Analysis of Characteristics of Nosocomial Infection in Hospitalized Patients

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Abstract: To investigate the characteristics and related factors of nosocomial infection in hospitalized obstetrics and gynecology patients, the clinical data of 2206 cases of obstetrics and gynecology hospitalized patients were retrospectively analyzed. Nosocomial infection occurred in 67 sites of 64 patients, with an infection rate of 2.90%. The respiratory tract was the main site of infection, accounting for 35.82%, followed by the urinary tract and digestive tract, accounting for 31.34% and 14% respectively. 93%; A total of 67 pathogens were isolated, 43 Gram-negative bacteria, accounting for 64. 18%, 16 Gram-positive bacteria, accounting for 23.88%, 8 fungi, accounting for 11. 94%; The three pathogens were Escherichia coli, Klebsiella pneumoniae, and Staphylococcus aureus, which accounted for 34.33%, 16.42%, and 13.43%, respectively. The single factor 2 test showed age, disease type, length of stay, Departments, radiotherapy, surgery, and invasive procedures are all related to the incidence of nosocomial infections. The monitoring of fungal and pathogenic bacteria in inpatients of obstetrics and gynecology should be strengthened, and management of relevant factors should be emphasized to prevent and treat nosocomial infections.

1. Introduction

Nosocomial infection refers to all infections that occur in hospitals, including patients who have been infected in hospitals but have developed symptoms outside of hospitals or transferred to hospitals. However, they do not include patients who are infected outside the hospital and develop the disease in hospitals. Due to the large number of hospital staff, the patients are more intensive and the hospital environment is easily contaminated by microorganisms, which can cause infections to occur from time to time. In the event of a nosocomial infection in the obstetrics and gynecology department, it will not only increase the suffering of the patients, but also prolong the hospitalization time. Therefore, more and more attention is paid to its management and prevention. In order to understand the occurrence and characteristics of nosocomial infection in hospitalized obstetrics and gynecology patients, and to provide evidence for prevention and control, the clinical data of obstetrics and gynecology hospitalized patients in Zigong Maternal and Child Health Hospital were retrospectively analyzed. The report is as follows.

2. Materials and Methods

The patient history of 1354 cases of obstetrics and gynecology hospitalized patients admitted from January to December 2009 was selected, including 587 gynecological records and 767 obstetric medical records. The diagnosis of nosocomial infections is based on the "Diagnosis Standards for Hospital Infections (Trial)" issued by the Ministry of Public Health, and in accordance with the records of doctors and nurses and various examination reports of patients, referring to the nosocomial infection registration form, and re-diagnosis, registration and statistical summary.

According to the contents of the patient's inpatient records and nosocomial infection registration forms, a retrospective survey method was used to analyze the incidence of nosocomial infections, incidence of nosocomial infections in different diseases, nosocomial infection sites, age, days of hospitalization, and risk factors. Obstetrics and gynecology hospital infections, including respiratory tract, urinary tract, gastrointestinal tract, uterine cavity, incision and other infections, in

which the surgical incision infection with superficial incision, deep incision and organ cavity infection, respiratory infections Upper and lower respiratory tract infections [1].

Statistical Processing Data collected into SPSS 13. 0 Statistical software performs $\chi 2$ test, $P<0.05$ was statistically significant.

3. Results

A total of 43 cases of nosocomial infection occurred in 1354 patients. The incidence was 3. 18% (43/1354). Among them, 587 were gynecological cases and 19 were infected. The incidence was 3. 24% (19/587); 767 cases of obstetrics, 24 cases of infection, incidence rate 3. 13% (24/767). The overall composition ratio of gynecologic and obstetric hospital infections was similar ($\chi 2 = 0.015$, $P > 0.05$). The incidence of nosocomial infection in different diseases was shown in Table 1. The incidence of nosocomial infection in different diseases was different. Among them, the incidence of cancer patients (5.22%) was higher than other patients, especially in patients with malignant tumors. 00%. Obstetric cesarean section hospital infection incidence rate 4. 77%, significantly higher than the incidence of vaginal delivery 1. 36% ($\chi 2 = 6. 9461$, $P < 0. 05$). Respiratory infection is the main site of infection. Obstetrics and gynecology patients with nosocomial respiratory infection site, the incidence rate is 1. 36%; Second, gynecological infection site is the urinary tract, obstetrics are incisions.

The incidence of nosocomial infections gradually increased with age. 19 cases of nosocomial infections in gynecology, aged 19 to 76 years old, average 41. 27 years old. The rate of nosocomial infection in gynecological patients gradually increased with age, reaching 47% in patients older than 50 years old. 37% (Table 3) suggest that senior patients are at high risk. In obstetrics, 24 cases were infected with only a small difference in age between 21 and 38 years old. The effect on the incidence of nosocomial infection was not specific. The majority of hospital stays in hospitals were extended to an average of 587 gynecological patients. On the 79th day, 19 patients with nosocomial infections were hospitalized for an average of 13.16 days, and more than 9 days constituted a ratio of 63. 16% (12/19); Average hospitalization for 767 obstetric patients 5. On the 13th day, an average of 24 hospitalized patients were hospitalized. 95 d. The number of days hospitalized for hospital infections was significantly longer. There are more than one risk factors for nosocomial infections in many predisposing factors of nosocomial infections. As can be seen in Table 4, the predisposing factors for gynecological hospital infection include hospitalization days> average length of hospital stay, age> 50 years, indwelling catheterization, and chemotherapy; The predisposing factors for obstetric hospital infection included hospitalization days, mean length of hospital stay, pregnancy complications, and indwelling catheterization. Among them, 681 cases of invasive operations were required for examination or treatment, and 43 cases of nosocomial infection occurred. The infection rate was 6. 31% (43/681), particularly 8 patients with urinary tract infections, had catheterization. No other significant susceptibility factors were found in the hospital infection history.

4. Discussion

Obstetrics and gynecology patients as a special group of hospitals have their own characteristics that distinguish them from other inpatients. In particular, maternal women are mostly healthy, but they are also at high risk of nosocomial infections (2). Their hospital infection rate is often higher than other departments. The incidence of this group of patients 3. 18%, including gynecology 3. 24%, Obstetrics 3. 13%, similar to the literature [3], it is particularly important to see how to improve conditions, improve the system, raise awareness, strengthen training, and strengthen management. The patient's condition is different and the incidence of nosocomial infection is different. Of these, 20 patients with gynecologic malignancy had a high incidence of 30. 00% was significantly higher than other patients, which may be the result of malignant tumors destroying the body's immune function, combined with large surgical trauma, long time, long postoperative indwelling catheter, and chemotherapy and other factors further reduce the body's resistance. Increased the chance of infection [4]. In addition, the cesarean section injury and invasion of the

catheter to increase the chance of infection, so the incidence of nosocomial infection in cesarean section and vaginal delivery was statistically significant, consistent with the literature [5].

The incidence of respiratory tract infections is highest in gynecology and obstetrics, and is different from the literature [4]. It may be mainly due to weak constitution after surgery or childbirth, decreased immunity, and easy invasion of pathogens. In particular, gynecological patients are older and organ aging. Reduced function, decreased immunity [6], combined with general anesthesia for gynaecological surgery, tracheal intubation may damage the respiratory tract; obstetrics are mostly due to postpartum windows and doors closed, poor ventilation, more visits to relatives and friends, etc. [1], leading to respiratory tract The incidence of infection is high. Gynecological urinary tract infections accounted for 31. 58%, the second highest incidence of nosocomial infection, may be related to the following factors: (1) Urethral resection and other operations require urinary catheterization and indwelling of the urinary catheter, which can easily stimulate the urethral mucosa or cause urethral injury, or Aseptic technique is not strict, improper care after catheterization, etc., are the main factors of urinary tract infection; (2) The anatomical and physiological features of the female urethra make the urethra easily contaminated, bacteria easily retrograde into the bladder [4], plus Adjacent to the uterus and bladder, surgery to separate the bladder and ureter can cause urinary system damage, resulting in decreased defense function; (3) gynecological patients over the age of 50 infection rate of 47. 37%, many postmenopausal women, poor resistance, is also a cause of high incidence of urinary tract infections. Incidence of surgical incision infection 29. In 17%, the incidence of infection in hospitals for obstetrics and gynecology was the 2nd. This is due to the long-term exposure of the incision and the instruments used during surgery may cause damage to other tissues, can cause infection; in addition incision, especially the perineal incision is easily contaminated with faeces [1]; some operations such as bleeding during cesarean section, trauma, long operation time, intraoperative amniotic fluid contamination, stagnation, etc., no doubt also increased the chance of infection [2].

Among the 19 cases of gynecology, hospitalized elderly patients were at high risk, and the incidence of nosocomial infections gradually increased with age, mainly due to the continuous degradation of the body's functions, and the gradual reduction of immunity and resistance. The obstetric cases in this group were all less than 38 years old, and the age difference was not significant, so the age difference was not a significant factor. 587 cases of gynecological patients living on average 8. On the 79th day, the average number of hospitalized residents in hospitals reached 13 in the 19 cases. 16 days, more than 9 days accounted for 63. 15%; average hospitalization of 767 obstetric patients 5. On the 13th day, the average number of hospitalized patients in the hospital was 7. For 95 days, the number of days of hospitalization for all infected cases was greater than the average length of stay in hospital. It can be seen that the longer the length of stay in obstetrics and gynecology patients, the more likely it is to cause nosocomial infection, or because hospital infections prolong the length of stay, consistent with the literature.

The risk factors for gynecological hospital infection include hospitalization days more than average hospitalization days, age over 50 years, indwelling catheterization and chemotherapy, etc. The risk factors for obstetric hospital infection include hospitalization days, average length of hospital stay, pregnancy complications, and catheterization. In addition to the foregoing reasons, gynecologic cancer chemotherapy reduces the patient's immune system is also a risk factor. In addition, maternal complications are also one of the factors due to the unique physical and pathological characteristics of pregnant women and childbirth during pregnancy and childbirth, which increase the possibility of infection.

67 strains of pathogenic bacteria were isolated, Gram-negative bacteria accounted for 64. 18%; Gram-positive bacteria accounted for 23.88%; It is worth mentioning that fungi accounted for 11.94%, fungal infections after treatment of nosocomial infections Very serious issues must be treated with caution. The results of single factor analysis in this group showed that age, disease type, length of stay, department, radiotherapy, surgery, and invasive procedures were all related to the incidence of nosocomial infection. Older patients have many chronic diseases, resulting in chronic loss of multiple organs, reduced body function, and can not effectively resist the invasion of

pathogens. In addition, older patients have reduced mobility, poor hygiene and hygiene, and most of them are bedridden, creating opportunities for pathogen infection. The treatment of patients with malignant tumors is mainly based on resection of lesions, radiotherapy and chemotherapy. The most common adverse reaction of radiotherapy is myelosuppression, which can significantly reduce the number of leukocytes and weaken the resistance [5]. Patients with malignant tumors are negative. Pessimistic emotions aggravate this trend. Hospitals are a special environment. Air, medical devices and medical personnel may carry pathogens in their hands. Therefore, the longer the hospital stay, the greater the chance of hospital infections, and the hospital infections will cause difficulties in the treatment, resulting in hospital stay. The prolongation has created a vicious circle. Surgery and invasive procedures are very common in obstetrics and gynecology, such as uterine myomectomy, hysterectomy, and cesarean section. Due to the physiological structure of women, catheters need to be placed during surgery. The degree of sterility of the device and the sterility awareness of the surgeons in the operation are closely related to infection, and the surgical incision is undoubtedly a susceptible site [6].

5. Conclusion

In summary, due to the specialty of the Department of Obstetrics and Gynecology, the high rate of urinary tract infections is one of its characteristics, which requires a high degree of surgical skills during operation, especially when performing total hysterectomy, to avoid the bladder Pulling, if at the same time if indwelling catheter, should do the appropriate nursing work; For gynecological cancer patients, should prevent infection, enhance nutrition, carry out the necessary psychological counseling; Patients with complications during pregnancy should be based on their gestation and childbirth The unique physiological characteristics of the period, to strengthen the basic care; at the same time for all types of handkerchief incision should prevent infection, and strengthen targeted nursing.

References

[1] Hu Xiangyang. Analysis of risk factors and nursing strategies for gynecological and obstetric hospital infections in general hospitals [J]. Medical Theory and Practice, 2009, 22 (9): 1148-1149.

[2] Chen Hongping, Wei Hongji, Yan Yingting, et al. Analysis of characteristics and risk factors of nosocomial infection in intensive care unit [J]. Chinese Journal of Hospital Infection, 2010, 20 (12): 1685-1687.

[3] Jin Yong, Liu Chibo, Luo Yongkang, et al. Clinical analysis of nosocomial infection in neurosurgical patients [J]. Chinese Journal of Hospital Infection, 2010, 20 (5): 644-645.

[4] Zheng Yuqun. Analysis and countermeasures of nosocomial infection in patients with malignant tumor [J]. Chinese Journal of Hospital Infection, 2010, 20 (11): 1556-1557.

[5] Jiang Chaoqun. Investigation of Nosocomial Infection in 3826 Cancer Patients [J]. Chinese Journal of Hospital Infection, 2010, 20 (7): 958.