

doi: 10.13241/j.cnki.pmb.2014.21.023

新辅助化疗配合手术治疗中晚期乳腺癌的临床效果分析

张夕凉¹ 姜福亭¹ 田磊¹ 谢江平¹ 郭晓东²

(1 海军总医院普通外科 北京 100037; 2 解放军第302医院 北京 100039)

摘要 目的:观察新辅助化疗配合手术治疗中晚期乳腺癌的临床效果,为临床研究提供参考。**方法:**选取我院2009年5月-2011年4月收治的中晚期乳腺癌患者107例,根据治疗方法的不同,将患者分为新辅助化疗组和对照组。新辅助化疗组采取术前辅助化疗,而对照组术前不接受化疗。观察新辅助化疗组患者的近期临床疗效、毒副反应发生率;比较两组患者的手术时间、术中出血量等;术后随访三年,记录两组患者的肿瘤局部复发率及远处转移率。**结果:**新辅助化疗组患者治疗的总有效率为79.66%,毒副反应的发生率为33.89%;新辅助化疗组的平均手术时间、术中出血量均低于对照组,差异具有统计学意义($P<0.05$)。新辅助化疗组患者的局部复发率为5.08%,远处转移率为6.78%;对照组患者局部复发率为12.50%,远处转移率为18.75%。新辅助化疗组患者的肿瘤复发转移率低于对照组,差异具有统计学意义($P<0.05$)。**结论:**在中晚期乳腺癌的临床治疗中,术前对患者实施新辅助化疗具有明显的效果,患者近期疗效良好,毒副反应可耐受,且手术后的复发转移率相对较低,值得推广应用。

关键词:乳腺癌;新辅助化疗;临床效果

中图分类号:R737.9 **文献标识码:**A **文章编号:**1673-6273(2014)21-4092-03

Clinical Analysis of Neoadjuvant Chemotherapy Combined with Surgery for Patients with the Metaphase or Advanced Breast Cancer

ZHANG Xi-liang¹, JIANG Fu-ting¹, TIAN Lei¹, XIE Jiang-ping¹, GUO Xiao-dong²

(1 The General Hospital of Navy, PLA, Beijing, 100037, China; 2 302 Hospital of PLA, Beijing, 100039, China)

ABSTRACT Objective: To observe the clinical efficacy of the neoadjuvant chemotherapy on the treatment of metaphase or the advanced breast cancer in order to provide a reference for subsequent researches. **Methods:** 107 patients with the metaphase or the advanced breast cancer who were treated in our hospital from May 2009 to April 2011 were selected and divided into the neoadjuvant group and the control group on the basis of different treatment methods. The patients in the neoadjuvant group were treated by the neoadjuvant chemotherapy before the surgery, while the patients in the control group were performed by the single surgery. Then the clinical effects and the incidence of adverse reactions of patients in the neoadjuvant group were evaluated; The operation time and the blood loss of patients in the two groups were observed and compared; The rate of recurrence and metastasis of patients in the two groups were recorded after a three-years' follow-up. **Results:** The total effective rate was 79.66% and the incidence of adverse reactions was 33.89% in the neoadjuvant group; The operation time and the blood loss were less than those of the patients in the control group; The rates of recurrence and metastasis were 5.08% and 6.78% in the neoadjuvant group respectively, which were better than 12.50% and 18.75% of the patients in the control group with statistically significant differences ($P<0.05$). **Conclusions:** It is suggested that the neoadjuvant chemotherapy should be well promoted to assist the surgery for the treatment of the metaphase or the advanced breast cancer with the advantages of better clinical effects and lower incidence of adverse reactions.

Key words: Breast cancer; Neoadjuvant chemotherapy; Clinical effects

Chinese Library Classification(CLC): R737.9 **Document code:** A

Article ID:1673-6273(2014)21-4092-03

前言

乳腺癌(Breast cancer)是发生在乳腺上皮组织的恶性肿瘤,其临床表现与肿瘤分期有关。近年来,乳腺癌的发病率逐年升高,且年龄倾向于年轻女性,严重威胁着女性的身心健康。治疗乳腺癌的方法主要有手术治疗、放射治疗及化学治疗等^[1-3]。手术治疗有时无法彻底清除病灶,残留的肿瘤细胞通过淋巴或血液向周围组织浸润,危及患者生命^[4]。放射治疗是中晚期乳

癌常用的治疗方法,主要针对乳腺原发病灶进行腔内和腔外照射消除,若照射的强度超过患者耐受能力便会导致多种放疗并发症^[5]。化疗利用药物抑制肿瘤细胞生长、诱导细胞凋亡,但化疗产生的毒副作用降低了患者的生存质量^[6]。随着医学的进步,新辅助化疗被广泛应用于中晚期乳腺癌的治疗中,并获得了一定的效果^[7]。相关研究表明,新辅助化疗可以有效的消灭术前微小转移病灶,从而降低术后发生病灶远处转移的几率^[8,9]。为了进一步探讨新辅助化疗对中晚期乳腺癌患者的临床疗效,我们采用回顾性分析的方法对患者的临床资料进行比较,为乳腺癌的治疗提供参考。

作者简介:张夕凉(1978-),主治医师,主要从事胃肠肿瘤外科治疗等方面的研究。E-mail: laohushanshang@163.com

(收稿日期:2014-01-08 接受日期:2014-01-29)

1 资料与方法

1.1 临床资料

选取我院 2009 年 5 月 -2011 年 4 月收治的中晚期乳腺癌患者 107 例,年龄分布在 32-65 岁,平均 48.51 ± 1.69 岁。所有患者均经 CT、超声检查及病理诊断为单发病灶,肿瘤距乳晕 >2 cm;临床分期为 II -III 期;就诊前未接受过化疗、放疗或内分泌治疗;病灶无远处转移;Karnogsky 评分 >70 ;无肝、肾等重要

脏器功能不全。根据治疗方法的不同,将患者分为两组。其中,新辅助化疗组 59 例患者,年龄 30-69 岁,平均 (35.44 ± 1.28) 岁;病理分型:浸润性导管癌 38 例,浸润性小叶癌 9 例,髓样癌 7 例,黏液癌 5 例;临床分期:II 期 33 例,III 期 26 例。对照组 48 例患者,年龄 30-73 岁,平均 (36.51 ± 1.48) 岁;病理分型:浸润性导管癌 41 例,黏液癌 4 例,浸润性小叶癌 3 例;临床分期:II 期 29 例,III 期 19 例。两组患者的年龄、病情等一般资料无显著差异($P>0.05$),具有可比性。见表 1。

表 1 两组患者的一般资料

Table 1 General data of patients in the two groups

分组 Group	病例 Case(n)	年龄 Age(year)	病理分型 Pathological type				临床分期 Clinical classification	
			浸润性导管癌 NOS	髓样癌 Myeloid neoplasms	浸润性小叶癌 ILC	黏液癌 Mucoid carcinoma	II 期 II	III 期 III
新辅助化疗组 Neoadjuvant group	59	35.44 ± 1.28	38	7	9	5	33	26
对照组 Control group	48	36.51 ± 1.48	41	-	3	4	29	19

Note: compared between two groups, $P>0.05$

1.2 方法

1.2.1 新辅助化疗组 化疗采用 CMF 方案^[10]:第 1 天和第 8 天,静脉注射环磷酰胺(CTX) 400 mg/m^2 ,皮下肌肉注射氨甲喋呤(MTX) 200 mg/m^2 ;静脉滴注氟尿嘧啶(5-Fu) 400 mg/m^2 ,持续 5 天;以 21 天为一个疗程,共治疗两个疗程。化疗结束后,对于符合手术条件的患者行保乳手术。手术方法:采用肿瘤象限切除联合腋窝淋巴结清除术。取腋窝下横 5-6 cm 处做弧形切口,游离皮瓣,依次清除胸肌间脂肪和淋巴结、胸小肌外侧脂肪和淋巴结、背阔肌前脂肪和淋巴结、腋静脉周围脂肪和淋巴结、胸小肌后脂肪和淋巴结,将胸长神经、胸背神经及肩胛下血管游离以充分保护,术中做皮下腺体即刻整形,切口放置引流,可吸收线缝合。6 个方位侧切缘采用长短丝线缝合标记,术中送快速冰冻病理检查以保证切缘阴性。

1.2.2 常规手术组 对照组行标准根治术或改良根治术。

1.3 新辅助化疗疗效及毒副反应评价

根据抗癌协会(UICC)实体瘤的客观评价标准进行评估^[11]:

①完全缓解(CR):乳腺局部外观无异常现象,周围组织有弹性,病灶完全消除;②部分缓解(PR):乳腺周围组织弹性变差,大部分病灶被清除;③病情稳定(SD):病情得到控制,但无明显好转;④持续进展(PD):肿瘤细胞进一步扩散或转移,出现新的病灶。治疗的总有效率 = (完全缓解 + 部分缓解) / 例数。主要毒副反应有:①恶心、呕吐等胃肠道反应;②骨髓抑制:血红蛋白、血小板异常等;③肝肾功能损伤;④免疫系统紊乱、脱发等。

1.4 手术观察指标

观察两组的平均手术时间、术中出血量、切口长度及淋巴结清扫情况等。

1.5 术后随访

治疗后对患者进行随访,记录并比较患者肿瘤局部复发

率、远处转移率及三年生存率。

1.6 统计学处理

用 SPSS11.0 统计软件进行数据分析,组间计量资料采用 t 检验,样本率采用卡方检验,以 $P<0.05$ 为差异有统计学意义。

2 结果

2.1 新辅助化疗组近期疗效及毒副反应

新辅助化疗组完全缓解 14 例,占 23.73%;部分缓解 33 例,占 55.93%;病情稳定 12 例,占 20.34%;无一例出现病情恶化,治疗的总有效率为 79.66%。毒副反应:骨髓抑制 9 例,占 15.25%;胃肠道反应 8 例,占 13.56%;免疫系统紊乱 3 例,占 5.08%;毒副反应的发生率为 33.89%。

2.2 两组患者手术情况比较

新辅助化疗组的平均手术时间为 (66.14 ± 14.22) min,术中出血量为 (136.18 ± 4.81) ml;切口长度为 (9.84 ± 2.77) cm;对照组的平均手术时间为 (87.52 ± 11.15) min,术中出血量为 (188.57 ± 29.64) ml;切口长度为 (17.07 ± 1.03) cm;新辅助化疗组的平均手术时间、术中出血量及切口长度均明显小于对照组,差异具有统计学意义($P<0.05$)。

2.3 两组术后随访情况比较

全部病例获得三年随访,随访率为 100%。新辅助化疗组局部复发 3 例,复发率为 5.08%;远处转移 4 例,转移率为 6.78%。对照组局部复发 6 例,复发率为 12.50%;远处转移 9 例,转移率为 18.75%。新辅助化疗组的肿瘤复发转移率低于对照组,差异具有统计学意义($P<0.05$)。

3 讨论

新辅助化疗(Neoadjuvant Chemotherapy, NC)是指恶性肿

瘤实施局部手术或放疗前进行的全身性化疗,目的是降低肿瘤的临床分期、缩小原发病灶、控制发生转移的淋巴结,从而为中晚期乳腺癌患者创造实施手术的机会,提高肿瘤的切除率^[12]。新辅助化疗使肿瘤体积变小,进而缩小了手术范围,有利于最大限度的保留患者正常的乳腺组织。此外,化疗药物可激活肿瘤细胞内的自由基,增加肿瘤组织的放射效应,抑制微管解聚而使肿瘤细胞的有丝分裂终止,有效的杀死肿瘤细胞,降低肿瘤病灶的远处转移和局部复发,提高手术的成功率及术后的生存率^[13-15]。有研究证实,乳腺癌多数为全身性疾病,当肿瘤组织>1 cm 时,很可能已经存在着远处微小转移灶^[16]。因此,术前进行辅助化疗对乳腺癌患者的预后至关重要。本研究中,新辅助化疗组患者的平均手术时间、术中出血量及切口长度均小于对照组($P<0.05$)。结果说明,术前进行辅助化疗不但不会影响根治手术的肿瘤切除率,而且可以减少手术对患者造成的创伤,有利于术后恢复。

乳腺癌是一种全身性疾病,癌细胞在疾病早期及亚临床阶段就可以通过血液循环扩散至全身,区域淋巴结具有重要免疫作用,它们与癌细胞抗衡,并非单纯的癌细胞机械滤过屏障。行手术切除肿瘤及转移淋巴结,可以减轻机体的肿瘤负荷,即减少肿瘤的来源渠道,改善宿主对肿瘤的反应,对机体防御功能的改善极为有利^[17-19]。手术治疗的目的在于使原发肿瘤及区域淋巴结得到最大程度的局部控制,减少局部复发,提高生存率。本研究显示,新辅助化疗组患者三年内的肿瘤局部复发率为5.08%,远处转移率为6.78%,均显著低于对照组的对应值($P<0.05$)。结果说明,新辅助化疗可明显提高乳腺癌的治疗效果,降低肿瘤细胞的远处转移率,改善疾病预后,提高患者的生存质量。

值得我们重视的是,化疗在杀伤肿瘤细胞的同时也对患者的免疫系统造成损害,导致免疫功能缺陷。大多数化疗药物可引起白细胞、红细胞或血小板下降等骨髓抑制现象,也可导致肝肾功能受损,患者化疗后会出现恶心、呕吐等胃肠道不良反应,影响治疗效果^[20]。结合本研究,新辅助化疗组患者毒副反应的发生率为33.89%,其中,骨髓抑制占15.25%,胃肠道不良反应占13.56%,免疫系统紊乱占5.08%。上述不良反应经对症治疗后均获得好转。说明,患者对新辅助化疗药物的不良反应可耐受,对手术效果的影响较小。

综上所述,乳腺癌综合治疗是以提高疗效和改善患者的生活质量为目的,因此我们应根据肿瘤细胞的生物学行为及患者的实际状况选择最佳的治疗方案。

参考文献(References)

- [1] Erbes T, Orlowska-Volk M, Zur Hausen A, et al. Neoadjuvant chemotherapy in breast cancer significantly reduces number of yielded lymph nodes by axillary dissection[J]. BMC Cancer, 2014, 14(1):4
- [2] 邵帅, 李培峰, 柳玉彬, 等. 乳腺癌新辅助化疗疗效评价体系 [J]. 现代生物医学进展, 2012, 12(25): 4964-4969
Shao Shuai, Li Pei-feng, Liu Yu-bin, et al. Evaluation System of the clinical effects of neoadjuvant chemotherapy on the treatment of breast cancer [J]. Progress in Modern Biomedicine, 2012, 12(25): 4964-4969
- [3] 董浩, 尉承泽, 郭晓东, 等. 乳腺导管原位癌行前哨淋巴结活检指征的探讨[J]. 现代生物医学进展, 2014, 14(05): 866-899
Dong Hao, Yu Cheng-ze, Guo Xiao-dong, et al. Discussion of the Sentinel Lymph Node Biopsy for the Treatment of Ductal Carcinoma in Situ[J]. Progress in Modern Biomedicine, 2014, 14(05): 866-899
- [4] Onitilo AA, Onesti JK, Single RM, et al. Utilization of neoadjuvant chemotherapy varies in the treatment of women with invasive breast cancer[J]. PLoS One, 2013, 8(12): 84535
- [5] 杨庄青, 邹天宁, 陈德滇, 等. 乳腺癌腋窝淋巴结清扫术后上肢淋巴水肿的危险因素分析 [J]. 现代生物医学进展, 2012, 12(35): 6909-6911+6916
Yang Zhuang-qing, Zou Tian-ning, Chen De-dian, et al. Analysis of the Risk Factors of Arm Lymph edema Following Axillary Lymph Node Dissection with Breast Cancer [J]. Progress in Modern Biomedicine, 2012, 12(35): 6909-6911+6916
- [6] Johnston SR, Yeo B. The optimal duration of adjuvant endocrine therapy for early stage breast cancer-with what drugs and for how long? [J]. Curr Oncol Rep, 2014, 16(1): 358
- [7] Sota Y, Naoi Y, Tsunashima R, et al. Construction of novel immune-related signature for prediction of pathological complete response to neoadjuvant chemotherapy in human breast cancer [J]. Ann Oncol, 2014, 25(1): 100-106
- [8] Choi JS, Baek HM, Kim S, et al. Magnetic resonance metabolic profiling of breast cancer tissue obtained with core needle biopsy for predicting pathologic response to neoadjuvant chemotherapy [J]. PLoS One, 2013, 19, 8(12): 83866
- [9] Kovalev AA, Tsvetaeva DA, Grudinskaja TV. Role of ABC-cassette transporters (MDR1, MRP1, BCRP) in the development of primary and acquired multiple drug resistance in patients with early and metastatic breast cancer[J]. Exp Oncol, 2013, 35(4): 287-290
- [10] Asano J, Hirakawa A, Hamada C, et al. Use of Cox's Cure Model to Establish Clinical Determinants of Long-Term Disease-Free Survival in Neoadjuvant-Chemotherapy-Treated Breast Cancer Patients without Pathologic Complete Response [J]. Int J Breast Cancer, 2013, 2013: 354579
- [11] López Carpintero N, Sánchez Méndez JI, de Santiago García JI. Co-expression of estrogen receptors and Her2/neu in breast cancer. Neoadjuvant chemotherapy sentinel lymph node and hormone therapy [J]. Ginecol Obstet Mex, 2012, 80(11): 720-724
- [12] Hao JY, Yang CC, Liu FF, et al. Accessory breast cancer occurring concurrently with bilateral primary invasive breast carcinomas: a report of two cases and literature review [J]. Cancer Biol Med, 2012, 9(3): 197-201
- [13] Padilha M, Henriques M, Guardado MJ, et al. Neoadjuvant radiotherapy and hormone therapy in locally advanced breast cancer: state of the art[J]. Acta Med Port, 2012, 25(6): 422-426
- [14] Ooe A, Takahara S, Sumiyoshi K, et al. Relationship between intrinsic subtypes and tumor responses to neoadjuvant chemotherapy in patients with locally advanced breast cancer[J]. Breast Dis, 2012, 34(1): 9-17
- [15] Lee KH, Keam B, Im SA, et al. Body mass index is not associated with treatment outcomes of breast cancer patients receiving neoadjuvant chemotherapy[J]. J Breast Cancer, 2012, 15(4): 427-433

负性情绪,从而减轻心理压力,以积极的心态面对疾病,不仅提高了患者术后的生存质量,也提高了患者对护理服务的满意度^[19]。此外,流程管理促进医生与患者之间建立和谐的医患关系,从而提高患者治疗的依从性,有利于患者术后尽快恢复^[20]。

综上所述,流程管理的护理模式配合早期肠内营养有利于改善患者术后的营养状况,提高机体免疫功能,而且有利于提高患者对护理服务的满意度,值得推广。

参考文献(References)

- [1] Nespoli L, Coppola S, Gianotti L. The role of the enteral route and the composition of feeds in the nutritional support of malnourished surgical patients[J]. *Nutrients*, 2012, 4(9): 1230-1236
- [2] Racco M. An enteral nutrition protocol to improve efficiency in achieving nutritional goals[J]. *Crit Care Nurse*, 2012, 32(4): 72-75
- [3] 秦震声, 赵耀, 周宝祥, 等. 不同肠内营养对结肠癌患者围手术期内肠粘膜屏障与肠形态的影响[J]. *现代生物医学进展*, 2013, 13(10): 1914-1917
Qin Zhen-sheng, Zhao Yao, Zhou Bao-xiang, et al. Study of Different Enteral Nutrition on Bacterial Translocation and Intestinal Morphology during the Intraoperative Period[J]. *Progress in Modern Biomedicine*, 2013, 13(10): 1914-1917
- [4] Rubinsky MD, Clark AP. Early enteral nutrition in critically ill patients[J]. *Dimens Crit Care Nurs*, 2012, 31(5): 267-274
- [5] 董峰, 马君俊, 冯波, 等. 两种营养支持方式在胃肠道肿瘤患者术后的疗效对比研究[J]. *现代生物医学进展*, 2013, 13(21): 4056-4059
Dong Feng, Ma Jun-jun, Feng Bo, et al. Curative Effect Comparison on Two Way of Nutritional Support in Patients with Gastrointestinal Tumor Postoperative [J]. *Progress in Modern Biomedicine*, 2013, 13(21): 4056-4059
- [6] Milke García P. Gastrointestinal reactions in patients with enteral nutrition: Are they related solely to this type of feeding or rather to the concomitant use of medications [J]. *Rev Gastroenterol Mex*, 2012, 77(4): 159-160
- [7] Raslan M, Gonzalez M C, Gon?alves Dias M C, et al. Comparison of nutritional risk screening tools for predicting clinical outcomes in hospitalized patients[J]. *Nutrition*, 2010, 26(7): 721-726
- [8] 汪睿, 朱俊东. 围手术期免疫增强型肠内营养对大肠癌患者免疫功能的影响[J]. *现代生物医学进展*, 2010, 10(20): 3876-3879
Wang Rui, Zhu Jun-dong. Perioperative immune enhanced enteral nutrition on the immune function of patients with colorectal cancer[J]. *Progress in Modern Biomedicine*, 2010, 10(20): 3876-3879
- [9] Sorensen J, Kondrup J, Prokopowicz J, et al. Euro OOPS: an international, multicentre study to implement nutritional risk screening and evaluate clinical outcome[J]. *Clinical nutrition*, 2008, 27(3): 340-349
- [10] 邓姣, 杨静, 杨荣. 肠内营养制剂在结、直肠癌术前肠道准备中的应用研究[J]. *现代生物医学进展*, 2010, 10(18): 3497-3501
Deng Jiao, Yang Jing, Yang Rong. Application of enteral nutrition on the preparation of colorectal operations [J]. *Progress in Modern Biomedicine*, 2010, 10(18): 3497-3501
- [11] Tous Romero MC, Alarcóndel Agua I, Parejo Campos J, et al. Comparison of two types of surgical gastrostomies, open and laparoscopic in home enteral nutrition[J]. *Nutr Hosp*, 2012, 27(4): 1304-1308
- [12] Imed FA, B taiche, Pharm D, et al. Critical illness,gastrointestinal complications, and medication therapy during enteral feeding in critically ill adult patients[J]. *Nutr Clin Pract*, 2010, 25(1): 32-49
- [13] Takeuchi Y, Yamamura T, Takahashi S, et al. Long-term enteral immunonutrition containing lactoferrin in tube-fed bedridden patients: immunological and nutritional status[J]. *J Am Coll Nutr*, 2012, 31(3): 206-213
- [14] Fijlstra M, Schierbeek H, Voortman G, et al. Continuous enteral administration can enable normal amino acid absorption in rats with methotrexate-induced gastrointestinal mucositis[J]. *J Nutr*, 2012, 142(11): 1983-1990
- [15] Kiss CM, Byham-Gray L, Denmark R, et al. The impact of implementation of a nutrition support algorithm on nutrition care outcomes in an intensive care unit [J]. *Nutr Clin Pract*, 2012, 27(6): 793-801
- [16] Dervan N, Dowsett J, Gleeson E, et al. Evaluation of over- and underfeeding following the introduction of a protocol for weaning from parenteral to enteral nutrition in the intensive care unit [J]. *Nutr Clin Pract*, 2012, 27(6): 781-787
- [17] Marie-Laure, Botton A N P. Surgery in esophageal and gastric cancer patients: what is the role for nutrition support in your daily practice? [J]. *Annals of surgical oncology*, 2012, 19(7): 2128-2134
- [18] Hulsewe KW, van ABA, von MMF, et al. Nutritional depletion and dietary manipulation: effects on the immune response [J]. *World J Surg*, 1999, 23(6): 536-544
- [19] Arabi YM, Haddad SH, Aldawood AS, et al. Permissive underfeeding versus target enteral feeding in adult critically ill patients (PermiT Trial): a study protocol of a multicenter randomized controlled trial [J]. *Trials*, 2012, 12(13): 191
- [20] Lidder P, Flanagan D, Flening S, et al. Improved glucose control associated with i.v.chromium administration in two patients receiving enteral nutrition[J]. *Br J Nutr*, 2010, 103(11): 1635-1641

(上接第 4094 页)

- [16] El-Sayed MI, Maximous DW, Zakhary MM, et al. Biological markers and response to neoadjuvant taxane-based chemotherapy in patients with locally advanced breast cancer [J]. *ISRN Oncol*, 2012, 2012: 245891
- [17] Allis S, Reali A, Mortellaro G, et al. Should radiotherapy after primary systemic therapy be administered with the same recommendations made for operable breast cancer patients who receive surgery as first treatment? A critical review[J]. *Tumori*, 2012, 98(5): 543-549
- [18] Moon HG, Yi JK, Kim HS, et al. Phosphorylation of p90RSK is associated with increased response to neoadjuvant chemotherapy in ER-positive breast cancer[J]. *BMC Cancer*, 2012, 12: 585
- [19] He J, Chen W, Wu H, et al. Downregulation of BCSG1 may correlate with better outcome of neoadjuvant chemotherapy for triple-negative breast cancer[J]. *Oncol Lett*, 2012, 4(6): 1209-1212
- [20] Gupta N, Goswami B, Mittal P. Effect of standard anthracycline based neoadjuvant chemotherapy on circulating levels of serum IL-6 in patients of locally advanced carcinoma breast-a prospective study [J]. *Int J Surg*, 2012, 10(10): 638-640