Scholar Publishing Group
International Journal of World Medicine
https://doi.org/10.38007/IJWM.2023.040303
ISSN 2789-7133 Vol. 4, Issue 3: 16-32

Therapeutic Effect and Nursing Analysis of Nano-silver on High-risk Human Papillomavirus Infection in Obstetrics and Gynecology

Ying Wang[1,2*]

[1]*Linyi High-tech Hospital, Linyi, China*

[2]*Philippine Christian University, Manila, Philippines*

312213463@qq.com

[*]*corresponding author*

Keywords: Nano Silver Particles, High-risk Human Papillomavirus, Antibacterial Materials, Cervical Cancer

Abstract: HPV infection causes the proliferation of foreign body cells. Human papillomavirus produces cervical chronic inflammation, which is the main factor leading to cervical cancer, causes the continuous proliferation of cervical cells and gradually develops to malignancy. In this paper, the preparation model of nanoparticles was established to study the treatment of gynecological high-risk human papillomavirus infection according to the antibacterial, antibacterial and other properties of silver nanoparticles. The purpose of this paper is to analyze the advantages of nano silver and its feasibility in the treatment of high-risk human papilloma and cervical cancer. Through the statistical analysis of the data on the treatment effect and sense of use of 50 people infected with HPV with different degrees of infection, and at the end of the study, it will combine with the data and analyze the future research direction of nano silver. This paper states the importance of this study again, and give the corresponding countermeasures for the treatment of high-risk HPV infection. The data showed that the increase of HPV load was closely related to the risk of high-grade intraepithelial lesions and cervical cancer, while HPV load was significantly related to the size of internal lesions. Different factors have different effects on the silver content of composite antibacterial agents, among which the difference between the highest and lowest silver content of composite antibacterial agents is 1.9.

1. Introduction

With the improvement of our country's medical and health level, people's demand for antibacterial materials is increasing day by day [1]. Nano-silver has strong bactericidal properties, and a small amount of nano-silver will not pose a serious threat to the tissues of the human body,

and can ensure the safety of the normal structure of the human body. Nano silver has a strong inhibitory and antibacterial effect on dozens of microorganisms such as various fungi, chlaourdia, bacteria, etc., because the particle size reaches the nanometer level [2]. Moreover, as a new type of bactericide, no drug-resistant strains resistant to nano-silver have emerged so far. Nanomaterials have long been favored by scientific researchers and are known as the future star of the development of new materials. Today, when antibiotics are abused, silver-based fungicides have been recycled by people with their unparalleled dosage and resistance. Silver alloys and silver ions are common representatives of silver-based proteins. An in-depth understanding of the environmental safety of silver nanoparticles is an important and basic tool for a wide range and continuous application. The reason for the sterilization of nano-silver may be that nano-silver destroys the integrity of the cell wall or cell membrane, thereby causing the material in the cell to flow out. However, the most critical issue of nano-silver particles is biological safety. It is now known that nano-silver is indeed toxic, so it is extremely urgent to find a suitable bactericidal dosage and concentration that is harmless to the human body. Nano-silver has a small volume and a large surface area. The probability of interaction with microorganisms will increase, and the antibacterial effect will be stronger [3]. Due to its small size, silver nanoparticles can enter cells, interact with DNA or structural elements, disrupt the DNA system, disrupt the replication and transcription of DNA, disrupt the normal reproductive function of bacteria, and interfere with the normal production of cells [4].

In our country, cervical cancer has become the main threat to women's health. There are about 130,000 new cases of cervical cancer in our country each year, accounting for about 1/3 of the total number of cases in the world, and the annual incidence is still increasing, and it is gradually getting younger [5]. Cancer not only threatens the physical and mental health of women, but also brings a serious economic burden to the family and society, becoming a major social problem. With the rapid changes in women's lives today, more and more young people are getting sick, and the disease is showing an obvious trend of younger age. Current studies have confirmed that persistent infection of specific HPV genotypes is a necessary process to cause cervical intraepithelial neoplasia and cervical cancer. Human papillomavirus is a very special species, which mainly affects human skin and mucous membranes, and causes reproductive damage to the corresponding structural epithelial cells. As a supplement to cervical cytology, HPV molecular diagnosis has important value in the early diagnosis of cervical diseases. Persistent infection of high-risk human papillomavirus can dramatically increase the risk of cervical cancer. Therefore, research on the prevention and pathogenesis of cervical cancer is particularly urgent [6]. Taking pathological results as the gold standard, the occurrence and development of cervical precancerous lesions, the detection of prognosis, and patient follow-up are of important clinical significance [7].

Persistent genital infection high-risk (HR) human papillomavirus (HPV) is a prerequisite for the development of cervical cancer. The purpose of the Stensen S study was to determine the factors that are persistently related to the type-specific and persistent HRHPV infection. We selected HRHPV-positive women (N=7,778) and collected cervical samples from these women for HPV DNA testing. Logistic regression analysis was used to determine the factors related to persistence. The overall rate of persistent HRHPV is 31.4% [8]. In Cai T's study, the aim was to investigate the clearance rate of type-specific genital human papillomavirus (HPV) infections in heterosexual, unvaccinated men whose female partners tested positive for HPV DNA. 105 patients were positive for HPV DNA and agreed to undergo clinical examination and molecular diagnostic testing every 6 months for HPV testing. HPV positive samples that do not hybridize with any type of specific probes are called positive non-genotyping [9]. The purpose of the Yudira S study is to investigate the presence of high-risk HPV (HR-HPV) DNA in the colorectal tissue of Cuban patients. A total of 63 colorectal formalin-fixed paraffin-embedded tissues were studied, and DNA from colorectal

samples was analyzed by quantitative real-time polymerase chain reaction to detect the most clinically relevant type of high HR-HPV. The association between histological findings and other risk factors is also analyzed [10]. CC Cockerill found that a 0% infection rate indicates that detectable hrHPV infection in tonsil tissue does not seem to be common among children and adults in the sampled population. Use Rochecobas to test the hrHPVDNA of the test sample, and use the Hologic Aptimahr HPV test to test the presence of E6/E7 messenger RNA. All swabs and tissue samples were negative for hrHPV. Positive, negative, and internal controls are executed as expected. The discovery of a 0% infection rate indicates that detectable hrHPV infection in tonsil tissue does not seem to be common among children and adults in the sampled population [11]. A Pa ń Czyszyn analyzed the telomere length of blood and cervical smears of women without and at high risk of HPV infection. Telomere length was quantified by real-time PCR in blood and cervical smears of 48 high-risk HPV infected and hgsil or LGSIL women, 29 HR-HPV positive but no SIL women and 11 HPV negative women. These findings suggest that telomere shortening occurs in cervical cells of hrHPV infected women, accompanied by LGSIL and hgsil, which may indicate carcinogenesis [12]. The purpose of the Buda A study is to evaluate the quality of care for patients who have received Sentinel Lymph Node (SLN) positioning for endometrial cancer and cervical cancer staging, and to evaluate the impact of different technologies on patient satisfaction, namely the radiotracer Tc99m and Indole Cyan Green (ICG) or methylene blue injection. Use the European cancer research and treatment organization IN-PATSAT32 questionnaire to assess patient satisfaction, and analyze the differences in patient satisfaction scores in each group [13]. The purpose of the Jain SM study is to determine the knowledge of cervical cancer and Pap smears among nurses working in tertiary health care institutions. A cross-sectional survey conducted in a tertiary health care facility provided a pre-designed questionnaire to test their understanding of cervical cancer. Results: about 86% of people knew about cervical cancer, and 69% knew about the precancerous stage. 42.3% did not know any risk factors, and 27.6% did not know any cervical cancer symptoms. 86.2% of people know about Pap smears, but only 58.6% know that there are Pap smear facilities in our hospital [14]. These studies have used different methods to process and analyze data from different perspectives. Their research perspectives are relatively new and they have a certain depth of exploration in the study of high-type human papillomavirus. But a common problem is that the experimental data is too single, and the discussion of the experimental results is not comprehensive enough.

This paper investigates the literature on the preparation and application of nano silver, which is applied to the catalytic reaction theory of nano silver particles, molecular motion vector, microwave-assisted method, etc., records the trajectory model of nano silver particles, and observes the catalytic effect of nano silver on DNA cells with the help of high-risk hpvdna detection combined with cytological detection. In the process of obtaining experimental data, this paper mainly makes data statistics and analyzes the experimental results on the stability and antibacterial property of nano silver, the correlation between high-risk HPV load and cervical lesion level, the influence of different factors on the silver content of composite antibacterial agents, the cure of different patients at different time points, and the physical function of patients after nano silver adjuvant treatment.

2. Nano-silver and High-risk Human Papillomavirus

2.1 Production and Application of Nano Silver

With the increasing development of science and technology and the gradual improvement of living standards, people pay more and more attention to the sanitary environment of life and work, which forces the research of antibacterial materials to pay more attention to biological safety [15]. Therefore, the material containing antibacterial ingredients in the antibacterial material is

particularly important. The reason for its antibacterial effect is to make full use of the efficient and continuous antibacterial and sterilization functions. Among the current various antibacterial agents, the most commonly used are antibiotics, antibiotics and other chemical drugs. Drugs have a certain inhibitory or even killing effect on many toxins and toxins, but at the same time they also lead to a large number of strains that are resistant to multiple chemical drugs. As we all know, metal ions have strong antibacterial activity, and silver and its related compounds can be said to be representative of metals in the field of antibacterial. Silver is a metal with a bright white luster. It was recorded as early as in ancient times that in order to prevent inflammation of some diseases and treat burn wounds to prevent infection, diluted silver salt was used to smear the wound. Ag+ also exhibits the advantages of strong antibacterial ability, high temperature resistance, and good safety. Scientists also found that silver ion Ag+, some silver ion exchangers, silver-containing complexes, colloidal silver with a very specific area, nano-silver particles, etc., can inhibit and kill microorganisms such as bacteria and fungi (including molds). Nano silver particles are widely used in many places due to their powerful antibacterial and antifungal properties [16]. Medical materials include nano silver bone cement, silver nano silver paste, nano silver binder, antibacterial nano silver coating, etc. [17].

Compared with traditional materials, the physical properties of nano-silver particles have been greatly improved, and they are safer, more durable, less resistant, and more stable [18]. However, since most antibacterial nanomaterials currently use antibacterial nanoagents, there are certain limitations. In the field of nanotechnology, how to improve the versatility of silver nanoparticles is one of the important issues that people face. According to the catalytic reaction theory of silver nanoparticles, silver nanoparticles have high catalytic activity because of their chemical structure, so water and air are activated to form reactive oxygen ions, resulting in bacterial death [19]. This process can be expressed as:

$$G(d_i) = \sum_{o} \pi_o g^o(D_i) \frac{1}{i-o} \quad (1)$$

$$g(i) = \int_{i=1}^{o} (d(d-1))^{i-1} \alpha^i (o-1) \quad (2)$$

α^i means oxygen in water and air, D_i means bacteria within a certain range. And g^o represents the catalytic value of the longitudinal observation sequence is as each bacterial molecule is independent of each other:

$$G^o(d_i) = \prod_{i=1}^{p} g^{io}(g_{i-o}) \xrightarrow{i \in \alpha} g_i \quad (3)$$

$$\log(\alpha_{io}^o) = \alpha_o^i + \alpha_1^0 + \alpha_2^i + ... + \alpha_n^i \underset{d_i}{(1-g)} \quad (4)$$

$\log(\alpha_{io}^o)$ represents the trajectory model of the nano-silver particle group [20]. α_o^i and α_n^i determine the shape of the trajectory. Because the characteristics of nano- silver are mainly related to the shape and size. Therefore, nano-silver control preparations have become a research field. The movement of nano silver particles under pyrolysis meets the following conditions:

$$T \otimes A = \frac{1}{2} \chi \alpha^2 + \frac{1}{2} \lambda \beta^2 \nabla \bullet a \quad (5)$$

$$-\frac{\beta}{\alpha}\iint(T+A)=\iint g\bullet d\alpha+\iiint ig^{2}o\pi \quad (6)$$

The above formula is the result of analysis based on the molecular motion vector of the law of conservation of energy [21], where T represents temperature and A represents particle motion. In any shape, the kinetic energy of α is transformed, then there is:

$$g_a(\partial_i+t\bullet\nabla)=-g(D+t*a)-g_i\beta \quad (7)$$

$$\nabla(\frac{\gamma(i-1)}{\gamma i})\approx g_o\frac{1}{i_o}\nabla a \quad (8)$$

γ is the particle density, and ∇a is the approximate value at a fixed temperature of individual particles in the virtual area. Construct a two-dimensional model to study the catalytic reaction of silver nanoparticles:

$$(\vartheta-\nabla a)g_1^m=(m,n)\otimes g(g-i) \quad (9)$$

When $\vartheta=0$, the convergence of equation (9) is 0, and the above equation can be transformed into:

$$f(i)=-\nabla a(\vec{a})\pm\frac{1}{2\pi}\int_{\alpha}^{-\alpha}i^{-(m,n)} \quad (10)$$

$$\underset{-\alpha}{a}(m,n)=(i,o)^{\sqrt{\alpha^2-\beta^2}}\bullet i-1 \quad (11)$$

Combining it with the microwave-assisted method of nano-silver materials for analysis [22], the characteristic equation root is $\sqrt{\alpha^2-\beta^2}=1$, at this time, the catalytic value of nano-particles is the smallest, and $\underset{-\alpha}{a}(m,n)<1$.

2.2 High-risk Human Papillomavirus Tumors

There are high-risk HPV infection, inflammation of the cervical glands, throat involvement, wound size, disease risk, surgical experience and age, and among them, high-risk HPV is a factor [23]. CIN patients have the highest risk of recurrence or recurrence after surgery. Current immunization research pays special attention to high-risk types, including immunizations and therapeutic vaccines. Among them, immunization mainly fights infection by blocking effective immunosuppressive responses, while therapeutic vaccines mainly increase the response. Cellular immunity from bacterial infections or mutant cells plays an important role in the diagnosis and prevention of colon cancer. At present, the morbidity and mortality of cervical cancer worldwide have dropped significantly compared with the previous one. Since the domestically distributed types are different from those in foreign countries, the same types may also have variant sites that affect the protection of vaccines. Therefore, whether foreign vaccines are suitable for domestic application remains to be a large-scale epidemic. The study of science and basic molecular biology after a person is infected with HR-HPV, not all patients will develop colon cancer. Some patients may remove the protein without any intervention or treatment after 12-30 months, while some patients will have long-term infections and eventually develop breast cancer. This is closely related to the patient's immune system. Although modern medical research on diseases caused by virus

infection has entered the genetic molecular level, there has been no significant progress in the research of drugs that have specific therapeutic effects on HR-HPV infection. After high-risk HPV infects cervical cells, its genomic DNA can be integrated into the host cell genome through non-homologous recombination. The screening of cervical diseases by cytology alone cannot achieve the best sensitivity. With the scientific and understanding of the disease Progress, many alternative methods have also been proposed in recent years. High-risk HPVDNA testing combined with cytological testing as a primary screening method for cervical cancer screening can significantly improve the screening rate of cervical cancer [24].

For cervical cancer combined cell detection, the actual problem is simplified based on the numerical solution of the main unknown quantity, which can achieve more accurate calculation results, and the steps are abstracted as:

$$R(\Omega)=\left\{e\in(u^{2}(\Omega))^{3}\middle|\Delta\pm e(u-1)\right\}(12)$$

The test conditions need to be met:

$$(\eta_{e}\frac{\varepsilon i}{\varepsilon e}+\eta_{i}\frac{\varepsilon e}{\varepsilon i})\bullet\dot{e}+\theta E=j\ (13)$$

$$J\sum\nolimits_{i}^{e}=\frac{1}{a\varepsilon^{2}}(o_{i}^{j}+m_{i}^{j}i+n_{i}^{j}e)\ (14)$$

η_e represents the cell boundary condition limit value, and ε represents the order in the interpolation function [25], and formula (14) is the order limit condition value. It is constructed and analyzed by the finite principle, and the formula can be expressed as:

$$\Delta^{j}=\frac{1}{2}\begin{vmatrix}1 & i_{1}^{e} & u_{1}^{i}\\ 2 & i_{2}^{e} & u_{2}^{i}\\ 3 & i_{3}^{e} & u_{3}^{i}\end{vmatrix}-(o,m,n)\ (15)$$

Then Δ^{j} represents the overall active unit area of a single high-risk human papillomavirus constructed within the finite principle, and j on each area can be expressed as:

$$\begin{cases}\varsigma^{j}=M_{i}^{j}(i=1,2,3...,x)\\ A^{i}=\sum\nolimits_{j}^{e}J_{i=1}^{o}y_{i}^{j}\end{cases}(16)$$

$$a=-\int_{j}\left[(\Delta\times i)\otimes(\nabla\times e)-x^{2}(i-e)\right](17)$$

In the end, they cancel each other out and become the statistics of effective detection results, and carry out the second round of screening, and ignore the image records of internal unit cells, so that:

$$I_{x}^{y}=\oint_{\alpha\perp\beta}E_{i}^{e-1}\bullet O\underset{i}{x}mn(18)$$

$$x=\{u_{l}\},\hat{u}\langle\Omega-1\in V\ (19)$$

V represents a two-dimensional image frequency representation of a regular cell shape [26]. Different formats have different representative characteristics, and internal factors are introduced:

$$\hat{u}=\{u_{i}\}+\{u_{o}\}\times x,x\&\Omega\middle|\Delta_{e-1}(20)$$

$[\Omega]$ represents the adjacent continuous common solution area of two boundary cells.

3. Experimental Design and Deployment

(1) Explore the heterogeneity between studies, quantitatively evaluate the level of high-risk human papillomavirus infection, and provide evidence-based medical evidence for the prevention and treatment of obstetrics and gynecology diseases.

(2) A simple preparation method of AgNPs antibacterial finishing agent with adjustable particle size was proposed, and the relationship between antibacterial property and particle size was found, and the antibacterial action mechanism was confirmed. As shown in Figure 1.

(3) Conduct antibacterial performance testing and characterization of nano silver particles with different concentrations and different particle sizes, and speculate the possible antibacterial mechanism, and conduct acute toxicity experiments and hemolytic experiments on the safety of nano silver particles.

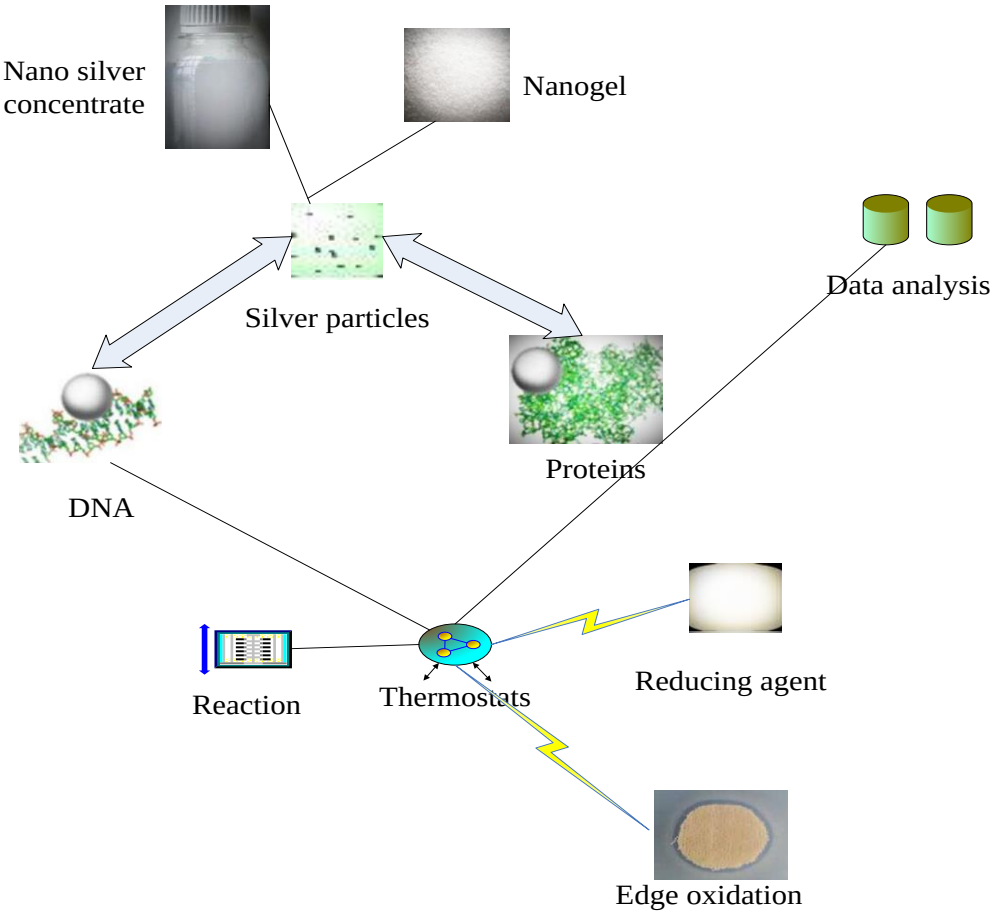

Figure 1. Simple preparation model of nano silver

Ordinary catalysts limit its application range due to defects such as low activity and instability. However, the very large surface area of the nanoparticle increases its contact area with other suspects in the chemical reaction. The surface electronic composition, bonding method and interior of the nanoparticles are different, and the surface active points are increased, which enhances the catalytic function of the silver particles. Recent studies have found that when silver reaches the nanometer size, its bactericidal ability has taken an amazing leap. A small amount of nanoparticles

shows a strong bactericidal effect, which can kill hundreds of bacteria in a very short time without any toxicity. The safety, durability and non-irritation of silver nanoparticles lay the foundation for the wide application of silver nanoparticles. As one of the most attractive nanomaterials, silver nanomaterials have been prepared with various particle sizes and morphologies. The shape of nano silver sol particles is divided into two types: isotropic and anisotropic. The isotropic nano-silver particles mainly exist in spherical and quasi-spherical shapes. According to the search related literature, the stability of nano silver particles was discussed, as shown in Table 1.

Table 1. Stability analysis of silver nanoparticles

Time	1 quarter of an hour	2 quarter of an hour	3 quarter of an hour	1 hour
The average particle size	61.27	69.29	63.71	68.72
PDI	0.165	0.274	0.201	0.259

Because nano silver particles have the characteristics of low particle effect and high surface properties, they are prone to agglomeration during the preparation process, so that they lose their due physical properties and functions when they play a role. The antibacterial compound prepared with natural nanomaterials as a carrier combines nano silver particles with biopolymers, and finally not only can uniformly collect nano silver particles, but also can activate the antibacterial stability of the nano silver particles. Although Ag+ antibacterial agent has the characteristics of strong antiseptic, strong antibacterial activity, good cooling performance, wide antibacterial range, long antibacterial time, and non-volatile, Ag+ is easy to soften from the matrix and has antibacterial effect and antibacterial ability. The broad-spectrum antibacterial, bactericidal, permeability, regeneration and drug resistance (1-10) of nano silver gel and nano silver dressing were analyzed respectively, as shown in Figure 2.

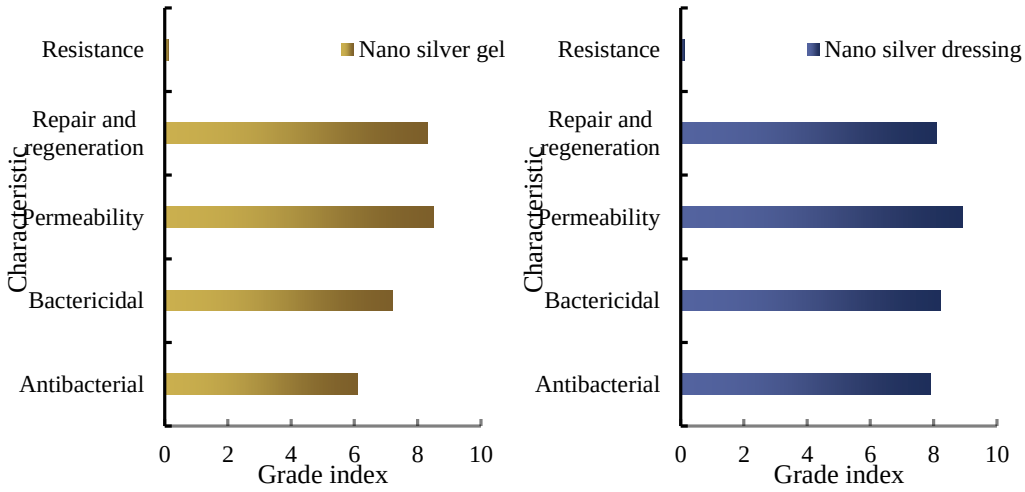

Figure 2. Performance analysis of nano silver drugs

As shown by the data in Figure 2, nano-silver has spectral antibacterial properties, strong bactericidal properties, strong permeability, no drug resistance, and can be repaired and regenerated. Compared with nano-silver dressings, nano-silver gels generally have poorer performance indexes in all aspects. Among them, the difference in antibacterial properties is larger, and the difference is 1.8. The smallest difference in performance between the two is drug resistance, with a value of 0.02. In the experiment, a detailed diagram of the bacteria of the nano-silver antibacterial process was recorded, as shown in Figure 3.

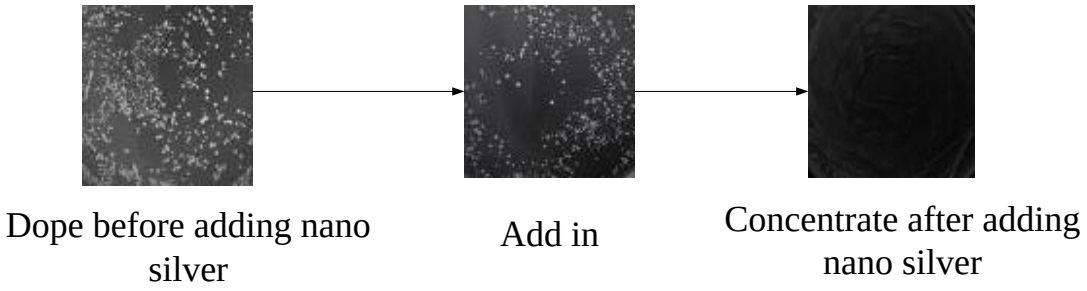

Figure 3. Antibacterial properties of nano silver

In order to prove the stability of nano-silver particles, we analyzed the influence of silver salt concentration, reaction temperature, reaction time and catalytic activity on the silver content of the composite antibacterial agent. The data is recorded in Figure 4.

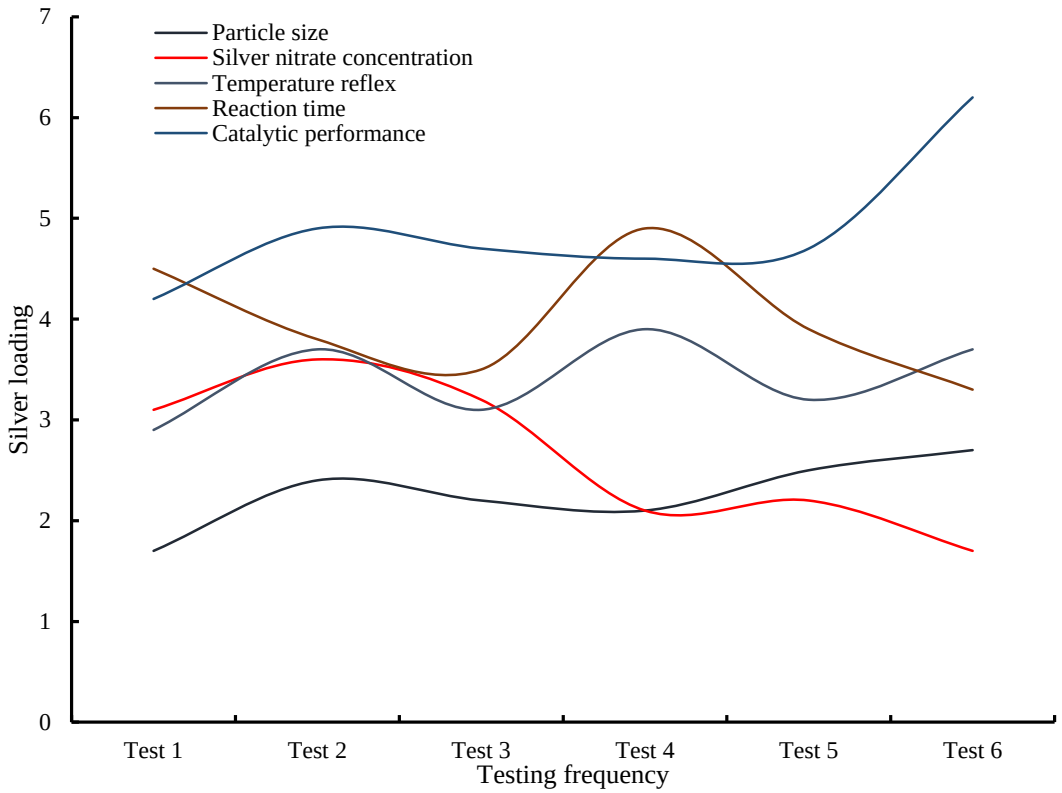

Figure 4. The influence of different factors on the silver content of the composite antibacterial agent

After 6 tests and record the data, from the undulating trend of the lines in the figure, it can be seen that the particle size has little effect on the silver content of the composite antibacterial agent. In these six tests, the maximum value of silver content is 2.7, the minimum is 1.7; the other four factors make the silver content change greatly, such as the difference of the concentration of silver nitrate, the difference between the highest and the lowest value of the silver content of the composite antibacterial agent is 1.9; in the experiment, the data is recorded by adjusting the reaction temperature. The difference between the silver content is 1.6; the difference in reaction time will also affect the silver content of the composite antibacterial agent.

Patients with multiple HPV infections have a significantly higher risk of gastric ulcers than those with heart infections. Studies have found that gastric ulcers are related to the continued proliferation

and infection of HPV, and most HR-HPV infections are related to the recurrence of HPV infections. It increases the risk of cervical cancer and reduce the effectiveness of radiotherapy for patients with cervical cancer. HPV virus may accelerate the evolution of HPV virus through genetic recombination, and produce a new type of HPV virus with stronger carcinogenicity. Use regression data to screen the composition of infection types, as shown in Figure 5.

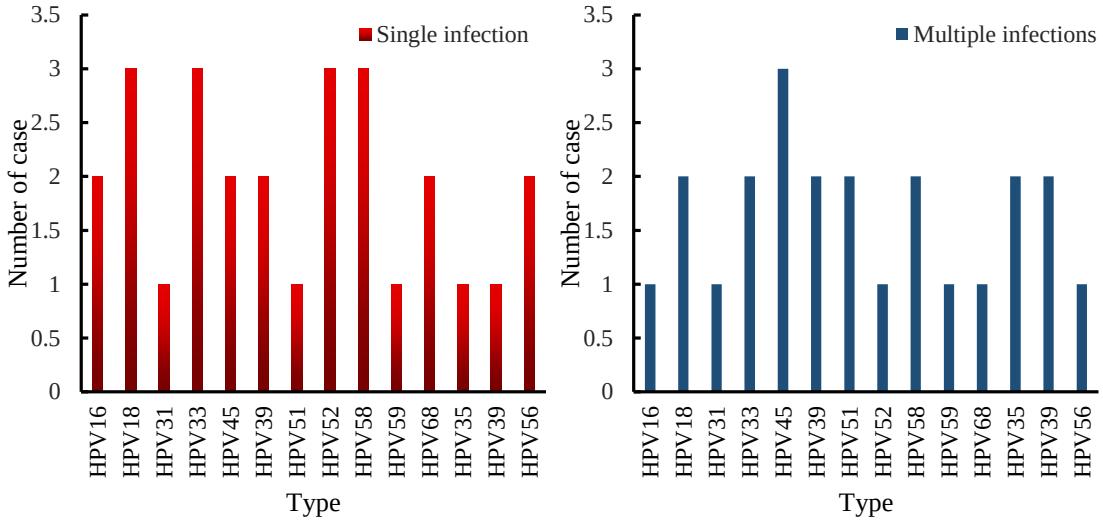

Figure 5. Regression data to screen the composition of infection types

Multiple infections of HPV lead to increased malignancy of cervical cancer, which may be related to the recombination of HPV viruses in multiple infections, and recombination of HPV may also cause the production of new types of high pathogenic HPV. As there is no effective method to eradicate HPV infection, the main goal of treatment is to destroy the lesions through physical-chemical methods to eliminate or control the disease, or to induce inflammation or immune response to control the infection. Increasing age, premature sex life, prolific birth, traumatic cesarean section or cervical injury and cracks during cervical surgery, and the number of births will increase the chance of cervical cancer. According to different cases, the efficacy of nano-silver and the situation after treatment are analyzed. First, 50 volunteer patients from a hospital are selected to participate in this study. The basic situation is shown in Table 2.

Table 2. Basic conditions of patients with HPV infection

Item	average value
Age	37.21±3.14
Number of sexual partners	2.19±0.27
Age at first sex	23.01±1.98
Education	High school diploma
Degree of cervical erosion(1-10)	3.21±0.64
History of smoking or drinking(month)	4.79±1.78
Bad eating habits(1-5)	1.27±0.93
Number of pregnancies	1.21±0.55

Fifty randomly selected patients with HPV virus infection have a long medical history. They were investigated from their living habits, the number of pregnancy, the severity of cervical cancer, etc., and the type of infection of each person was separately recorded in Table 3.

Table 3. Types of infection

HPV subtype	Number of positive cases	The proportion
HPV-16	23	46%
HPV-18	2	4%
EHPV-31	2	4%
HPV-33	2	4%
HPV-35	1	2%
HPV-39	4	8%
HPV-45	3	6%
HPV-51	2	4%
HPV-52	1	2%
HPV-56	2	4%
HPV-58	3	6%
HPV-59	4	8%
HPV68	1	2%

HPV type is a risk factor that affects the prognosis of cervical lesions, but the impact of HPV load on cervical lesions is also a hot spot in clinical research. The correlation between high-risk HPV load and cervical lesion grades is studied, and the data is shown in Figure 6.

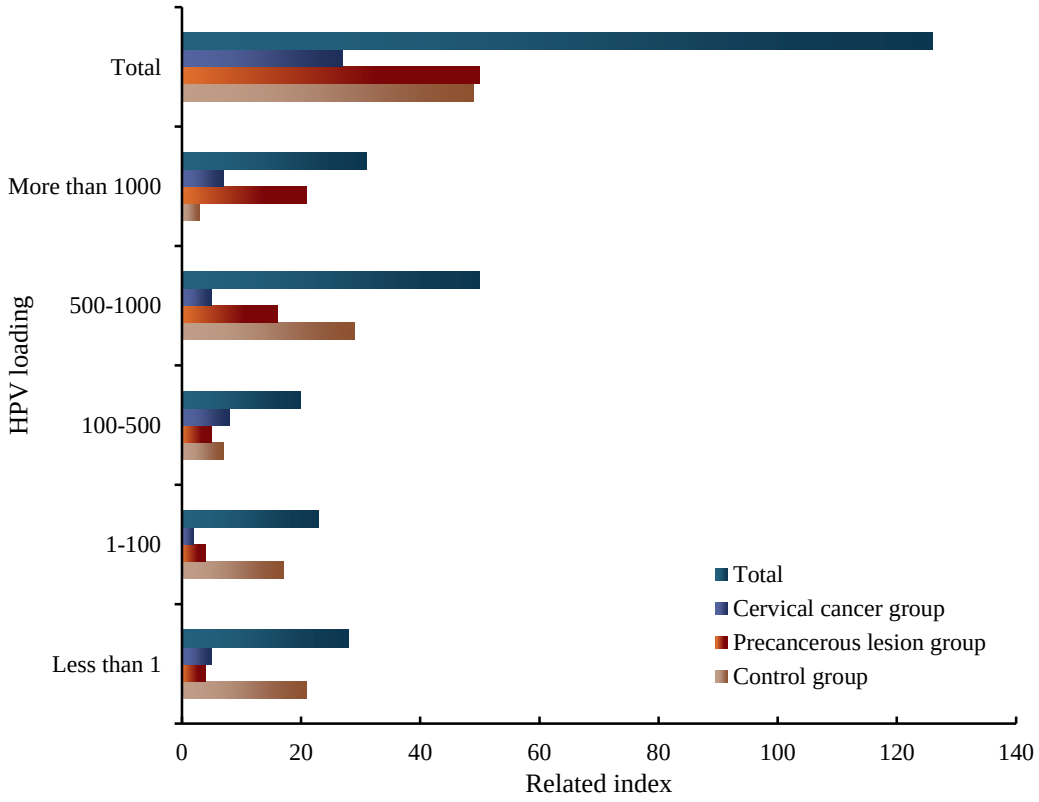

Figure 6. Correlation between high-risk HPV load and cervical lesion grade

The distribution of HPV infection subtypes is related to the level of skin lesions, cancer stage and cancer. There are some differences in the distribution of skin lesions in different age groups. Increased HPV load is associated with an increased risk of advanced intraepithelial lesions and

colon cancer. The cause of cancer may be related to the necrosis of cervical epithelial cells caused by HPV. Increased HPV load was positively associated with high risk of intraepithelial lesions and colon cancer. With the increase of cytology and immunology, HR-HPV load and HPV positive rate also increased. However, the relationship between HPV load and internal ulcer and its ability to predict the outcome of back injury remain controversial.

At present, the existing medical treatment of cervical cancer and other diseases with nano silver is mainly through the interaction with peptidoglycan and plasma membrane of cell wall, binding and forming cross links with bacterial DNA bases, replacing the hydrogen bond between adjacent nitrogen in purine and pyrimidine, resulting in the structural degeneration of bacterial DNA, preventing bacterial DNA replication and rapid binding with protein sulfhydryl groups in bacteria. Build a model for the mechanism of nano silver adjuvant treatment of cervical cancer, as shown in Figure 7.

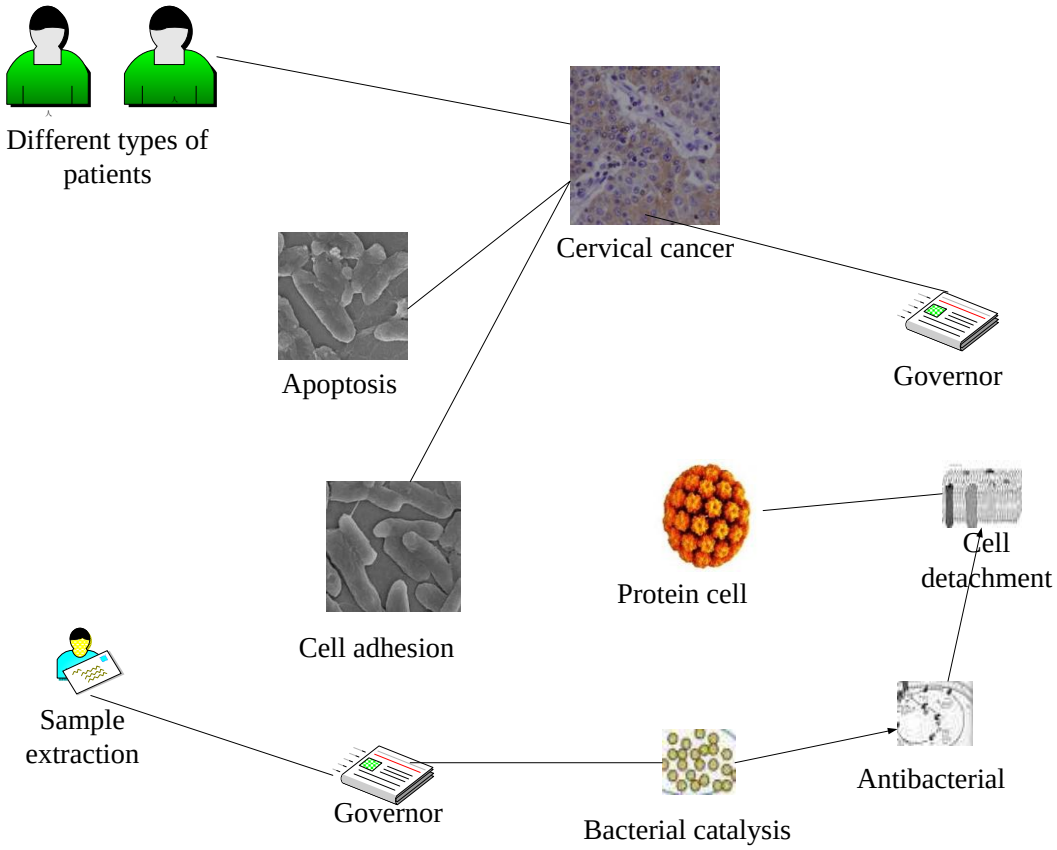

Figure 7. Reaction mechanism of cervical cancer cells

When the immune system is compromised, various cancers occur, and bone marrow transplantation is also related to this. As the immune function of patients with ovarian cancer declines, the body's ability to eliminate tumor cells is also reduced, allowing tumor cells to grow and develop continuously. Most patients with malignant tumors have varying degrees of immunity, especially those who require radiotherapy or chemotherapy. The incidence and death of high CIN and vaginal diseases, combined with appropriate immunotherapy, can improve the prognosis and improve the quality of life. The curative effect of nano-silver was analyzed in groups A, B, and C. Among them, 15 people in group A were treated according to existing treatment techniques, 15 people in group B were treated with nano-silver only in the early stage, and group C was treated with nano-silver throughout the course. The basic situation of these three groups is recorded in Table 4.

Table 4. Basic situation of groups A, B and C

Group	Infection	Length of infection(year)	Treatment time (average index)	Before treatment with
A	Multiple infections	1.27±0.13	7.25months	Medical treatment
B	Multiple infections	1.11±0.42	5.21months	Medical treatment
C	Multiple infections	1.37±0.08	8.11months	Medical treatment

Carry out different therapies according to the groups that have been divided, and pay attention to the different situations they present. The first is the patient's condition at different time points, as shown in Figure 8.

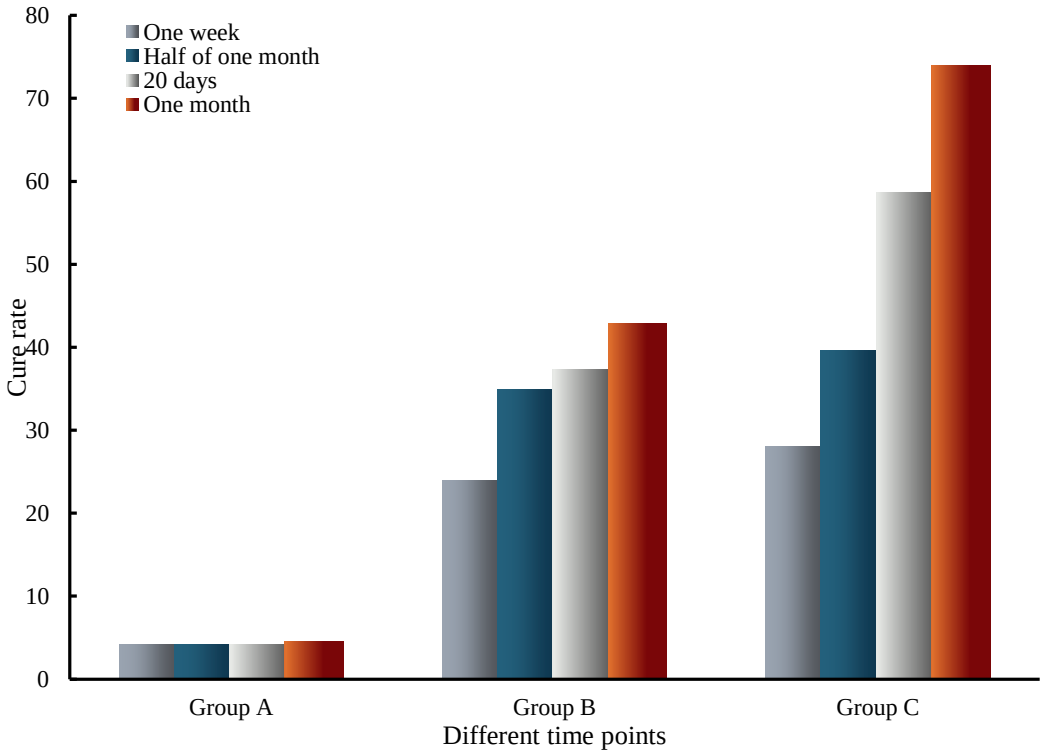

Figure 8. Cure at different time points

According to the data provided in Figure 8, nano-silver adjuvant therapy can make the patient's condition get better. The most obvious improvement was in group C, which was treated with nanosilver adjuvant therapy throughout the course, followed by group B; while the condition of patients in group A did not fluctuate much. In order to confirm the effect of nano-silver, the body functions of patients after nano-silver adjuvant therapy was calculated from the two aspects of lymphocyte function and body immunity (1-5), as shown in Figure 9.

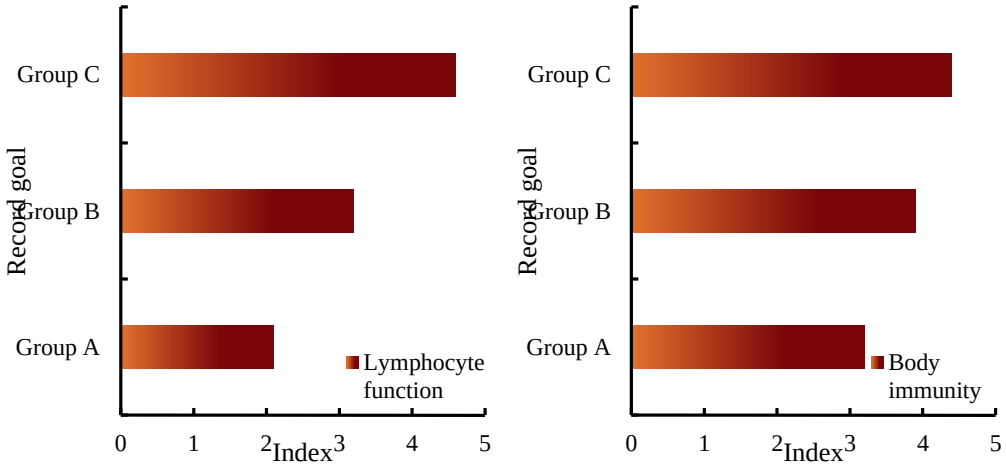

Figure 9. The patient's body function after nanosilver adjuvant treatment

The patient's physical function has improved to a certain extent with or without nanosilver adjuvant therapy. However, through comparative analysis, it is found that the patient's lymphocyte function score can reach an average of 4.6; the patient's immune capacity can reach an average of 4.4. This undoubtedly highlights the important role of nanosilver in the treatment of HPV virus infection. Finally, we record the patient's feelings after treatment, as shown in Figure 10.

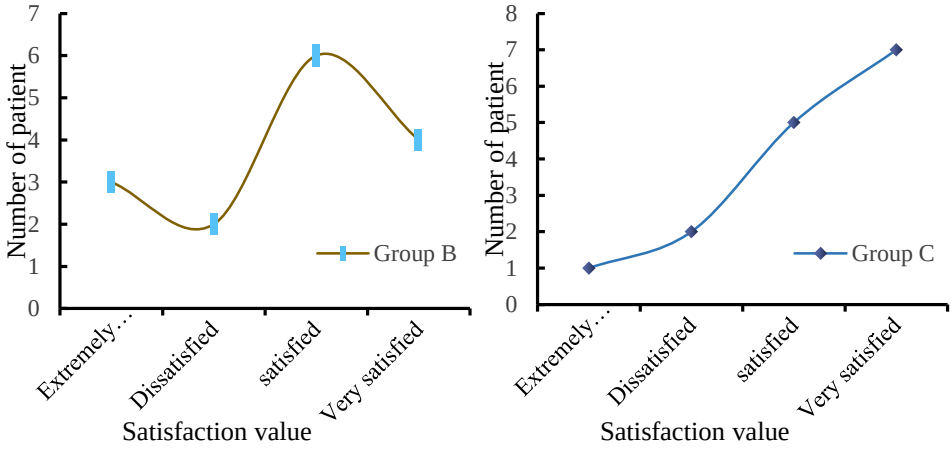

Figure 10. Patient feelings after treatment

Of the 15 people in group B tested, 10 people were satisfied and extremely satisfied with the treatment. Among the 20 patients in group C tested, 5 people said they were satisfied with this treatment, and 7 people were extremely satisfied with this treatment.

4. Discussion

Studies have found that multiple HPV infections may be more likely to cause cervical lesions than single infections. Some scholars also believe that vaginal microecological imbalance is a risk factor affecting HPV infection and cervical lesions. Once the vaginal microecological balance is disrupted, it will cause various reproductive tract infections. Therefore, the correlation study of the different clinical characteristics of cervical lesions caused by multiple HPV infections is particularly important. It is possible to study whether multiple HPV infections accelerate HPV recombination and its mechanism. It is of great significance in the prevention, follow-up and prognostic evaluation of cervical cancer in the future. Considering the reversible transformation of cells in the incubation

period is still not much, so in this article, it is considered that the infected cells in the incubation period will be restored to uninfected cells. The regression model can quickly select all infected persons based on certain characteristics before the prevention work is carried out. It saves time and is easy to operate. It plays a certain role in the screening process of risk resistance to achieve the purpose of graded prevention and precise prevention. HPV infection and proliferation depend on the differentiation of epithelial cells. After HPV invades the basal cells, the damaged DNA replicates in the basal cells and moves upward in advance with the differentiation and growth of the basal cells. In normal cells, viral cell proteins appear and together form perfect viral particles. Therefore, mature protein particles are only produced in differentiated epithelial cells. Different and growing epithelial cells rapidly decline. Therefore, although the capsid protein of HPV has strong immunity, it may not show immunity in the initial stage of infection. Persistent HR-HPV infection is the main cause of frontal ulcers and lung cancer. Improving the immune system can effectively reduce the persistent infection of HR-HPV and reduce the incidence of past lesions and colon cancer. Improving immunity and regular cancer screening can prevent further infection of the disease. Prevention is better than cure, and the best treatment is prevention.

5. Conclusion

It can be known from the existing research that HPV is a chronic virus that can attack the human immune system. It mainly attacks T cells, and T lymphocytes play an indispensable role in the human immune system. Because it will affect the protective function of T cells, once the human immune system is severely damaged, the human body is very susceptible to various diseases. Some pathogens that have no general disease ability can also multiply in the human body, causing disease, and may cause Malignant tumors, the vast majority of cervical cancers occur due to HPV virus infection, which integrates the virus E6/E7 gene into normal cervical epithelial cells, which leads to canceration of normal cervical epithelial cells, but the specific pathogenesis is still unclear. After HPV infects the throat, the symptoms disappear and it is difficult to attract the patient's attention. Therefore, under the guidance of the concept of "disease prevention" in traditional Kannada medicine, the "disease prevention" in the early stage of HPV infection (early infection) is actively treated to slow down the infection process and change the timing of CIN during the HPV infection period. Malignant lesions (preventing mutations), preventing them before they happen are very important to our country's cancer work. In-depth study of the pathogenesis of cervical cancer, providing auxiliary judgment indicators for the degree of cervical cancer disease development, cytokines produced by pathogenic microorganisms and pathogenic microorganisms themselves gather at the injury to form a microenvironment, which stimulates the occurrence, development, and metastasis of tumors and inhibition. When the body's immunity declines, the anti-inflammatory mechanism is inhibited. Long-term inflammation can cause DNA damage and gene mutation. This research further provides experimental results for molecular targeted therapy drugs for clinical diagnosis and treatment of cervical cancer. Gene therapy is a promising disease treatment method. Aiming at the changes in gene expression levels in malignant tumor tissues, various molecular biology techniques are used to restore the expression levels of abnormally expressed genes to normal. This is for advanced cervical cancer treatment is important.

Funding

This article is not supported by any foundation.

Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

References

[1] *Heidarpour M , Derakhshan M , M Derakhshan‐Horeh, et al. Prevalence of high‐risk human papillomavirus infection in women with ovarian endometriosis. The Journal of Obstetrics and Gynaecology Research, 2017, 43(1):135-139.*

[2] *Bennett S E . Should Women With High-risk Human Papillomavirus Infection of the Cervix Be Screened for Anal Squamous Intraepithelial Lesions?. Clinical Infectious Diseases, 2020, 70(6):1129-1130.*

[3] *Qiao Y P , Wang A L , Fang L W , et al. High-risk Human Papillomavirus Infection and Associated Factors among HIV-positive Women in High HIV-burden Areas of China. Biomedical and Environmental Sciences, 2020, 33(3):206-212.*

[4] *Long D L , Song H L , Qu P P . Cytokines profiles in cervical mucosa in patients with cervical high-risk human papillomavirus infection. The Journal of Infection in Developing Countries, 2021, 15(5):719-725.*

[5] *Ba A A , Tlrmb C , Ahmb C , et al. Surrogate markers for high-risk human papillomavirus infection in oral epithelial dysplasia: A comparison of p16, Ki-67, and ProExC. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, 2020, 129(3):246-259.*

[6] *Zhao S , Zhao X , Hu S Y , et al. Comparison of high-risk human papillomavirus infection rate and genotype distribution between Han and Mongolian women. Zhonghua yu fang yi xue za zhi [Chinese journal of preventive medicine], 2019, 40(11):1439-1444.*

[7] *Yuanjing, Lyu, Ling, et al. Influencing Factors of High-Risk Human Papillomavirus Infection and DNA Load According to the Severity of Cervical Lesions in Female Coal Mine Workers of China.. Journal of Cancer, 2019, 10(23):5764-5769.*

[8] *Stensen S , Kjaer S K , Jensen S M , et al. Factors associated with type-specific persistence of high-risk human papillomavirus infection: A population-based study.. International Journal of Cancer, 2016, 138(2):361-368.*

[9] *Cai T , Perletti G , Meacci F , et al. Natural history of human papillomavirus infection in non-vaccinated young males: low clearance probability in high-risk genotypes. Eur J Clin Microbiol Infect Dis, 2016, 35(3):463-469.*

[10] *Yudira S , Maria L C , Licet G , et al. Molecular evidence of high-risk human papillomavirus infection in colorectal tumours from Cuban patients. Memorias Do Instituto Oswaldo Cruz, 2016, 111(12):731-736.*

[11] *CC Cockerill, Orvidas L J , Moore E J , et al. Detection of high-risk human papillomavirus infection in tonsillar specimens using 2 commercially available assays. Diagnostic Microbiology & Infectious Disease, 2016, 86(4):365-368.*

[12] *A Pańczyszyn, Boniewska-Bernacka E , Gb G . Telomere length in leukocytes and cervical smears of women with high-risk human papillomavirus (HR HPV) infection. Taiwanese Journal of Obstetrics and Gynecology, 2020, 59(1):51-55.*

[13]Buda A , Elisei F , Palazzi S , et al. Quality of Care for Cervical and Endometrial Cancer Patients: The Impact of Different Techniques of Sentinel Lymph Node Mapping on Patient Satisfaction. Annals of Surgical Oncology, 2016, 23(9):1-7.

[14]Jain S M , Bagde M N , Bagde N D . Awareness of cervical cancer and Pap smear among nursing staff at a rural tertiary care hospital in Central India. Indian Journal of Cancer, 2016, 53(1):63-66.

[15]Chao X P , Sun T T , Wang S , et al. Correlation between the diversity of vaginal microbiota and the risk of high-risk human papillomavirus infection. International Journal of Gynecological Cancer, 2019, 29(1):28-34.

[16]Lv P , Zhao F , Xu X , et al. Correlation between Common Lower Genital Tract Microbes and High-Risk Human Papillomavirus Infection. The Canadian journal of infectious diseases & medical microbiology = Journal canadien des maladies infectieuses et de la microbiologie medicale / AMMI Canada, 2019, 2019(2):1-6.

[17]Shen, Keng, Zhang, et al. High-risk human papillomavirus infection clearance following conization among patients with cervical intraepithelial neoplasm grade 3 aged at least 45 years. International journal of gynecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics, 2017, 136(1):47-52.

[18]Waniczek, Dariusz, Markowski, Oral and oropharyngeal papillomas are not associated with high-risk human papillomavirus infection. European archives of oto-rhino-laryngology: Official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS), 2017, 274(9):3477-3483.

[19]Lu H , Jiang P C , Zhang X D , et al. Characteristics of bacterial vaginosis infection in cervical lesions with high risk human papillomavirus infection. International Journal of Clinical and Experimental Medicine, 2016, 8(11):21080-21088.

[20]Yang, Huaitao, Zeng, et al. Prevalence of High-Risk Human Papillomavirus Infection in China Analysis of 671,163 Human Papillomavirus Test Results From China's Largest College of American Pathologists-Certified Laboratory. American Journal of Clinical Pathology: Official Publication of American Society of Clinical Pathologists, 2016, 145(5):622-625.

[21]Ahmed H B , Emam H E . Layer by Layer Assembly of Nanosilver for High Performance Cotton Fabrics. Fibers and Polymers, 2016, 17(3):418-426.

[22]Anjum S , Gupta A , Sharma D , et al. Development of novel wound care systems based on nanosilver nanohydrogels of polymethacrylic acid with Aloe vera and curcumin. Materials Science & Engineering C Materials for Biological Applications, 2016, 64(jul.):157-166.

[23]Li L , Zhao C , Zhang Y , et al. Effect of stable antimicrobial nano-silver packaging on inhibiting mildew and in storage of rice. Food Chemistry, 2017, 215(jan.15):477-482.

[24]Shanmugam C , Sivasubramanian G , Parthasarathi B , et al. Erratum to: Antimicrobial, free radical scavenging activities and catalytic oxidation of benzyl alcohol by nano-silver synthesized from the leaf extract of Aristolochia indica L.: a promenade towards sustainability. Applied Nanoscience, 2016, 6(5):711-723.

[25]Deus D , Kehrenberg C , Schaudien D , et al. Effect of a nano-silver coating on the quality of fresh turkey meat during storage after modified atmosphere or vacuum packaging. Poultry Science, 2017, 96(2):449-457.

[26]F Gallocchio, Cibin V , Biancotto G , et al. Testing nano-silver food packaging to evaluate silver migration and food spoilage bacteria on chicken meat. Food Additives & Contaminants: Part A, 2016, 33(6):1063-1071.