Nursing Management of Adult Ostomy Patients During the COVID-19 Pandemic

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Abstract
The continuation of the COVID-19 epidemic poses novel challenges for adult ostomy patients care. It is essential to explore nursing management for ostomy patients to ensure patients receive standardized care while minimizing exposure to COVID-19. This article reviews the perioperative nursing of Chinese adult ostomy patients in the post-epidemic era, as well as outpatient review after discharge and home care, to provide reference and basis for medical staff and patients in the post-pandemic era.

Keywords
COVID-19, Ostomy, home care, continuous care, review

What do we already know about this topic?
In the COVID-19 situation, ostomy nursing, home nursing, and the protection of medical staff involved in nursing ostomy patients have changed. In order to adapt to this change, the nursing field must develop new nursing practices and protections for the care of ostomy patients.

How does your research contribute to the field?
This study introduces new guidelines for the care of ostomy patients in the post-pandemic era. These guidelines detail how to protect nurses, how to identify complications, and how to care for ostomy patients at home after discharge, in the post-pandemic era.

What are your research’s implications toward theory, practice, or policy?
This study has implications for the process of nursing ostomy patients in clinics and at home, and for the protection of medical staff and ostomy patients in the era of COVID-19.

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Introduction

Coronavirus disease 2019 (COVID-19) is an acute infectious pneumonia caused by a new type of coronavirus infection. As of December 22, 2020, the epidemic has affected 222 countries and regions, with more than 78 million confirmed cases and more than 100 countries with over 10,000 confirmed cases. COVID-19 spreads mainly through droplets and contact, with the population being generally susceptible at large. Its main clinical manifestations are fever, fatigue, and dry cough. A smaller number of patients also experience nasal congestion, runny nose, sore throat, myalgia, and diarrhea, among other symptoms. Relevant studies indicate that since viruses can be isolated from feces, attention should be paid to the aerosol or contact transmission of feces to the environment. An ostomy involves the separation of the intestine through surgical treatment, leading one end of the intestine to the body surface (ie, the anus or urethra to the abdominal wall) to form an opening to export the excretion of the gut or urinary tract. Ostomy is one of the effective treatments for colorectal and bladder diseases (eg, rectal, colon, and bladder cancers). The most common types of ostomies are ileostomies, colostomies, and ileal conduits (often referred to as urostomies). The incidence of rectal cancer in China has been steadily increasing by 4.2% every year. Additionally, there were 80,500 new patients with bladder cancer in 2020, which estimates roughly 100,000 new ostomy patients every year. Against the background of COVID-19, new challenges have presented themselves in perioperative nursing of ostomy patients, outpatient review after discharge, and home care. This article reviews nursing care of Chinese ostomy patients in the post-epidemic era of COVID-19 in order to provide reference and basis for medical staff, ostomy patients, and their caregivers.

Perioperative Care

Protection of Nursing Staff

Timely Learning and Training in the Diagnosis and Treatment Plan. All staff need to undergo training in the “COVID-19 latest version of diagnosis and treatment” and “Personal Protection Guidelines for COVID-19,” in addition to keeping a good record of training and assessment. Improving nurses’ knowledge of prevention and control of COVID-19 constitutes a major part of the preplan for nursing management systems for patients with stomas who may also be suspected or confirmed cases of COVID-19.

Application for Protective Equipment and Protection Standards

Applications should be submitted in writing or by telephone for personal protective articles during the COVID-19 pandemic. “A list of personal protective equipment for COVID-19” should be prepared in advance or applied for via application, to ensure that nursing staff meet the requirements of the hospital and National Health Commission of the People’s Republic of China in the post-epidemic era. Avoiding shortages of protective materials in the post-epidemic era will help ensure the safety of nursing staff.

First-level protection standards should be adopted in the daily work of outpatient and inpatient departments in the post-epidemic era: a) a hat, a surgical mask, work clothes, and medical gloves. Second-level protection standards should be adopted in the care of suspected or confirmed patients: a hat, KN95/N95 or above particulate protection mask, goggles, gloves, work clothes, protective clothes, as well as the addition of a disposable quarantine gown/suit. Disposable items should be treated according to infectious waste protocols after intestinal colostomy nursing. Masks should be replaced every 4 hours, before and after contact with patients, using hands-free disinfectant to wash hands according to the seven-step procedure.

Environmental Disinfection

Since the SARS-CoV-2 virus entails transmission risk from the environment, in the post-epidemic era, environmental disinfection plays an important role in occupational and patient protection. Adequate preventive measures should be applied for environmental disinfection: a) daily use of 500 mg/L chlorine disinfectant to wipe the nurses’ station table, keyboard, mouse, and other commonly used items; b) daily ultraviolet disinfection of the disposal room, dressing rooms, duty room, and office, at least two 30-minute ventilation periods in public areas daily; c) cleaning of the calendar clip with 500 mg/L chlorine disinfectant before returning it in time; d) daily wiping of ward bed units, including bedside table, pager, and door handle with 500 mg/L chlorine disinfectant, as well as daily use of 500 mg/L chlorine disinfectant to disinfect floors and at least two 30-minute ventilation periods in each ward per day; e) daily use of 500 mg/L chlorine disinfectant to clean the treatment vehicle; f) waste after treatment and care should be dealt with immediately; and g) end-disinfection is required in wards where patients with fever or CT imaging abnormalities are present for emergency treatment and discharge.

Patient Protection

Hospitalization Screening. All hospitalized patients and their families should be administered a hospitalization screening. Epidemiological screening and body temperature measurement are required when outpatients or family members enter the inpatient department. At the same time, it is necessary to carry out nucleic acid, IgM, and IgG antibody tests within 1 week to exclude COVID-19 before going through the admission procedure. Each patient is permitted to be accompanied by just one family member and epidemiological history screening, body temperature measurement, and results of
nucleic acid, IgM, and IgG antibody testing for COVID-19 are also required for the family member before admission to exclude COVID-19. After admission, the patient and the accompanying family member must each wear a face mask and a wristband, cannot leave the hospital during hospitalization, and may not remove the wristband themselves. Detection results of nucleic acid, IgM, and IgG antibodies of COVID-19 in patients and accompanying family members are effective within 2 weeks of the screening, and detection of COVID-19 should be carried out again after approaching the effective period.12

**Treatment of Suspected or Confirmed Patients**

Disposable surgical masks for suspected patients should be placed in isolation wards. The isolation ward follows the one-person-one-room principle, and the activities of suspected or diagnosed patients are restricted to the isolation ward, with a strict visiting system and no escorts. The stethoscope, sphygmomanometer, thermometer as well as other medical instruments and articles should be used exclusively by special personnel, and disposable diagnostic and therapeutic appliances should be chosen as far as possible. Before reuse, items must be packaged in double-layer, airtight packaging for delivery to the disinfection supply center for disinfection and marking. The domestic waste produced by the patient and the related medical waste produced by intestinal colostomy treatment and nursing should be disposed of according to infectious waste protocols. Nursing staff should follow second-level protection standards when performing intestinal colostomy treatment and in the case of nursing for suspected or confirmed patients, protective clothing, isolation clothes, medical masks, goggles, latex gloves, protective shoes, work caps, and so forth must be worn. The final disinfection of the isolation ward, including the floors, walls, and bed units, is required after the patient is transferred. According to the requirements of (COVID-19 diagnosis and treatment [Trial seventh edition]), patients diagnosed with etiological or serological evidence should be treated in single room isolation in designated hospitals with effective isolation conditions and protective conditions.13

**Self-Protection of Patients**

Patients and family members should be advised that they must wear face masks and wristbands during hospitalization and that it is not recommended for patients and accompanying family members to walk together between wards to avoid and reduce walking in ward corridors. In the wards, patients should avoid unnecessary touching, the ward doors should have quick-drying hand disinfectant, and patients and accompanying family members should wash their hands frequently in addition to using hand disinfectant. During hospitalization, patients and accompanying family members should wear masks throughout, and to avoid staff density, a distance of more than 1 m should be maintained between persons to prevent cross-infection.14

**Preoperative Counseling**

According to the cultural background of the patients and their families, the psychological state of the patients is evaluated and the main problems are determined, encouraging patients to express their feelings. Staff should listen patiently, help patients understand the purpose of the ostomy, and generally aim to enhance confidence in the success of the operation and capacity to recover.

**Preoperative Education**

Before surgery, the physiological anatomy and structure of the gastrointestinal tract and/or urinary system should be explained to the patients and their families, describing the following: a) the process of ostomy surgery; b) the lifestyle adjustment required of ostomy patients; c) ostomy bag related knowledge, including the importance of an intact skin barrier, ostomy chassis, and the ostomy bags system; d) information about ostomy accessories; e) the effect of an ostomy on interpersonal relationships and intimacy; and f) information about self-care and/or caregivers assistance, including daily care, how to correctly dump the ostomy bag, when to replace ostomy supplies, etc.15

**Postoperative Bedside Guidance**

Before changing the ostomy bag, nurses should explain the following to the patient and/or the caregivers: a) the normal appearance of the ostomy site and surrounding skin (eg, height, size, shape, abdominal opening location, and ostomy opening direction); b) shapes of different types of ostomy excrement (eg, for an ileostomy there should be no thin stool, for a colostomy there should be formed stool, for a urostomy there should be continuous urination with a small amount of mucus); c) how to replace and empty ostomy products; d) for urostomy patients how to use drainage bags at night; e) how to manage ostomy odor; f) how to manage common complications; and g) guidance on diet and liquid intake.16

Bedside demonstrations should be performed for patients and family members when changing the ostomy bag. The patient’s family members are required to gradually begin to participate in cleaning, measuring the size, cutting, and installing the ostomy bag until they fully learn and master the knowledge and operation of intestinal colostomy care. There is a possibility of oral transmission of COVID-19 from feces; therefore, patients and familial carers need to ensure they wash their hands before and after changing the ostomy bag, as well as wearing gloves to prevent cross-infection. With the shortening of hospitalization time and the need to prevent and control COVID-19, patients and their families should be guided to learn to safely carry out ostomy care. We can make full use of the internet to aid patients and their families via cloud online guidance and explanation. For example, Tencent conference, problem-based learning, and flipped classroom
models can be utilized for online guidance and education in order to alleviate the doubts of patients and their families in ostomy care in the home, thus, increasing the effectiveness of home care, reducing the number of re-admission and reducing the probability of COVID-19 infection.17

Recording and Improvement of Data

Establishing personal files for ostomy patients, evaluating and recording the condition of ostomy, issuing nursing manuals or establishing ostomy patients groups through the network to transmit ostomy care information and facilitate the continuation of care of patients after discharge. After the first four instances of nursing care, key patient details are recorded in their files. These include assessment of the ostomy, assessment of self-care ability of patients, assessment of DET skin around the ostomy site, and assessment of complications of the ostomy.18

Health Education Before Discharge

Explanation and guidance related to the prevention of ostomy complications must be provided to patients and their families before discharge. An internet-based ostomy care community can help by organizing regular activities to carry out health education for ostomy patients. Such activities might include lectures on ostomy issues from medical staff, introduction of ostomy products by specialist nurses, teaching of ostomy care techniques, and sharing of experiences among patients, in particular patients experienced in self-care, as well as online consultation. Short video courses can be recorded and uploaded to an online health education platform to introduce products and accessories related to ostomy, replacement of the ostomy bag, daily wear, daily cleaning, and dietary guidance for patients and their families. The establishment of official departmental accounts which upload information regarding the replacement process for ostomy, guidance on infection prevention, and nursing of ostomy complications allows patients and their families access to trusted, reliable sources of information which can facilitate patient and caregiver learning. A WeChat group of medical staff and patients can also be established to communicate important information regarding ostomy care, as well as facilitating the timely release of ostomy care information for patients and their families to continue learning at various stages of care.19

Outpatient Review and Consultation Guidelines

COVID-19 infection rates are very high, with one epidemiological study showing that the infection index of COVID-19 is 2.2 and that the population is generally susceptible.20 Therefore, ostomy patients after discharge from hospitalization or outpatient review should take the following protective measures.

1. Outpatient booking registration mode: The outpatient service recommends the adoption of the WeChat official accounts platform or appointment registration by telephone or internet. Patients need to fill in their health information (eg, body temperature, presence of a cough, a sore throat, abdominal pain, conjunctivitis, or other symptoms) during their appointment registration.

2. Outpatient system: The first step is to screen the epidemiological history and take a body temperature reading. Only one family member can accompany the patient and the accompanying family member also needs to undergo an epidemiological history screening and body temperature examination. The patient and the accompanying family member must wear masks throughout. In order to prevent cross-infection, the one-person-one-room system is strictly enforced in outpatient clinics. Patients and their escorts must keep a 1 m distance from other people in the waiting area. They also should not gather, and contact should be reduced.

3. Supply reserve for ostomy: It is suggested that ostomy patients should stock up on care products once every 2–3 months, thereby reducing the number of hospital visits or purchase these items online.

4. Treatment of ostomy care problems: We should train patients and their families in the skills necessary to effectively carry out ostomy care, thereby reducing the number of outpatient re-admissions. If the patient’s ostomy problem is serious, patients should be referred to the outpatient clinic while observing protocols aimed at reducing COVID-19 transmission.21

Home Care

Related studies show that home care is beneficial to the improvement of self-care ability and quality of life of ostomy patients. At the same time, against the background of COVID-19, the number of patients and their families admitted to the hospital has been reduced to prevent cross-infection.22 Therefore, in the post-epidemic era, patients, and their families require guidance on topics such as ostomy bag replacement, home diet, exercise management, delayed management of fecal ostomy, and the care of complications related to ostomy, to improve the ability of home care of patients.

Ostomy Bag Replacement in the Post-Epidemic Era

Ostomy care should be done in a ventilated and spacious environment. At the same time, masks and gloves should be worn, hand disinfection should be carried out before and after ostomy bag replacement and the replacement should be carried out only after emptying and cleaning. If the gloves break during ostomy bag replacement, they should be replaced immediately and the waste produced during ostomy bag replacement should be packed and treated appropriately and not mixed with other
waste. According to the standards of classified management of domestic waste, of the waste produced by ostomy bag replacement, the outer packaging is classified as recyclable, while the rest of the disinfection and ostomy bag replacement and other supplies are classified as hazardous waste for classified treatment. After ostomy bag replacement, the environment and supplies should be promptly cleaned and disinfected.23

Rational Use of Ostomy Care Products in the Post-Epidemic Era

In the post-epidemic era of COVID-19, although travel is no longer strictly restricted, it is necessary nonetheless to avoid excessive direct contact between people to reduce the risk of contact transmission. With ongoing the technological developments and adaptations, ostomy care supplies can be purchased on the internet. In order to ensure the quality and comfort of the products, attention should be paid to the website from which the products are ordered. Official product websites should be used and inquiries regarding the specific style, model, and origin of the products should be made where necessary. The choice of product is determined according to the patient’s age, manual dexterity, and vision. If the patient is older, manual dexterity is often poor and health conditions such as Parkinson’s or other serious diseases may cause hand tremors. Caregivers can choose cut-free ostomy bag for the patient’s convenience. At the same time, in terms of intestinal colostomy care, the use of ostomy care products can be properly saved.24

Home Diet and Exercise Management for Ostomy Patients in the Post-Epidemic Era

Colostomy patients have no internal and external sphincter at the site of the orifice, nor do they feel the receptors of dilation stimulation. The excretion of feces depends on intestinal peristalsis and defecation is not easy to control. If they do not pay attention to diet, it can easily lead to diarrhea, constipation, odor, and other problems. Therefore, regular defecation and an appropriate diet are inseparable. Colostomy and ileostomy patients should eat a high nutrition, high vitamin, fresh and digestible diet, and drink an appropriate amount of water (1500–2000 mL/d) to maintain stool softening. It is important to avoid foods that lead to the production of gas or cause diarrhea, such as beans, hollow vegetables, carbonated drinks, fried foods, etc. It is also necessary to avoid high-fiber foods, such as celery and leek, that cause constipation and obstruction, as well as avoiding foods that can lead to odor, such as garlic. The overall principles are that of eating a balanced diet, chewing slowly, and eating a small number of meals, in order to provide nutrition and improve immunity. Ostomy patients should reduce unnecessary outdoor activities, and use face masks and other protective measures when going out. They should try to exercise, but avoid strenuous activities, even during periods of isolation. A special abdominal belt can be worn during exercise to increase abdominal support and prevent excessive abdominal pressure during exercise that could lead to parastomal hernia.25,26

Delayed Fecal Ostomy Recovery in the Post-Epidemic Era

There is no uniform standard in China or globally regarding the time required for recovery from a fecal ostomy, so it is necessary to choose individualized care according to the patient’s condition. In the absence of contraindication, advocating a period of 3–6 months for fecal ostomy recovery after the first operation is generally appropriate. When patients undergo adjuvant or chemoradiotherapy, they can expect to recover from fecal ostomy 6 months after surgery. Early fecal ostomy recovery is beneficial in terms of improving the quality of life of patients and reducing the cost of care. However, given the present situation in the post-epidemic era of COVID-19, the fact that unnecessary personal contact must be limited, a longer period for recovery may be necessary. However, if complications related to the procedure arise and require clinical attention, patients can be admitted to the hospital in order to recover under more intensive treatment.27

Home Care of Ostomy Related Complications in the Post-Epidemic Era

The related studies showed that the incidence of ostomy complications was 11.0–60.0% in foreign countries and 16.3–53.8% in China. The incidence of short-term complications is about 2–20% and the incidence of long-term complications is about 37% in China.28 The complications of ostomy surgery include skin injury, prolapse, edema, hernia, bleeding, retraction, ischemia/necrosis of tissue, infection of the urinary system, etc. If abnormal or improper treatment is administered during home care, it may lead to the prolongation of problems, an increased probability of complications, and an adverse effect on the patient’s comfort. At the same time, this can lead to an increase in the number of re-admissions and thus increase the incidence of viral cross-infection in the post-epidemic era. Therefore, it is very important to correctly deal with ostomy complications and reduce the number of re-admissions. In the process of home care, patients need to observe the state of the ostomy site on an ongoing basis, including the color of the site and surrounding skin, redness, pain and bleeding, defecation, and exhaust of ostomy, in addition to routine nursing according to the guidance of medical staff. Below are some strategies for home care of common ostomy complications.

Skin Damage around Ostomy Site

Skin damage is one of the most common postoperative complications in ostomy patients. This is characterized by redness,
Ostomy Prolapse

Ostomy prolapse is a long-term complication, which refers to the protruding of the proximal intestinal tube through the stoma. A mild stoma prolapse is 1–2 cm, while a severe stoma prolapse involves full extubation. Ostomy prolapse is more common in annular ostomies. Therefore, in the course of home care, patients should evaluate the time, length, intussusception, edema, and blood supply of the intestinal tube prolapse in time. A one-piece or two-piece ostomy bag should be chosen and the opening size of the orifice chassis adjusted. The patient should be directed to lie down and the ostomy bag replaced after intestinal ostomy recovery. If there is a prolapse with ischemic necrosis or in cases where it cannot be reset, it is necessary to make an appointment with the ostomy therapist or competent doctor in time.29

Ostomy Edema

Ostomy edema is caused by a small skin incision or tight pressure on the intestinal tube, low serum protein, venous reflux, and fecal leakage. The time, degree of swelling, blood flow, and excretion of the ostomy should be evaluated in the case of edema during home care of ostomy patients. Mild edema with partial disappearance of mucosal folds may require radial clipping of the chassis, clipping of aperture 3–6 mm, larger than orifice chassis, and observation of edema regression. Either 3% hypertonic saline or 50% magnesium sulfate-soaked gauze can be used to cover the ostomy site mucosa with a local wet compress 2–3 times per day, 20–30 min each time, avoiding prolonged intestinal mucosal necrosis during local wet compress. At the same time, choosing a two-piece plastic chassis often sprinkled with ostomy powder, as well as timely correction of hypoproteinemia, etc., is advised.30

Parastomal Hernia

Parastomal hernia is one of the most common postoperative complications in ostomy patients. It is more common in instances of obesity, malnutrition, weak abdominal walls, incision infection, ostomy deviation from the rectus abdominis, hormone use and long-term constipation, cough, etc. The main manifestation is that the recurrence of mass, standing or force and other factors can lead to increased abdominal pressure, resulting in an increase in the mass, without the occurrence of inlay. After lying down it can be self-absorbed and the mass can disappear as the main manifestation. In the process of home care, patients with parastomal hernia should evaluate whether the state of the hernia is acceptable or not, and if the size of the palpable fascial ring defect be bandaged with or without an orifice abdominal band. If there is dark coloration of the orifice or continuous abdominal pain, no gas, feces from the orifice, loss of appetite, abdominal distension, nausea, vomiting or protruding into the hernia ring of the intestinal tube inlay, it is necessary to see a doctor, to avoid the occurrence of intestinal tube necrosis and other complications. If necessary, an ostomy hernia repair operation may be performed. Urostomy patients should avoid holding their breath, and, if necessary, the ostomy site should be supported by hand, or by using an abdominal belt or bundle pants.12

Infection of the Urinary System

Owing to the small volume of water that many ostomy patients consume daily, as well as periostomy skin uric acid, urinary system infections are common in urostomy patients. In daily life, patients should pay attention to changes in the color, smell, and turbidity of their urine. If there is a reduction in the amount of urine a patient is producing, or if the patient experiences abdominal pain or other symptoms suggesting infection, they need to undergo medical review. Under the premise of normal kidney function, ostomy patients should drink 1500–2000 mL of water daily and eat more fresh vegetables and fruits rich in vitamin C. The ostomy bag should be replaced every 4–5 days, or when it is 1/3 full of urine. Patients should pay close attention to hygiene when replacing the ostomy bag and choose an ostomy bag with an anti-current device. They should also connect a drainage bag during to the ostomy while sleeping. When a patient retains a ureteral stent, it important to pay attention to the cleaning and fixation of the stent tube, ensuring the ureteral stent outlet does not block the anti-reflux device. If the catheter is removed, patients should seek medical attention immediately. Patients with ureterostomy should also regularly replace their ureteral stent catheter and keep it unobstructed. Last, they should wear an ostomy pocket when bathing.13

Application of Internet and Multimedia Technology

In-Home Care of Ostomy Patients

Ostomy patients need to establish stable online contact with medical staff through the internet and multimedia technology to...
better solve the problems of home care for patients with ostomy. Patients and their families can also learn and understand the introduction, nursing, and use of ostomy care products through WeChat official accounts and other channels, as well as the daily diet, activities, bathing, clothing, and other related issues experienced by ostomy patients. During the post-epidemic era, patients with ostomy may also communicate with other patients through the internet and multimedia technology when they encounter serious psychological problems such as fear and anxiety.34

Summary
The COVID-19 epidemic has brought great challenges to the healthcare system, and medical service providers must constantly assess and make real-time adjustments to their policies and procedures. In the post-epidemic era of COVID-19, the quality of ostomy care should be improved while at the same time medical staff should take measures to protect themselves. A scientific and standardized system that considers post-pandemic regulations should be established to improve the experience of ostomy patients.35 While in medical centers, patients and their escorts should wear protective equipment and strictly abide by the epidemic prevention and control systems of medical institutions. In the post-epidemic era, the existing ostomy services and the relationship between caregivers, patients, and health care should be changed for the better.36 Ostomy patients and caregivers must also be given the tools to improve their ostomy self-care abilities, gradually transitioning to a “home care as the main, outpatient care as the auxiliary” mode of nursing, thereby reducing the number of admissions, to prevent cross-infection.

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