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剖宫产产妇并发医院感染的临床特征及相关影响因素研究*

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摘要 目的:探讨剖宫产产妇并发医院感染的临床特征及相关影响因素,并提出相应的防控措施。**方法:**选取自2014年1月至2016年12月间在我院妇产科进行剖宫产手术的产妇4112例,记录产妇感染发生的情况(感染率、感染部位及病原菌分布),并统计分析产妇的基本情况,包括年龄、体质指数(BMI)、住院时间、基础疾病等基本情况。**结果:**进行剖宫产的产妇合并发生医院感染的感染率为4.89%(201/4112);感染部位主要为手术切口感染、泌尿道感染、生殖道感染、盆腔感染、呼吸道感染及皮肤感染,其中手术切口感染所占比例为45.77%;医院感染病例中共培养出5种病原菌共51株,包括金黄色葡萄球菌、葛兰氏阴性杆菌、副流感嗜血菌、粪肠球菌及耐甲氧西林金黄色葡萄球菌;感染因素中年龄、BMI、住院时间、基础疾病情况、医护人员操作的熟练程度、手术时间、术中出血量、术后尿管留置时间及抗菌药物应用与剖宫产产妇并发医院感染之间具有紧密联系($P<0.05$),而首次剖宫产手术与剖宫产产妇并发医院感染之间无联系($P>0.05$)。**结论:**剖宫产产妇并发医院感染的发生率较高,而且多种感染因素影响其发生,因此在临床上应采取相应的防控措施,降低感染率,保证产妇和新生儿的身心健康。

关键词:剖宫产;医院感染;临床特征;影响因素;防控对策

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Clinical Features and Related Influencing Factors of Nosocomial Infection in Cesarean Section*

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ABSTRACT Objective: To investigate the clinical characteristics and related influencing factors of nosocomial infection in lying-in women undergoing cesarean section, and to put forward the corresponding prevention and control measures. **Methods:** A total of 4112 lying-in women, who underwent cesarean section in obstetrics and gynecology department of Shanghai First Maternity and Infant Health Hospital from January 2014 to December 2016, were selected. The incidence of maternal infection (infection rate, location of infection and distribution of pathogens) was recorded; and the basic situation of lying-in women, including age, body mass index (BMI), length of hospitalization, basic diseases, and other basic conditions, were statistically analyzed. **Results:** The incidence rate of nosocomial infection in the lying-in women undergoing cesarean section was 4.89%(201/4112). The main infection sites were surgical incision infection, urinary tract infection, genital tract infection, pelvic infection, respiratory tract infections and skin infections, in which, the proportion of surgical incision infection was 45.77%. 5 kinds of pathogens (altogether 51 strains) were found in the hospital infection cases, including *staphylococcus aureus*, *gram-negative bacillus*, *haemophilus influenzae*, *enterococcus faecalis* and *methicillin-resistant staphylococcus aureus*. There was a close link among age, BMI, length of hospitalization, basic diseases, proficiency in the operation of medical personnel, operation time, the amount of bleeding during operation, the indwelling time of catheter after operation, and application of antibiotics and lying-in women undergoing cesarean section complicated by hospital infection, while there was no connection between the first cesarean section and hospital infection of lying-in women undergoing cesarean section. **Conclusion:** The incidence rate of lying-in women undergoing cesarean section complicated by hospital infection is higher, which is affected by many infectious factors. The corresponding prevention and control measures should be taken in the clinic to reduce the infection rate and to ensure the physical and mental health of the maternal and newborn.

Key words: Cesarean section; Nosocomial infection; Clinical features; Influence factor; Prevention and control measures

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前言

剖宫产是临床上常用的创伤性手术之一,主要用于难产和抢救胎儿^[1]。近年来,随着医学技术的发展和社会因素的影响,

剖宫产率逐年升高,但是剖宫产相对于自然分娩具有一定的危险性,即常出现医院感染^[2,3]。医院感染是住院患者在住院期间获得的感染,主要分为两种:一种为住院期间出现的感染,另一种是在住院期间获得但出院后才出现的感染^[4,5]。在分娩过程中,

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产妇的生理和心理会发生一系列的变化,而在变化的过程中容易受到各种危险因素的侵袭而获得医院感染^[6,7]。剖宫产产妇一旦并发医院感染后,不仅增加产妇的疼痛和经济负担,而且会严重影响产妇的产后恢复及新生儿的健康^[8,9],因此分析剖宫产产妇并发医院感染的主要特征及影响因素,并提出相应的解决措施对于控制医院感染的发生率具有重要意义,同时能保障产妇和新生儿的健康^[10,11]。本研究探讨剖宫产产妇并发医院感染的临床特征及相关影响因素,并提出针对性的防控措施,现报告如下。

1 资料与方法

1.1 一般资料

选择自 2014 年 1 月至 2016 年 12 月在我院妇产科进行剖宫产手术的产妇 4112 例,根据卫生部《医院感染诊断标准》^[12]确诊所有参与研究的剖宫产产妇均出现医院感染,感染的主要表现为切口部位红、肿、热、痛,切口部位出现脓性渗出物,或者是切口处可以引流出脓性积液,切口温度高达 38℃,并通过组织病理学确诊其感染。排除标准:① 剖宫产术前感染;② 手术切口脂肪液化及切口炎症;③ 临床资料不全的患者。年龄 23-45

岁,平均年龄(28.54± 7.33)。

1.2 方法

对所选剖宫产产妇资料进行回顾性分析,由至少两名专业的医护人员记录产妇感染发生的情况(感染率、感染部位及病原菌分布),并统计分析产妇的基本情况,包括年龄、体质量指数(Body Mass Index, BMI)、住院时间、基础疾病情况、是否为首次剖宫产手术、医护人员操作的熟练程度、手术时间、术中出血量、术后尿管留置时间及抗菌药物应用的情况。

1.3 统计学方法

应用 SPSS18.0 软件对数据进行统计分析,计数资料用百分率表示,可能影响剖宫产产妇合并发生医院感染因素的比较采用 χ^2 检验,以 $P<0.05$ 表示差异具有统计学意义。

2 结果

2.1 剖宫产产妇合并医院感染感染率及感染部位分析

在所选的剖宫产产妇 4112 例中,有 201 例合并发生医院感染,感染率为 4.89%(201/4112)。其中感染部位主要为手术切口感染、泌尿道感染、生殖道感染、盆腔感染、呼吸道感染及皮肤感染,其中手术切口感染所占比例 45.77%,如表 1 所示。

表 1 剖宫产产妇合并医院感染感染率及感染部位分析(n,%)

Table 1 Analysis of infection rate and infection site of lying-in women undergoing cesarean section complicated by hospital infection(n,%)

Infection site	Number of cases(cases)	Constituent ratio(%)
Surgical incision infection	92	45.77
Urinary tract infection	32	15.92
Pelvic infection	26	12.94
Respiratory tract infection	19	9.45
Skin infection	17	8.46
Others	15	7.46
Total	201	100.00

2.2 感染病原菌分析

在 64 例剖宫产产妇并发医院感染病例中共培养出 5 种共 50 株病原菌,其中包括金黄色葡萄球菌、葛兰氏阴性杆菌、副

流感嗜血菌、粪肠球菌及耐甲氧西林金黄色葡萄球菌,如表 2 所示。

表 2 感染病原菌分析

Table 2 Analysis of infection pathogens

Pathogenic bacteria	Number of seedling(cases)	Constituent ratio(%)
<i>Staphylococcus aureus</i>	19	37.25
<i>Gram-negative bacillus</i>	16	31.37
<i>Haemophilus influenzae</i>	6	11.76
<i>Enterococcus faecalis</i>	6	11.76
<i>Methicillin resistant Staphylococcus aureus</i>	4	7.84
Total	51	100.00

2.3 感染因素对剖宫产并发医院感染产妇的影响

经分析比较发现,感染因素中年龄、BMI、住院时间、基础疾病情况、医护人员操作的熟练程度、手术时间、术中出血量、术后尿管留置时间及抗菌药物应用与剖宫产产妇并发医院感染之间具有紧密联系($P<0.05$),而首次剖宫产手术与剖宫产产妇并发医院感染之间无联系($P>0.05$),如表 3 所示。

3 讨论

随着医学科学技术的发展,我院产科手术室和病房的消毒措施日益完善,同时医务人员的无菌操作意识越来越强,但是剖宫产产妇并发医院感染是目前产科医生面临的最大难题^[13,14]。医院感染不仅对剖宫产产妇的恢复会产生不良影响,而

且还可能会导致产生宫腔感染、败血症等,给产妇的生命健康带来严重威胁,因此分析剖宫产产妇并发医院感染的影响因素具有重要意义^[15,16]。剖宫产产妇获得医院感染主要由自身体质

和环境感染两方面造成的,产妇在剖宫产手术后,机体防御系统遭到破坏,加之分娩过程中失血,增加了感染率^[17,18]。

表 3 感染因素对剖宫产并发医院感染产妇的影响

Table 3 Effect of infection factors on lying-in women undergoing cesarean section complicated by hospital infection

Infection factors		Number of cases	Number of infection cases	Infection rate(%)	χ^2	P
Age(year)	≤ 30	2682	194	7.23	121.318	0.000
	>30	1430	266	18.60		
BMI	≤ 25	2171	215	9.90	7.354	0.007
	>25	1941	244	12.57		
Length of hospitalization (day)	≤ 7	2063	208	10.08	4.870	0.027
	>7	2049	251	12.25		
Underlying disease	Yes	1344	187	13.91	14.943	0.000
	No	2768	273	9.86		
First cesarean section	Yes	2717	302	11.12	0.041	0.839
	No	1395	158	11.33		
Proficiency in the operation of medical personnel	Skilled	2387	144	6.03	152.138	0.000
	Unskilled	1725	316	18.32		
Operation time(h)	≤ 1	2286	208	9.10	22.588	0.000
	>1	1826	252	13.80		
Intraoperative blood loss (mL)	≤ 500	2336	223	9.55	64.196	0.000
	>500	1773	237	13.37		
Indwelling catheter time(d)	≤ 3	2451	165	6.73	184.791	0.000
	>3	1661	295	17.76		
Application of antibiotics	Yes	2128	201	9.45	111.629	0.000
	No	1984	259	13.05		

本研究结果显示,剖宫产产妇并发医院感染的感染率为4.89%,可知感染率较高。感染部位中占主要的是手术切口感染,主要是因为剖宫产是一种创伤性操作,手术切口容易受到病原菌的感染,因此导致出现医院感染^[19,20]。其次是泌尿道感染,造成这类感染的可能是由于留置在剖宫产产妇泌尿道的置尿管操作属于侵袭性操作,容易导致尿道粘膜损伤,或者是置尿管的材料对尿道粘膜产生刺激^[21,22]。除此之外,还有呼吸道感染和盆腔感染等,这些可能与病房的空气质量有关,而且剖宫产麻醉对呼吸道感染也有一定的影响^[23,24]。另外,本研究中还发现金黄色葡萄球菌和葛兰氏阴性杆菌为主要的病原菌,因此产科医生临床上应针对相应细菌进行抗菌治疗。

研究结果发现随着年龄的增长,高龄剖宫产产妇获得医院感染的几率明显高于正常产妇($P<0.05$),年龄越大,机体抵抗力越低,出现感染的几率更高。BMI值越大的产妇,皮下脂肪较厚,难以缝合手术切口,增加了手术难度,同时脂肪组织的增多导致血流减少,且容易液化,从而提高感染率^[25,26]。一般剖腹产产妇住院时间不超过1周,住院时间的延长,将导致医院病原菌感染时间延长,增加感染的机会。合并患有基本疾病的剖宫产产妇的医院感染率显著高于正常剖宫产产妇($P<0.05$),出现这种情况的原因是患有基本疾病的产妇的抵抗力差。另外,医

源性因素对于医院感染的影响也很重要,其中很重要是产科医生操作得熟练程度,研究表明操作成熟的感染率明显低于操作不成熟的感染率($P<0.01$),操作不熟练可能出现止血不当,导致出血过多,引起感染发生等^[27]。手术时间越短、术中的出血量越少及术后尿管留置时间越短可以明显降低剖宫产产妇医院感染率,长时间的手术导致手术切口暴露在空气中,空气中的病原菌可能会进入机体内部;出血量增加后,一方面需要大量补血,血源的质量影响机体的免疫力,另一方面大量出血降低机体的抵抗力;尿管留置在体内时间越长,对泌尿道粘膜的损伤越严重^[28,29]。在手术中预先使用抗菌药物,可以有效防止手术部位或全身感染,但是应根据病原菌的类型及抗菌药物的抗菌谱进行合理选择,避免出现二次感染或不良反应^[30]。

剖宫产产妇在医院期间获得感染的原因是多方面的,因此要从多方面制定不同的防控措施:(1)加强产妇孕期基本知识的宣传,告知其注意事项,尤其是特殊的产妇,比如合并患有基础疾病或肥胖的产妇;(2)医护人员要加强高龄产妇的护理,密切观察其体征变化;(3)告知产妇合理饮食,切勿暴饮暴食,控制BMI,防止过度肥胖;(4)尽量缩短剖宫产产妇的住院时间,减少其与病原菌的接触机会;(5)住院期间,要加强通风,由于亲朋好友探视,人员流动性大,应加强病房的消毒,改善病房环

境;(6)对于患有基础疾病的产妇,要及时发现,尽早治疗,做好孕前准备;(7)加强医务人员的业务技能,定期组织临床医生的操作技能学习及护理人员消毒培训,要严格无菌操作,同时要缩短手术时间,熟练操作方法,降低术中出血量;(8)根据抗生素的抗菌谱及病原菌的特性,预防性的合理使用抗生素。

综上所述,剖宫产手术在临床上的使用较多,而且术后合并医院感染的发生率也较高,如果要尽量降低感染率的发生,应根据其影响因素提出相应的防控措施,控制感染的发生,以保证产妇和新生儿的健康。

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