Computer-based Study on EGFR Expression and SALIvary EGF Content in Tongue Coating Exfoliated Cells in Patients with Digestive System Tumor

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Abstract. The digestive system is an important energy supply system in human body. It can transform the nutrients in food into the energy of human life activities. In special cases, it can convert nutrients into body fat for storage. The appearance of digestive system tumor is a bad disease. It can lead to the loss of tongue coating cells and various complications[1]. According to the experimental theory of medicine, by observing the expression of EGFR in the exfoliated cells of tongue coating and the content of EGF in saliva of patients with tumor of digestive system, we can find the relationship between EGF and the changes of tongue coating cells of patients. Through the way of experiment, we can draw the corresponding conclusion. I think this conclusion will also provide theoretical help for the treatment of cancer-related diseases of digestive system in medicine.

Keywords: Computer, Digestive System, Tumor, Tongue Coating

1. Introduction

By observing the changes of tongue coating, it is found that the change of internal balance state of human body is a magic content in TCM inspection. In the theory of traditional Chinese medicine in China, we can find the pathological changes in the body of patients by observing the nature and color changes of tongue coating. It plays an important role on the basis of pathogenesis change and disease diagnosis[2]. In fact, in modern medicine, the study of tongue coating is more and more in-depth. Researchers have used different methods to study the formation mechanism of tongue coating and its internal mechanism related to diseases.

In the course of the study, it was found that the epidermal growth factor EGF of tongue coating was closely related to the change of tongue coating of tumor patients. This discovery has attracted the attention of medical experts. Through the promotion of further research, scholars found that the
thickness of patients' tongue coating and the content of EGF are also closely related. It is found that EGF is closely related to human digestive system. Therefore, we can think that the changes of tongue coating and the content of EGF have a great relationship. In order to prove the accuracy of this study, we selected tumor patients of digestive system as subjects, and observed the expression of epidermal growth factor receptor and the content of EGF in exfoliated cells of tongue coating.

2. Preparation stage of the experiment

2.1. Case selection requirements

We will select 50 patients with digestive system tumors according to the principles of medical experiments. The cancer diseases of these patients are different. According to the mathematical statistical rules, we can find that 70% of men and 30% of women. All patients were accurately diagnosed as digestive system tumor diseases. These diseases include liver cancer, colon cancer, esophageal cancer, gastric cancer, rectal cancer and pancreatic cancer. In the process of the experiment, we will not delay the medical treatment of patients (see Figure 1).

![Figure 1. Exfoliated cells of tongue coating](image)

2.2. Classification criteria for diagnosis of tongue coating

The process of diagnosis and classification of tongue coating needs to use the relevant theories in TCM diagnostics. According to the different thickness and color of the above patients' tongue coating, the corresponding classification was made[3]. According to the theory of traditional Chinese medicine, the classification of tongue coating includes thick tongue coating, thin tongue coating, no tongue coating, white tongue coating, yellow tongue coating, light white tongue coating, light red tongue coating, red tongue coating, purple tongue coating and mixed color tongue coating.

3. Specific methods of experiment
3.1. The process of specimen collection

According to the standard collection requirements of medical theory, patients were required to collect samples after fasting for two hours. The patient needs to stick their tongue out. The collector should use sterile scraping blade to remove the coating on the surface of the tongue. At the same time, the collector also needs to take out the appropriate amount of patient's saliva. All specimens should be stored at -20 degrees Celsius before testing. This can ensure the accuracy of the specimen test. Reduce the occurrence of contingency.

3.2. Immunohistochemical staining of EGFR based on main reagents

In the process of staining specimens, we need normal goat serum, complex state of digestive juice, biotin, peroxidase complex and corresponding reagents. It should be noted that these reagents should be placed in the standard biological environment of the laboratory. In the process of their use, users must ensure that the order of using different reagents is different. At the same time, the user should use the reagent correctly to avoid being injured by some corrosive reagents.

3.3. The process of observation under a microscope

The microscope used this time should be light. In the process of viewing cells, the observer should pay attention to observe the diameter of individual exfoliated cells. According to the different diameter, the cells in the specimen can be divided into three types: large, medium and small. The average diameter of all cells was measured by the function of eyepiece measurement. When using the microscope, the user should keep the correct posture. The specimens should be placed correctly.

3.4. Recording process under microscope

After immunohistochemical staining of tongue coating exfoliated cells smear observation, should ensure that the expression of EGFR indicators. It should be ensured that the staining intensity of tongue coating cells and the staining intensity of cell membrane are recorded. It should be ensured that specific proportions of the number of cells stained in different fields of vision are recorded.

3.5. Radioimmunoassay of salivary epidermal growth factor based on computer

The specific anti immune test process needs to be carried out according to the standard requirements of medical tests. The instruments used in this test mainly include T tube, zero tube, standard tube and sample tube. The reagents used in this test mainly include different concentrations of standard cell tissues, EGF antibodies and immune separation reagents. After the measured data in the sample tube are processed by computer, researchers need to compare and calculate it with the standard curve. After that, the computer can automatically predict the concentration of the sample through the corresponding calculation.

4. Results of computer-based tongue coating exfoliated cells test in patients with digestive system tumors

4.1. Comparison of EGFR expression in tongue coating exfoliated cells of patients with digestive system tumor
In the experiment of various groups of tongue coating, the coloring index of thick tongue coating was significantly higher than that of other groups. We can conclude that the expression of EGFR in exfoliated cells of thick tongue coating is enhanced. In the thin group, the thin group and the thin group had no ability of expression (see Table 1).

Table 1. Expression of EGFR in exfoliated cells of tongue coating

| Group                  | Cell diameter | Coloring degree | Shading scale |
|------------------------|---------------|-----------------|---------------|
| Thick yellow tongue coating | 34.3          | 1.74            | 80.1          |
| Thick white tongue coating | 33.6          | 1.65            | 60.5          |
| Thin yellow tongue coating | 31.4          | 1.44            | 43.1          |
| White thin tongue coating   | 30.5          | 1.34            | 31.8          |
| No tongue coating          | 30.1          | 0.57            | 22.7          |

4.2. Comparison of EGF content in saliva of cancer patients with different tongue coating

According to the corresponding detection and calculation, we can find that the thicker the tongue coating, the higher the content of EGF. The difference between different groups was also significant. According to statistics, we found that the order of EGF content in saliva of patients with various tongue coating groups was yellow thick tongue coating group, white thick tongue coating group, yellow thin tongue coating group, white thin tongue coating group and no tongue coating group.

5. Analysis of EGFR expression in tongue coating exfoliated cells and EGF content in saliva of patients with digestive system tumor based on computer

5.1. Research on EGF

According to the medical literature review, we found that EGF is a kind of single chain and polypeptide secretion and has the effect of promoting cell division. According to this conclusion, we can infer that EGFR should be a glycoprotein like substance[5]. It can be detected in normal cell tissues or on tumor cell membranes from different sources. EGF can activate the receptor EGFR. This activation can promote the mitosis of tongue coating cells.

5.2. The conclusion of the experiment

According to the experimental demonstration, we found that there is a great correlation between the changes of tongue coating and the content of EGF in saliva and the expression of EGFR receptor. The average diameter of exfoliated tongue coating cells in cancer patients will also increase with the enhancement of cell receptor expression ability[6]. The results showed that the deeper the color and the greater the thickness of the coating, the stronger the EGF content and receptor expression ability.

6. Conclusion
The theoretical knowledge of traditional Chinese medicine is powerful. According to the condition of tongue coating, we can calculate the pathological condition of the patient's body. There is no doubt that the computer-based study of EGFR expression in tongue coating exfoliated cells and EGF content in saliva of patients with digestive system tumor is successful in theory. However, some foreign scholars have found that EGF content is also related to the regulation of some genes. This theory may need further analysis and research.

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