

PROGRESS IN PHYSICAL THERAPY FOR DRY EYE DISEASE

Christine Sharp
University of California, San Francisco, California.

Abstract: In recent years, with the continuous development of information technology, people are generally overtired when using their eyes, so that the incidence of dry eye syndrome continues to increase, which has a great impact on patients' daily life. Life and work have had varying degrees of negative impact. Dry eye syndrome is a common ocular surface disease in clinical practice. At present, clinical medicine has developed a variety of treatments. Treatment methods and methods. Based on this, this article summarizes the research progress of physical therapy for dry eye disease, and analyzes the fumigation, atomization, eye massage, hot compress, wet room The effectiveness of traditional physical methods such as lenses in treating dry eye disease, With new bandage lenses and scleral contact lenses, LipiFlow thermal pulsation therapy, intense pulsed light therapy. The therapeutic effects of modern physical methods such as wet chamber heating goggles are hoped to serve as a reference for research in this field.

Keywords: Dry eye syndrome; Physical therapy; Research progress

1 TRADITIONAL PHYSICAL THERAPY METHODS

Dry eye syndrome is clinically defined as tear film instability and/or ocular surface damage caused by abnormal tear quantity or quality, resulting in ocular discomfort, symptoms and visual dysfunction [1]. Dry eye syndrome often causes burning of the eyes Symptoms such as sensation, foreign body sensation, dryness, blurred vision, and photophobia are the main clinical symptoms. performance, seriously affecting the patient's daily work and life [2]. dry eye syndrome It is an ocular surface disease caused by a variety of factors. Often accompanied by tear penetration Elevated blood pressure or ocular surface inflammation. With the widespread use of electronic products, people Excessive eye fatigue, causing the incidence of dry eye syndrome to decrease with younger age groups The development trend is increasing year by year [3]. As a primary treatment for dry eye syndrome Physiotherapy has been used in clinical practice for many years, and with the development of science and technology exhibition, Various new types The instruments and equipment are dry eye syndrome Treatment brings new hope [4]. This article discusses the progress of physical therapy related to dry eye disease in recent years. Make a review.

1.1 Fumigation Therapy

Fumigation therapy can promote tear circulation and secretion, The drug acts directly on the ocular surface to achieve the purpose of improving nutrition around the eyes. of. Liu Nianzi [5] compared hot compress, massage, and artificial tear eye treatment with augmentation The efficacy of strong traditional Chinese medicine fumigation was concluded, and the treatment effectiveness of the research group was(94.52%)higher than the comparison group(72.58 %), suggesting that fumigation therapy effectiveness.

1.2 Nebulization Therapy

Atomized therapy has direct penetration into the cornea and conjunctiva The role of transparency, The active ingredients of traditional Chinese medicine can be filled in the form of mist droplets Eye patch, and fully act on the cornea and conjunctiva of the affected eye, can not only promote Qi and blood enter the eyes smoothly, with few side effects and obvious curative effect. Meng Zhizhi [6] was randomly grouped 100 patients with dry eye syndrome were divided into research group and comparison group. Do not give nebulization treatment and artificial tear eye drops treatment. The results show that The treatment effectiveness of the research group(85.00%)was higher than that of the comparison group(54.00%). It indicates that atomization therapy has obvious clinical efficacy.

1.3 Eye Massage and Massage Devices

Massage around the eyes can stimulate the meibomian glands The function of opening the mouth unobstructed, Can effectively help patients secrete and discharge tarsal membranes Glandular lipids, promote local microcirculation and metabolism, and improve dry eye symptoms. plum Zeqiong [7] randomly divided 80 patients with dry eye syndrome into the observation group and the experimental group. Group, Meibomian gland massage was performed separately, combined with ear pressure therapy and conventional glass Sodium hyaluronate eye drops were used for eye treatment. The eye massager is an effective combination of acupuncture and massage, At the same time Equipped with the effects of traditional Chinese medicine acupuncture and mechanical massage, can be effectively improved Meibomian gland function. Cao Xiaochuan [8] was randomly grouped 144 patients with dry eye syndrome For the treatment group and the control group, patients were treated with periocular pulse therapy device respectively. When treated with artificial

tear eye drops, the results showed that the tear film in the treatment group was ruptured. rupture time(BUT), basal tear secretion test(SIt)and corneal fluorescence The improvement of pigment staining was better than that of the control group. Tips for eye massager Dry eye syndrome has obvious therapeutic effects.

1.4 Hot Compress Treatment

Hot compress can promote blood circulation in the eyes It can fully remove local lipid deposition, thereby improving eye irritation. the purpose of stimulating symptoms. Pang Yanying et al [9] observed 60 patients with dry eye syndrome. Randomly divided into observation group and experimental group, Give hot compress treatment and people respectively Treatment with industrial tear eye drops, the results showed that the treatment effectiveness of the observation group was (86.66%)was higher than that of the experimental group(66.66%), indicating that hot compress treatment has an obvious therapeutic effect on dry eye syndrome.

1.5 Wet Room Mirror

Wet chamber mirror has the purpose of indirectly preserving tears and can Reduce ocular surface water evaporation and maintain a "wet room" environment, Liu Mu [10] Randomly 74 patients with dry eye syndrome were divided into control group and treatment group, and were treated respectively. 0.1% sodium hyaluronate eye drops treatment and wet room mirror treatment, the results suggest that the treatment Non-invasive tear break-up time and tear river height of patients in the treatment group(TMh)were better than those in the control group, indicating the effectiveness of wet chamber mirror in treating dry eye disease.

2 MODERN PHYSICAL THERAPY METHODS

2.1 Bandage Lenses and Scleral Contact Lenses

The bandage mirror has a certain barrier It can reduce the damage to the cornea caused by external factors, reduce matrix metalloproteinases in tears, support new corneal epithelial cells, promote corneal epithelial repair, and effectively relieve the symptoms of dry eyes.. Xie Ruiling et al [11] selected 58 patients with dry eye syndrome, comparing patients before and after bandage mirror treatment Situation, results showing fluorescein staining(FL)of the patient's cornea after treatment Scores were better than before treatment, Tips: bandage lens can effectively improve dry eye patients patient's FL score, the efficacy is worthy of recognition. Scleral contact lenses cover the sclera and conjunctiva to keep the ocular surface moist Moisturizing state, thereby effectively reducing the symptoms of dry eyes. Selected by Dong Cuicui et al [12] 70 patients with dry eye syndrome were studied and compared with treatment using micro scleral contact lenses. The patient's condition before and after treatment. The results showed that the patient's artificial tears improved after treatment. The demand is reduced and dry eye symptoms are effectively improved.

2.2 Intense Pulsed Light Therapy

Intense pulsed light therapy can be used to treat tarsal plaques Glandular dysfunction and related dry eye, Improve patients ' TMh and prolong BUT, beneficial to the recovery of meibomian gland function. Qiu Meilan [13] selected 100 patients with dry eye syndrome were treated with intense pulsed light, the results show that the treatment Meibum fluidity and BUT of patients after treatment A substantial increase, Eyelid water The swelling and meibum viscosity were significantly improved.

2.3 Blephasteam Wet Room Heating Goggles

It consists of eye protection The mirror and power supply device use electric current to heat and humidify the eye area to relieve dryness. The purpose of symptoms related to eye disease. Tang Haihua et al. [14] selected 64 patients with dry eye syndrome and treated them with Blephasteam humid chamber heating goggles. The patient's eye discomfort symptoms were significantly improved after treatment.

2.4 Lipiflow Thermal Pulsation Therapy

This treatment consists of a heater Combined with an eye mask, it can directly massage the meibomian glands, effectively combining Advantages of hot compress and meibomian gland massage: Improved treatment efficacy for dry eye syndrome fruit. Kang Hong et al. [15] selected 188 patients with dry eye syndrome were treated with Lipi - Flow thermal pulsation treatment, the results show that after treatment, the patient's tears Reduced levels of MMP-9, BUT, TMh Significant improvement and obvious curative effect.

3 KNOTS ARGUMENT

Although there are currently many physical treatments for dry eye disease, Clinical use and selection need to be based on the patient's specific condition. Choose the most adaptable and targeted treatment plan based on your development and status, such as Traditional Chinese medicine, acupuncture, artificial tears, autologous serum, cyclosporine, surgery

Treatment etc., if necessary, combined treatment can be used to help patients improve Improve clinical treatment and improve treatment effect [16]. In the treatment of dry eye syndrome, Compared to other types of treatments, physical therapy is more convenient and safety, Able to directly act on drugs or instruments through physical means Not only can it be used repeatedly on the patient's periocular tissue, but it also has side effects. The use is small, the requirements for specificity such as treatment location and location are low, and it can meet the needs of patients [17]. Although physical therapy has obvious effects, However, there are also many shortcomings and limitations, such as long treatment cycle, limited site of action, slow onset of effect, etc. More research is needed to explore how to provide patients with long-term treatment compliance [18].

In summary, for patients with poor compliance, severe illness, and difficult treatment, Severe patients, need to use physical therapy combined with other treatment methods application method, combining traditional classic therapies with new modern science learn technology, to better provide high-quality treatment services for dry eye patients and improve patient treatment effects.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

REFERENCES

- [1] Wang Changjuan. Briefly describe the risk factors of dry eye in people under 40 years old in ophthalmology clinics. *International Journal of Infectious Diseases (Electronic Edition)*, 2020(1):56-57.
- [2] Li Meichan. Clinical observation of pranoprofen combined with sodium hyaluronate eye drops in the treatment of patients with dry eye syndrome Cha. *International Journal of Infectious Diseases (Electronic Edition)*, 2020(1): 124-125.
- [3] Zhao Mengmeng, Li Jianchao, Jin Lan, et al. The efficacy and treatment of dry eye syndrome using five combination therapies of traditional Chinese medicine Impact on patients' ocular surface function. *Hainan Medicine*, 2020, 31(4): 476-480.
- [4] Jia Baoyang. Effect and therapeutic effects of polyethylene glycol eye drops in patients with dry eye after cataract surgery. Observation on the improvement of quality of life. *Contemporary Medicine*, 2020, 26(6): 79-81.
- [5] Liu Nianzi. Effect of sodium hyaluronate eye drops in the treatment of dry eye after phacoemulsification cataract surgery Observation. *Journal of Clinical Rational Drug Use*, 2020, 13(5): 89-90.
- [6] Meng Zhihui. Research on the significance and value of nursing intervention in the treatment of dry eye patients. *Heart Journal of Science and Technology*, 2020, 15(3): 117.
- [7] Li Zeqiong. Comprehensive nursing care for patients with evaporative dry eye caused by meibomian gland dysfunction Analysis of the effect of intervention. *Practical Blindness Prevention Technology*, 2020, 15(1): 42-44, 18.
- [8] Cao Xiaochuan. Effect and effectiveness of sodium hyaluronate eye drops combined with Beifushu eye drops in the treatment of dry eye syndrome SAI score analysis. *Jilin Medicine*, 2020, 41(2): 361-362.
- [9] Pang Yanying, Han Erjie, Tian Li, et al. Loteprednol combined with polyvinyl alcohol eye drops in the treatment of dry Clinical research on eye diseases. *Modern Medicine and Clinic*, 2020, 35(1): 56-60.
- [10] Liu Mu. Beifushu eye drops combined with sodium hyaluronate on tear secretion and tear production in patients with dry eye syndrome Influence of inflammatory factor levels. *Chinese and Foreign Medical Research*, 2020, 18(3): 29-31.
- [11] Xie Ruiling, Liu Min, Wang Wei. Meibomian gland massage combined with medication in the treatment of meibomian gland dysfunction Observation of clinical efficacy of dry eye. *Anhui Medicine*, 2020, 24(2): 360-362.
- [12] Dong Cuicui, Liu Shuang. rbbFGF Eye drops for cataract phacoemulsification combined with IOL implant Effects of tear oxidative stress indicators in patients with postoperative dry eye syndrome. *Chinese Practical Medicine*, 2020, 15(2):1-4.
- [13] Qiu Meilan. Observation on the effect of meibomian gland massage in the treatment of dry eye with meibomian gland dysfunction. *Nursing Analysis. Chinese and Foreign Medical Research*, 2020, 18(2): 112-114.
- [14] Tang Haihua, Tao Yiquan, Gao Ming. Effect of diclofenac sodium combined with artificial tears on dryness after cataract surgery Effects of tear secretion and corneal damage in patients with eye disease. *Medical Equipment*, 2020, 33(1): 84-85.
- [15] Kang Hong, Yang Yan, Hu Guirong. Targeted nursing intervention on the psychosocial status of patients with dry eye syndrome Analysis of the impact. *Chinese Medicine Guide*, 2019, 17(36): 366 -367.
- [16] Li Yanping, Xiao Yanping, Guo Caidong, et al. Ultrasonic emulsification of sodium hyaluronate eye drops in the treatment of cataracts Observation of the efficacy and nursing analysis of dry eye after surgery. *Drug Evaluation*, 2019, 16(24): 8-9.
- [17] Wang Qiuqing. Observation on the use of dextran 70 eye drops combined with traditional Chinese medicine syndrome differentiation in the treatment of cataract surgery Clinical efficacy of dry eye syndrome. *Chinese Modern Drug Application*, 2019, 13(24): 222-224.
- [18] Zhang Yu. Observation on the effects of different drugs in the treatment of dry eye after phacoemulsification cataract surgery. *Chinese and Foreign Women's Health Research*, 2019(24): 114, 179.