在血液系统疾病者。两组基线资料比较差异无统计学意义(P>0.05)。见表 1。

1.2　*治疗方法*　对照组患者给予胃癌根治术,研究组给予术前紫杉醇周疗的新辅助化疗方案联合胃癌根治术。新辅助化疗方法:紫杉醇(生产厂家:西安汇林生物科技有限公司;型号:33069-62-4)175 mg/m^2 每周一静脉滴注,滴注时间为 180 min;每周为 1 个疗程,连续应用 2 个疗程。在术前对患者心、肺功能进行检查,告知患者控制血糖,从而使血清胰岛素能够达到手术条件;手术过程为患者全麻,首先对肿瘤情况进行观察,随后在患者大网膜中部做切口,切口后沿胰腺边缘将血管根部切除,随后将患者十二指肠残端与食管进行吻合,缝合切口,术毕。

1.3　观察指标

1.3.1　焦虑自评量表(SAS)、抑郁自评量表(SDS)评分　治疗前和治疗后 3 d,采用 SAS、SDS 评分评价患者焦虑、抑郁状态,满分均为 100 分,量表分值越高,患者焦虑、抑郁状态越严重。

1.3.2　Barthel 指数、视觉模拟评分(VAS)　治疗前和治疗后 3 d,采用 Barthel 指数[8]评价患者生活能力,满分 100 分,分值与生活能力呈正比;采用 VAS 评分评价患者疼痛程度,满分 10 分,量表分值与患者疼痛程度呈正比。

1.3.3　肿瘤标志物　在治疗前,治疗后 3 d,对患者肿瘤标志物进行分析,采集患者肘部静脉血 3 mL,分离血清,采用化学发光试剂盒(生产厂家:上海透景生命科技股份有限公司;型号:PH0353)检测癌胚抗原、糖类抗原 199 水平。

1.3.4　不良反应　由专业医护人员对两组不良反应进行统计,包括骨髓抑制(血象中的白细胞和血小板数量下降)、胃肠道不良(胃肠神经官能症或胃植物神经紊乱)及肝肾毒性(消化功能障碍、腹泻、尿量减少、尿液颜色异常以及浮肿)。

1.4　*统计学方法*　使用 SPSS 25.0 软件分析数据。计量资料使用 $\bar{x}\pm s$ 描述,组间比较采用独立样本 t 检验;计数资料以例数表示,组间比较行 χ^2 检验。P<0.05为差异有统计学意义。

2　结　果

2.1　*两组患者 SAS、SDS 评分比较*　治疗前两组 SAS、SDS 评分比较差异无统计学意义(P>0.05);治疗后,研究组患者 SAS、SDS 评分低于治疗前和对照组,差异有统计学意义(P<0.05)。见表 2。

表 1　临床资料比较　(n=60, $\bar{x}\pm s$)

Tab. 1　Comparison of clinical data　(n=60, $\bar{x}\pm s$)

组别	男/女(例)	胃癌类型(例)			年龄	BMI
		胃窦癌	胃体癌	贲门癌	(岁, $\bar{x}\pm s$)	(kg/m^2, $\bar{x}\pm s$)
对照组	35/25	20	22	18	66.25±6.38	27.88±2.20
研究组	27/33	28	22	10	68.04±6.85	27.96±2.17
t/χ^2 值	2.136		1.105		1.481	0.200
P 值	0.144		0.463		0.141	0.841

表 2　两组 SAS、SDS 评分比较　(n=60, 分, $\bar{x}\pm s$)

Tab. 2　Comparison of SAS and SDS scores between two groups　(n=60, point, $\bar{x}\pm s$)

组别	SAS		SDS	
	治疗前	治疗后	治疗前	治疗后
对照组	63.58±4.35	40.25±2.52[a]	68.63±3.62	40.55±3.00[a]
研究组	63.60±4.33	32.65±3.42[a]	68.65±3.33	31.52±1.00[a]
t 值	0.025	13.860	0.032	22.120
P 值	0.980	<0.001	0.975	<0.001

注:与治疗前比较,[a]P<0.05。

2.2　两组患者 Barthel 指数、VAS 评分比较　治疗前两组患者 Barthel 指数、VAS 评分比较差异无统计学意义（$P>0.05$）；治疗后，研究组患者 Barthel 指数高于治疗前和对照组、VAS 评分低于治疗前和对照组，差异有统计学意义（$P<0.05$）。见表 3。

2.3　两组患者肿瘤标志物比较　治疗前两组患者癌胚抗原、糖类抗原 199 比较差异无统计学意义（$P>0.05$）；治疗后，研究组患者癌胚抗原、糖类抗原 199 低于治疗前和对照组，差异有统计学意义（$P<0.05$）。见表 4。

2.4　两组患者不良反应比较　两组不良反应发生率比较差异无统计学意义（$P>0.05$）。见表 5。

表 3　两组患者 Barthel 指数、VAS 评分比较　（$n=60$, $\bar{x}\pm s$）

Tab. 3　Comparison of Barthel index and VAS scores between two groups　（$n=60$, $\bar{x}\pm s$）

组别	Barthel 指数		VAS 评分	
	治疗前	治疗后	治疗前	治疗后
对照组	42.56±3.00	60.98±5.30[a]	8.01±1.25	3.62±1.35[a]
研究组	42.60±2.96	76.93±4.69[a]	7.96±1.33	2.45±1.08[a]
t 值	0.073	17.457	0.212	5.242
P 值	0.941	<0.001	0.832	<0.001

注：与治疗前比较，[a]$P<0.05$。

表 4　两组患者肿瘤标志物比较　（$\bar{x}\pm s$）

Tab. 4　Comparison of tumor markers between two groups　（$\bar{x}\pm s$）

组别	例数	癌胚抗原（μg/L）		糖类抗原 199（KU/L）	
		治疗前	治疗后	治疗前	治疗后
对照组	60	10.72±3.00	7.82±1.78[a]	85.02±9.66	64.20±12.11[a]
研究组	60	10.70±2.36	5.34±1.65[a]	85.06±9.52	43.45±10.18[a]
t 值		0.041	7.915	0.023	10.160
P 值		0.968	<0.001	0.982	<0.001

注：与治疗前比较，[a]$P<0.05$。

表 5　两组患者不良反应比较　［例（%）］

Tab. 5　Comparison of adverse reactions between the two groups　［case（%）］

组别	例数	骨髓抑制	胃肠道不良反应	肝肾毒性	合计
对照组	60	2（3.33）	1（1.67）	1（1.67）	4（6.67）
研究组	60	1（1.67）	2（3.33）	2（3.33）	5（8.33）
χ^2 值					0.000
P 值					1.000

3　讨　论

大多数胃癌患者确诊时，其就已经失去了最佳的手术时间，因此胃癌具有较高的病死率，预后差[12-13]。化疗在晚期胃癌的治疗中占据着主要地位，可延长胃癌患者的总生存期和无进展生存期[14-15]。近年来，新辅助化疗联合手术成为胃癌的研究热点，紫杉醇作为细胞周期特异性药物，其通过聚合微管，将抗有丝分裂作用进行发挥，其拥有较强的抗癌活性以及较好的耐受性，同时也是一种新型的人工半合成的抗肿瘤药物，但其主要毒副反应是是Ⅲ~Ⅳ级血液学毒性[16]。胃癌根治术作为目前唯一可能根治胃癌的手术方法，对早期胃癌疗效好，采用胃癌根治术对晚期患者进行治疗，其生存率仅为 20%，且术后复发率较高[17]。Barthel 指数作为科学、安全以及实用的评估方法，通过进食、穿衣等方面对患者的生活能力进行全面的评估[18]。胃癌患者经常会因为疼痛状态而出现焦虑、抑郁状态等负面情绪；SAS、SDS 评分作为临床上常用来评估患者焦虑、抑郁状态的量表，简单方便[19]。本研究结果显示，术后组患者 Barthel 指数显著上升，SAS、SDS 评分下降，可能是因为术前紫杉醇周疗新辅助化疗+胃癌根治术可以有效防止患者术后肿瘤血供改变，影响化疗效果，消除潜在的微转移灶，减少术后复发转移，从而使患者的生活能力得到了提升，减少了焦虑、抑郁状态。

在术前对患者采用紫杉醇周疗新辅助化疗可在短时间内有效控制肿瘤，促使肿瘤缩减；VAS 作为临床上常用于患者疼痛评分量表，简单方便且便于操作[20]。癌胚抗原是临床上常见的肿瘤标志物，亦是胚胎抗原特性的酸性糖蛋白[21]。糖类抗原 199 作为临床常用的肿瘤标记物来辅助诊断是否有恶性病变[22-23]。本文研究中发现两组患者的肿瘤直径、VAS 评分、癌胚抗原、糖类抗原 199 均有所下降。这可能是因为术前紫杉醇周疗新辅助化疗+胃癌根治术可有效降低肿瘤标志物水平，缩小肿瘤直径，从而减少患者的疼痛程度。本研究还发现，两组不良反应差异无统计学意义，说明紫杉醇周疗新辅助化疗+胃癌根治术治疗胃癌患者治疗效果较好，且安全性有一定的保障。

虽然本研究中发现，采用术前紫杉醇周疗新辅助化疗+胃癌根治术能够起到较好的疗效，但本文研究中所选取的胃癌病例较少，后期应大量选取胃癌患者进行临床试验，为临床治疗提供一定的数据。

综上所述，对胃癌患者行术前紫杉醇周疗新辅助化疗+胃癌根治术治疗，疼痛程度得到有效的改善，且还能显著患者的标志物，有着较好的临床治疗价值。

利益冲突　无

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(下转第 222 页)

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