

Progress in the Treatment of Decubitus Ulcers in Chinese and Western Medicine

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Abstract: *Decubitus ulcer is a kind of hard-to-heal ulcer formed due to prolonged bed-ridden illness, localized pressure or long-term friction on the torso, resulting in skin breakage, also known as "Xi-Sore" in Chinese medicine, which is similar to "Pressure Sore" in Western medicine. Decubitus ulcers not only increase the patient's pain and medical expenses, but also increase the treatment and nursing time and nursing difficulty of the patient's family and medical staff, bringing a greater medical and economic burden to society. Decubitus ulcers seriously jeopardize the physical and mental health of patients, significantly reduce the quality of life of patients, and bring great pressure on the survival of their families and a heavy economic burden, as well as causing a great loss of medical resources. Therefore, the search for more effective treatments is a major demand for innovation and development in the field of population and health. Simple Chinese medicine or Western medicine treatment of decubitus ulcers has its limitations, the combination of Chinese and Western medicine treatment of decubitus ulcers has distinctive features and advantages, for decubitus ulcers of all subtypes or periods of time have more obvious therapeutic effect, and effectively prevent the further aggravation of decubitus ulcers, the patient not only reduces the pain and the risk, but also allows the family to reduce the economic burden, it is a worthy of popularization of the treatment method. Therefore, this paper intends to provide a theoretical basis and therapeutic ideas for the systematic diagnosis and treatment of decubitus ulcers by outlining the diagnostic and therapeutic methods of decubitus ulcers.*

Keywords: Decubitus ulcers, Pressure ulcers, Difficult-to-heal ulcers, Chinese medicine treatment, Western medicine treatment, Treatment of untreated diseases.

1. Introduction

Decubitus ulcers are ulcers that form when the skin breaks down due to prolonged bed rest, heavy pressure on the body, or prolonged friction, similar to "pressure sores" and "pressure injuries" in Western medicine. According to the relevant literature, the number of patients who die from complications of bedsores is about 60,000 per year in China [1]. Nowadays, our country is gradually stepping into the aging society, accompanied by the incidence of geriatric diseases is increasing year by year, bedsores is one of the common complications, especially in coma, hemiplegia, paralysis of the lower limbs, long-term illness or serious illness requires long-term bed-ridden patients, preferably in the sacrococcygeal region, hip, back, heel, occiput and other parts of the body susceptible to pressure and friction [2]. Light cases can be cured by treatment and care; serious ulceration, oozing water, long time hard to be cured. The treatment of this disease should emphasize on prevention, under the guidance of "the theory of treating the future disease", timely and effective intervention can avoid the occurrence of decubitus ulcers. How to efficiently treat bedsores and improve the survival rate of patients is an urgent issue at present. This article summarizes the literature on bed sore treatment published at home and abroad in recent years, and summarizes the treatment methods and means of Chinese and Western medicine in bedsores, with a view to providing reference for clinical selection.

2. Treatment of Decubitus Ulcers by Western Medicine

2.1 Active Treatment of Primary Diseases

This disease is most common in patients who have been bedridden for a long period of time due to illness, and active treatment of the primary disease can help to avoid the occurrence of bedsores and facilitate their treatment.

2.2 Reduction of Pressure in Pressurized Areas

Decubitus ulcers are considered to be pressure injuries and are mainly caused by inadequate perfusion of soft tissues. Reducing pressure on pressure-sensitive areas is effective in preventing the development of bedsores and may also help in the treatment of bedsores. Alshahrani B et al. demonstrated that interventions to prevent pressure injuries were effective in preventing the development of bedsores through a search of electronic databases for 14 studies and related analyses [3]. Shi C et al. also evaluated the relative effectiveness of different types of beds, mattress pads, and mattresses in reducing the incidence of pressure ulcers and promoting pressure ulcer healing in any setting and population through a web-based meta-analysis, demonstrating that people with reactive air surfaces were more likely to achieve pressure ulcer healing than those with foam surfaces in a long term care setting [4].

2.3 Nutritional Enhancement

Successful wound healing is dependent on collagen synthesis/deposition and surface replacement of epithelial cells, both of which are highly dependent on adequate nutritional stores and support. The occurrence, development and healing time of pressure ulcers are closely related to nutritional status [5-6], timely and comprehensive assessment of nutritional status and nutritional intake, and active correction of nutritional status play a crucial role in pressure ulcer recovery. Zhou Ying By analyzing the risk factors for

the development of bedsores in elderly bedridden patients, it is concluded that active improvement of nutrition can effectively reduce the occurrence of bedsores and promote the healing of bedsores [7].

2.4 Anti-infection

Infection arises when the host's defense balance is disrupted. Infection plays various roles in the etiology, healing, surgical repair and complications of bedsores. Therefore appropriate use of antibiotic therapy helps in the treatment of bedsores. Mao Jinmei through the combined application of haloperidol and sores and ulcers Ling treatment of third-degree decubitus ulcers efficacy observation proved that the combined use of antibacterial, anti-septic, analgesic, astringent and other effects of the combined use of antibacterial spectrum wide, overcoming the traditional defects of a single use of antibacterial effect is poor, improve the effectiveness of the treatment [8]. Huang Zhongxin et al. also found that red light irradiation combined with mupirocin ointment could effectively alleviate the symptoms of pressure ulcers and promote the repair of skin lesions in post-stroke stage III patients through a clinical study [9].

2.5 Surgical Debridement and Surgical Treatment

Surgical debridement and local flap transfer are the main procedures. The debridement procedure is to remove the necrotic tissue to reduce the resorption of the necrotic tissue, but the damage to the surrounding normal tissues may cause severe pain to the patient, and the reconstructed area is prone to the recurrence of pressure sores, incision cracking and other problems. Local flap transfer is based on the site of the wound, size and other characteristics, in order to the proximity, easy to transfer and donor area suture as the principle, cut the normal tissue flap, transplanted to the site of the wound after debridement, in order to improve the survival rate and the success rate, often combined with the negative pressure closure and drainage technology and other treatment modalities. Li Yonglu Through retrospective summarization, it was found that MEBO with debridement for refractory pressure wounds can significantly control infection, remove necrotic tissues, and promote wound healing [10]. Zhou Jin et al. used personalized flap surgery to repair deep pressure ulcer wounds around the gluteosacral area. The flap had good blood flow, high survival rate, good wound repair effect, little effect on the shape and function of the gluteosacral area, and high patient satisfaction rate [11]. Xu Pei et al. adopted the surgical treatment method of double leaflet flap repair of the superior or inferior gluteal artery to better solve the problem of high tension in the donor area of single leaflet flap, with reliable flap blood flow, few postoperative complications, and good recovery of the appearance of the donor and recipient areas of the buttocks, especially for the repair of elderly buttock pressure ulcers accompanied by arteriosclerosis and occlusion [12]. Some scholars have also found that VSD combined with superior gluteal artery perforator flap for the repair of sacrococcygeal pressure ulcers has significant therapeutic effect, which can effectively improve the survival rate of the flap and wound healing, control infection, promote wound healing, and reduce the rate of recurrence [13].

2.6 Use of Wound Dressings

Currently, it can be divided into wet and dry healing dressing treatment. Dry healing dressing treatment mainly plays a protective and isolating role, but easy to make the wound form "dehydration necrosis" state, is not conducive to the growth of epithelial cells. Wet healing dressing treatment refers to the use of wet healing dressing, such as hydrogel dressing, hydrocolloid dressing, etc., the application of wet healing theory, to create a moist environment for the wound, conducive to the necrotic tissue and fibrinolysis, the complete healing of wounds to play a role in promoting. Zhou Li et al. used a randomized method to compare the application effect of dry healing and wet healing in pressure ulcer care and found that adopting the wet healing method to implement pressure ulcer care can improve the effect of pressure ulcer treatment, wound healing faster, and reduce the number of dressing changes [14]. Some scholars through clinical observation found that compared with dry healing treatment, wet healing treatment of pressure ulcers can improve the therapeutic effect and shorten the healing time [15]. Wet dressing has obvious superiority in absorbability and airtightness, which can effectively prevent infection, promote the release of active substances, and at the same time improve the low-oxygen state of microcirculation of wounds, creating a more suitable environment for rapid healing of wounds and wounds [16]. Wet dressing can promote the tissue growth of all kinds of chronic wounds, shorten the wound healing cycle, reduce the pain of patients during dressing change and the formation of pigmentation and scar [17].

2.7 Other Physiotherapy

It mainly includes laser irradiation, ultraviolet light, hyperbaric oxygen, and electrical stimulation. Electrical stimulation can directly stimulate muscle force changes, indirectly affecting the redistribution of pressure, while also enhancing collagen, DNA synthesis, ATP concentration and other cellular activities, increasing tissue perfusion, reducing edema, promoting vascular regeneration, inducing cell differentiation, thereby promoting wound healing [18]. Hyperbaric oxygen therapy can increase the partial pressure of blood oxygen, increase the amount of physically dissolved oxygen in local tissues, improve their insufficient or impaired blood supply, and thus reduce tissue necrosis. Using Meta-analysis, Wu Jiaqian et al. found that the application of hyperbaric oxygen in combination with conventional therapy was more effective than conventional therapy alone in the treatment of pressure injuries [19]. Some clinical studies have confirmed that hyperbaric oxygen assisted therapy can effectively treat stage 03 pressure injuries, shorten the course of the disease, reduce the pain of patients, and the efficacy of the treatment is remarkable [20].

2.8 Vacuum Sealing Drainage (VSD)

Drainage of wound exudate, necrotic tissue and bacteria through negative pressure suction and promotion of granulation tissue growth create favorable conditions for wound repair. This method can significantly inhibit the inflammatory reaction of the wound and promote wound healing by combining with Chinese medicine rinsing solution. Prospective study on the application of modified negative pressure film method in patients treated with sacrococcygeal VSD found that it was effective in accelerating the growth of

granulation, reducing the severity of pressure ulcers, and promoting wound healing [21]. Huang Xiaodong and other scholars found that the use of continuous double-negative pressure micro-pressure drainage after flap repair in patients with pressure ulcers can reduce the release of inflammatory cytokines, shorten the healing time and hospitalization time, and improve the therapeutic efficacy and reduce the incidence of complications [22]. Lv Dezhen and other scholars believe that VSD can reduce the macromorphology of trauma epithelium, relieve inflammation, promote the growth of granulation tissue, remove traumatic bacteria, inhibit apoptosis, and accelerate the repair of injured nerves [23]. Zhang et al. found that VSD can improve the total area of trauma, the incidence of hemorrhage, the number of bacteria, the 28-day healing rate, the peripheral C-reactive protein (CRP) level, and the hospitalization rate of elderly chronic critically ill patients with Stage III and Stage IV pressure injuries. protein (CRP) levels, and length of hospitalization, resulting in significantly shorter treatment time and lower incidence of bleeding and infection [24].

3. Treatment of Decubitus Ulcers with Traditional Chinese Medicine

3.1 Internal Treatments

Decubitus ulcers are often a complication of systemic diseases, and the internal treatment should be based on the specifics of the original disease and comprehensive diagnosis and treatment. To tonify qi and blood as the mainstay, supplemented by blood circulation and detoxification, with the meaning of "supporting the right and reaching the wrong", commonly used Sijunzi Tang, Siwu Tang, internal supplementation of Astragalus Soup, Toli Disinfectant Dispensary, Shengong Neito Dispensary, and so on.

3.1.1 Initial stage of decubitus ulcers,

The condition is mild, can be seen in the skin color of dull red, or paralytic pain, or numbness, local hard knots, but not ulcerated, dull tongue, thin white moss, pulse is fine and astringent. Most of them are Qi stagnation and blood stasis cases, to activate blood circulation and remove blood stasis, dredge the meridians and open up the channels for the method, and the medication should not be attacked and attacked, bedsore patients are weak, so as not to injure the correct. The formula can refer to the addition and subtraction of Taohong Siwu Tang.

3.1.2 Festering and rotting stage

In this stage, the skin and flesh can be seen to be ulcerated, the rotting flesh has become, and the pus is more, and it is mostly accompanied by qi and yin injuries, so it is treated by regulating qi and supporting toxins, benefiting qi and nourishing yin and utilizing the addition and subtraction of Pus Dispensary and Pulse Sangsang. The efficacy of "Penetrating Pus San" is contained in "Surgery Authentic": "Treating carbuncle and gangrene, all kinds of poisons..... are ready to be broken." Pus Dispersant is composed of five herbs, namely, Astragalus, Panax notoginseng, Rhizoma Ligustici Chuanxiong, Radix Angelicae Sinensis and Rhizoma Saponariae. In the formula, Astragalus benefits the qi and

yang to promote the excretion of toxins; Angelica sinensis and Rhizoma Ligustici Chuanxiong nourish the blood and activate blood circulation; Andrographis paniculata and Soapwort soften the hardness and penetrate the pus; the whole formula combines both attacking and tonifying, nourishes the positive and dispels the evil, and the medicines together perform the functions of "tonifying the deficiency and supporting the toxins, penetrating the pus to dispel the corrosion", which can help the healing of the wounds in the bedsores. As for "Sheng Wei San", its composition is ginseng, maitong and schizandra.

3.1.3 Closure period

In this period, it can be seen that the decayed flesh of the sore has been taken off or is difficult to take off, and the color of the sore is pale, which is difficult to be healed, so it is treated by tonifying qi and nourishing blood, and promoting toxin and muscle growth, and applying the treatment of Bach Zhen Tang with the addition of Tuo Li Disinfecting Sansheng. Ming Shen Duyuan "Surgery Qixuan" said: "The ulcer is the name of carbuncle after the pus has come out. When depending on its deficiency and treatment, such as pus out, and counter-pain, sores for a long time and not convergence, fever, dry mouth, pus clear and thin, swelling under the soft and slow, pulse is large and weak, the sore of the virtual also, it is appropriate to tonic of the eight treasures soup." Eight Treasures Soup is a combination of Four Substances Soup and Four Gentlemen Soup, consisting of ginseng, atractylodes, poria, angelica, chuanxiong, peony, dihuang, and licorice. Therefore, the Eight Treasures Soup can complement both blood and qi, replenish qi and nourish blood, can accelerate the healing of wounds.

Tori disinfecting powder is contained in Surgical Authenticity: "Tori disinfecting powder is used to treat carbuncles and gangrene that have been established and cannot be eliminated internally..... decayed flesh is easy to remove and new flesh is easy to be born." It shows that Tori Disinfecting Powder has the effect of dispelling decay and generating new flesh. This formula is composed of 12 herbs: ginseng, chuanxiong, white peony, astragalus, angelica, atractylodes, poria, honeysuckle, dahurica, licorice, saponin, platycodon. Therefore, it is suitable for those who cannot get rid of the decayed flesh of decubitus ulcers, and the new flesh is not born.

3.2 External Treatments

Following the principle of "external treatment is internal treatment, external medicine is internal medicine", according to the etiology and mechanism of the disease, most of the bedsores are treated in the early, middle and late stages after ulceration. In the early stage, when there is a deficiency of qi and blood stasis, and heat enters the camp and blood, external treatment of Chinese medicine should be "lifting the pus and dispelling the corrosion", and external medicine should be used to treat with Wuwu Dan or Heihu Dan, etc. In the middle stage, when the qi and blood are weak, and there is no ability to support the toxin, external treatment of Chinese medicine should be "to support the toxin to generate the muscle", and external medicine can be chosen as Qisan Dan, Baeran Dan, Huiyang Yulong In the late stage, Yang Qi is gradually weakened, and cold condenses the meridians, so the external treatment of TCM is to "regenerate the muscles and close the

mouth", and the medicines used are regenerate the muscles and use Yuhong San and so on.

3.2.1 Moxibustion Mode

Mugwort, with pungent and bitter flavor, warm in nature, belongs to the meridians of liver, spleen and kidney. Moxibustion has the function of warming the meridians and collaterals, harmonizing qi and blood, activating blood circulation and eliminating blood stasis, dispelling dampness and promoting muscle growth. At the same time, moxibustion can play a synergistic effect of drugs and heat, with the function of adjusting the internal organs, which helps to draw the evil out and its own recovery, so it can be used in the early treatment of decubitus ulcers. For example, Tao Hongjing's "Famous Doctor's Record" contains: "The main moxibustion of all diseases..... li yin qi, raw muscle, dispel wind and cold." Qing - Wu Yiluo "Materia Medica from the new": "Mugwort leaves, bitter, pungent. Raw warm ripe hot, pure yang nature..... to the moxibustion fire, can penetrate the meridians in addition to all diseases."

3.2.2 Herbal medicine

Ancient books record that Zelan has the effect of activating blood circulation and removing blood stasis when used externally, and that it can be used alone to treat bruises, stasis and pain. For example, "Zi Mu Secret Record" says: "To treat bed sores of children, chew the heart of Zelan and seal it."

3.2.3 Poultice

The True Interpretation of Surgery says: "Seat sore is a person who has been sick for a long time and is in bed..... Externally, use ginseng and angelica deer antler poultice to paste it." This formula consists of deer antler, astragalus, licorice, ginseng and angelica. Astragalus, ginseng, angelica can tonify qi and blood; deer antler warms yang and warms qi, generates essence and tonifies blood; licorice tonifies and harmonizes all medicines. The five medicines work together to benefit qi and blood, warming yang and warming blood, so the ointment can promote the improvement of bedsores with great deficiency of qi and blood in long term illness.

3.2.4 Pad method

"Ulcer medicine Daquan" said: "prescription, horse fart Bo pad. Another prescription, wheat bran silk mounted mattress, cushion. Another prescription, cover the house of rotten grass, research fine pads to sleep." It discusses how bedsores can be treated by using a mattress made of horse's fart, wheat bran, and finely ground gaiya chenmao (rotten grass) to prevent further damage to the skin in the affected area. Among them, the horse fart Bo is horse Bo, there are medicinal effects, beginning with the "Famous Doctor Bie Lu": "Taste pungent, flat, non-toxic. The main treatment for sores, horse scabies. A horse mange. Born in the garden long rot."

3.2.5 Adulteration

The "Faithful Inspection Formula" says: "For bedsores, raw dandelion and powder are effective." Decubitus ulcers can be treated by mixing raw dandelion with powder. Although the

book does not clarify the composition of the powder, modern medicine has confirmed the efficacy of Pu Huang in treating bedsores.

3.3 Specialty Therapies

Traditional Chinese medicine has a complete theoretical system and unique advantages in therapeutic effects. Throughout the generations, medical practitioners have achieved the goal of preventing and treating decubitus ulcers by summarizing their experiences, perfecting their theories, and identifying and applying treatments. At present, clinically, most of the treatments are based on the principles of "supporting decay and regenerating muscles", "clearing heat and removing toxins", "regulating qi and activating blood circulation" and "opening up the channels", etc., and different special treatments are chosen for different stages and types of evidence, including acupuncture, plasters, external dispersions, rinsing of Chinese medicinal fluids, and massage and acupressure.

3.3.1 Moxibustion therapy

The Secret Essentials of Wai Tai: "Moxibustion on the sore, three days and three nights, without fail". Both traditional moxibustion therapy and heat-sensitive moxibustion therapy are suitable for bedsores with qi stagnation and blood stasis. Moxibustion can be used throughout all stages of the treatment of bedsores, especially in the early stages of bedsores with moxibustion therapy, can enhance the efficacy. Modern research shows that moxibustion therapy can improve immune function, inhibit sensory nerve excitation, promote local blood circulation, wound epithelial cells, capillaries and granulation tissue growth [25-26].

3.3.2 Acupuncture therapy

Acupuncture combined with fire needle can be taken bilaterally (Tianshu, Ashigaru, Guanyuan Yu, Sanyinjiao, etc.) points, the fire needle quickly puncture the lesion site, quick in and out without leaving a needle, to the sore for the acupoints, and take the needle after the flat tonic and diarrhea. Acupuncture can also be used electro-acupuncture circumferential stabbing method, the point is a yes point, that is, the skin around the wound. Yan Cuilan et al. pointed out in the experimental report that the fire needle is more than ordinary acupuncture stimulation, with the sore as the acupoint, the number of acupuncture points varies, the fire needle quickly puncture the lesion site, quick in and out without leaving the needle, and then external application of traditional Chinese medicine, this method can obtain a strong and long-lasting feeling of needles, and promote the healing of wounds [27-28].

3.3.3 Acupressure Massage

Massaging the pressurized area along the meridians and combining with acupressure has the therapeutic effect of clearing heat and removing toxins, dispersing blood stasis, relieving pain and reducing swelling. Massage of the pressurized area, especially the reddened skin, can promote blood circulation in the local pressurized area [29-30], but it may increase the pressure of the area, etc., aggravating the

lesion, which needs further clinical verification.

4. Discussion

With the development of science and technology, there are a variety of new dressings and topical preparations available for bedsore wound care, but most of the drugs or dressings in Western medicine are expensive and have their own shortcomings, while Chinese medicine preparations are closer to the needs of the contemporary society with their traditional advantages of being green and natural. For patients with different stages of decubitus ulcers, the combination of Chinese and Western medicine can bring out the synergistic advantages, avoid the shortcomings and limitations of single treatment methods, improve the clinical symptoms of decubitus ulcers, shorten the time of wound healing, and improve the quality of wound healing, thus providing a more effective treatment plan for the clinical treatment of decubitus ulcers, as compared with the use of traditional Chinese medicine and Western medicine only.

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