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Method and Apparatus for Cleansing the Lower Intestinal Tract

Field of the invention

This invention is directed to a medical means and a method using the same, more particularly to an apparatus and method for cleansing the lower intestinal tract.

Background of the Invention

Many people, particularly those who are elderly, have difficulty in bowel movement such as constipation. Drugs administration and colonic irrigation are used to treat these diseases, and the colonic irrigation is the only way for some severe cases.

However, although the prior art has disclosed many means for colonic irrigation, all the means have an insertion member that needs to be inserted into the body of the patient when operated. Apparently, the patient will feel uncomfortable when such an operation undertakes especially to the hemorrhoid patients. Accordingly, it is needed to create an apparatus that can introduce water into the body without any insertion members. The present invention is hereby provided.

Summary of the Invention

It is an object of the present invention to provide a new method for cleansing the lower intestinal tract of a patient, which obviate or mitigate aforementioned disadvantages.

It is another object of the present invention to provide a new apparatus using above said method for cleansing the lower intestinal tract of a patient.

One object of the present is achieved by providing a method for cleansing the lower intestinal tract of a patient, comprising:

- a) Producing lavage water at a temperature of 20-38°C by filtering means and heating means in a cleansing apparatus,
- b) Contacting an instrument of the apparatus with the anus of the patient, said instrument having a curve plane with a cleansing opening, said curve plane fitting to the

portion of the body close to the anus so that the cleansing opening can completely match with the anus and directing said lavage water under a predetermined pressure through the anal canal into the lower intestinal tract in matching with contracting action of the patient; and

c) Removing said instrument when the patient feels abdominal distension and discharging the feces in the colon out of the body.

Accordingly, in one aspect of the method in the present invention, there is provided step repeating said step b) and said step c).

In another aspect of the method in the present invention, there is provided step a1) of ozonizing said lavage water through an ozonizer after the said step a).

In another aspect of the method in the present invention, there is provided step a2) of cleaning the portion of the body close to the anus or the vulvae of the patient after the step a1).

Another object of the present invention is achieved by providing an apparatus for cleansing the lower intestine tract of the patient, which comprises:

housing 9 having an inlet 10 and an outlet 11;

heating means 2 disposed at the lower portion within the housing 9, including a container 201 which comprises a water inlet 203 and a water outlet 204 and a heater 202, said water inlet 203 connected with the inlet 10 of said housing 9 and the water outlet 204 connected with the outlet 11 of said housing 9 through a channel 200 ;

cleansing means 1 connected to said outlet 11 of said housing 9, including an instrument 101 comprising an upper surface 102 having a curve plane 105 with a cleansing opening 103 matched with the portion of the body close to the anus, so that when the curve plane 105 contact the portion, the upper surface 102 is completely matched with the anus; and

controlling means 6 connected to said heating means 2 and cleansing means 1, for controlling the temperature of water in the heating means 2 and the flow of water in said cleansing means 1 by pressure-controlled switch 2031 to guarantee the pressure of water in a safety range.

In one aspect of the apparatus in the present invention, said heating means 2 comprises a pressure-controlled switch 2031 connected with the water inlet 203, and a temperature-sensitive probe 2041 connected with the water outlet 204.

In another aspect of the apparatus in the present invention, said apparatus further comprises an ozonizer 3, output of which directed to said water outlet 200 in said heating means 2 through one-way valve 4.

In another aspect of the apparatus in the present invention, said controlling means 6 is connected to said ozonizer 3 and controls its operation.

In another aspect of the apparatus in the present invention, said ozonizer 3 includes:

- a casing 301;

- an ozonizing tube 302 arranged in said casing 301 having a gas opening 305 which connected to said water outlet 204 through a delivery conduit ; and

- a pump means 303 disposed within the casing 301 for delivering an ozone generated from said ozonizing tube 302 to said water outlet 200.

In another aspect of the apparatus in the present invention, said apparatus further including a filtering means 5 connected between the inlet 10 in housing 9 and heating means 2.

In another aspect of the apparatus in the present invention, said filtering means 5 comprising a casing 501 with a filtering mesh 502 and a filtering layer 503, and activated carbon 504 filled in said filtering layer 503.

In another aspect of the apparatus in the present invention, aid cleansing means 1 further comprises a connection member 106 attached to the cleansing instrument 101 and connected to said outlet 11 of the housing 9 through a hose 900, and a control means for controlling the flow of water from the instrument, said upper surface 102 has a cylindrical shaped project 107 extended from the central of the said plane 105, and said cleansing opening 103 is disposed at the end of the project 107.

Compared with the prior art, the method and the apparatus in the present invention may direct introduce water into the body without insertion of any foreign matters to thus avoid any stimulation to the body of the patient. The ozonizer and heating means in the apparatus can provide a lavaging liquid to clean the anus or vulvae of the patient. The apparatus of the present invention can be easy operated by the patient himself in no need of the assistant.

Brief Description of the Drawings

Fig. 1 shows sketched block diagram of the apparatus according to the present invention.
 Fig. 2 shows a housing of the apparatus according to the present invention.
 Fig. 3 is a cross sectional view of the housing shown in Fig. 2.
 Fig. 4 is a structure sketch map of the housing shown in Fig. 2.
 Fig. 5 shows an alternative embodiment of the cleansing instrument shown in Fig. 4.
 Fig. 6 shows another alternative embodiment of the cleansing instrument shown in Fig. 4.
 Fig. 7 shows another alternative embodiment of the cleansing instrument shown in Fig. 4.
 Fig. 8 is a map of the exhibition of control means of the apparatus of the present invention.
 Fig. 9 is a partially exploded view of an ozonizer of the apparatus according to the invention.
 Fig. 10 is a sketch map of the non-insertion method for cleansing the lower intestinal tract of a patient.

Detailed Description of the Invention

The present invention will be described in detail in combination with the drawings.

Fig 1 shows an embodiment of the present invention. In this embodiment, an apparatus comprises a filtering means 5, a heating means 2 and a cleansing means 1. Lavage water from cleansing means 1 through filtering, heating is used for cleansing operation.

Referring to Fig. 2 and Fig.3, a housing 9 of an apparatus of the present invention is shown. On the surface of the housing 9 is arranged a LCD display 7 that shows data of the temperature of water and time of the operation. Reference numeral 900 is a connection hose between an outlet 11 and the cleansing means 1 and reference numeral 8 are controlling buttons of the apparatus. An inlet 10 of the housing 9 is connected to a water resource (not shown) through a conduit 100. At the upper surface 102 of the cleansing means 1, there is a cylindrical shaped project 107 extended from the central of the said upper surface 102, a cleansing opening 103 is disposed at the end of the project 107, the surface 105 of said cleansing opening 103 matched with the portion of the body close to the anus. An electric socket 12 is mounted on the housing 9.

Fig. 4 shows another embodiment of the present invention. Water is introduced through the inlet 10 into a filtering means 5. The filtering means 5 includes a casing 501. From the two ends of the casing 501 are disposed filtering layers 503 and filtering meshes 502, successively, activated carbon 504 is disposed between them. Thus, those chlorides and fluorides as well as other impurities in water can be removed before water enters a

heating means 2. The filtered water from the filtering means 5 is then introduced into the heating means 2 via a cold-water inlet 203. A pressure-control switch 2031 is set within the cold-water inlet 203. A temperature sensor 2041 is provided within the hot water outlet 204. The temperature sensor 2041 and the pressure-control switch 2031 are connected to the control means 6. An electrically heating tube or electrically heating wires and those conventionally used in the art can be used as a heater to heat water in the means 2. In the invention, an electrically heating film coated on a quartz tube is preferably used. Heated water is discharged out of the heating means 2 from a hot water outlet 204. The temperature of water in the heating means 2 can be regulated upon the patient's situation and demand. The temperature of water is generally regulated at from 20° to 38°C. The pressure-control switch 2031 is set to avoid water in the heating means 2 being used up. When the pressure of water in the inlet 203 is higher than 0.025Mpa, the switch can have the power on. When the temperature of the water in the outlet 204 is reached at 38°C, the controlling means renders the heater off. A controlling panel 7 is connected to the controlling means 6. The adjusting buttons are provided on the controlling panel 7 for setting the temperature to fit.

A magnetizing member 205 is set in a water channel 202 in the heating means 2, so that magnetized water can be produced in the apparatus. It is useful to enhance its cleaning effect.

In the embodiment of the apparatus, an ozonizer 3 is further provided at the upper portion (shown in Fig. 4). The ozonizer 3 produces ozone that is mixed with the heated water from the heating means 2. The water containing ozone can kill bacteria in the colon and is better to cleanse the anus and the vulva of the patient. The ozonizer 3 comprises a casing 301, an ozonizing tube 302, a gas pump 303 pressing ozone from the ozonizing tube 302, which is driven by a magnet 3031, electro-magnetic wires 304. The ozonizer 3 has a gas opening 305 on casing 301 for providing ozone, as shown in Fig 9, The outlet opening 305 is connected to an outlet conduit 200 in the heating means 2 through a one-way valve 4. In the embodiment the control means 6 is connected to the ozonizer 3 for controlling the power of the electro-magnetic wires 304. It is to control the operation of ozonizer 3.

The control means 6 comprises a control circuit on PCB installed within the housing 9. LCD display 7 and the control switch 8 installed the front of the housing 9 are connected to an output port and an input port of the controlling means 6 respectively. As shown in Fig. 8, the control circuit may be those using a chip microprocessor as a central circuit or any others known by the skilled in the art. The control circuit is connected to the ozonizer

3 and the heating means 2, and controls them according to the preset program.

Figs 5, 6 and 7 respectively show three embodiments of the cleansing instrument 101 of the cleansing means 1. Referring to Figs 5 and 6, the cleansing means 1 includes a connection member 106 connected to the cleansing instrument 101. The connection member 106 is connected to the outlet 11 of the housing 9 through the connection hose 900. The cleansing instrument 101 has its upper surface 102 from which a cylindrical project 107 is extended upwards to be terminated by a cleansing opening 103. The cylindrical project 107 is formed in such a shape that it can fully fit to the portion of the body close to the anus of the patient to make the opening 103 completely matched with the anus.

Fig. 8 shows the connection status of the control means 6 with other portions of the apparatus according to the invention.

Referring to Fig. 10, the apparatus of the present invention operates as follows: Water from a resource is introduced into the filtering means 5 and the heating means 2. The result is to produce pure water with constant warm temperature. A patient may adjust the temperature of water upon his demand. The patient or his helper holds the non-insertion cleansing instrument 101 to make the cleansing opening 103 contact the patient's anus. Under the pressure of water, the filtered and heated pure water is then injected into the lower intestine tract of the patient. When the patient has the feeling of bowel movement, the cleansing instrument 101 is taken away and the feces in the lower intestinal tract are discharged. This performance can be taken repeatedly as required. In general, the performance takes 10-20 seconds each time. The whole cure process takes 30-40 minutes to inject water 5-10 times. It can inject 2-8 kilolitre of water into the colon, dilutes and dissolves the fecal accumulation. During the operation of the cleansing, the flow of the cleansing water may stimulate the colonic muscle close to the anus and enhance the reaction of contract of the muscle so that bowel movement can be readily taken.

The clinical experiment of the apparatus of the present invention indicates: two groups of voluntary patients were tested with the apparatus of the present invention, each having 55 patients. After use the apparatus of the present invention, the cleanliness of colon boundary, splenic flexure, hepatic flexure and ileocecal section respectively are 100%_96.4%_90.9% and 83.6%. Although during the procedure, 87.3% of patients felt abdominal distension, 27.3% of patients felt abdominal pain and 5.5% of patients got palpitation, they all could bear these conditions that disappeared soon after the operation.

The above embodiments and description are merely used to illustrate the invention, and but not intended to limit the invention. Any modifications and varieties to the invention without depart from the spirit of the invention should fall within the scope of the invention.

Claims

1. A method for cleansing the lower intestinal tract of a patient comprising the steps of:
 - 5 a) producing a lavage water at a temperature of 20-38°C by filtering and heating;
 - b) contacting an instrument of the apparatus with the anus of the patient, said instrument having a curve plane with a cleansing opening, said curve plane fitting to the portion of the body close to the anus so that the cleansing opening can completely match with the anus and directing said lavage water under a predetermined pressure
10 through the anal canal into the lower intestinal tract in matching with contracting action of the patient; and
 - c) removing said instrument when the patient feels abdominal distension and discharging the feces in the colon out of the body.
- 15 2. The method of claim 1 further including steps repeating the steps of b) and c).
3. The method of claim 1 further including the step a1) of ozonizing said lavage water after the said step a).
- 20 4. The method of claim 3 further including the step a2) of cleaning the portion of the body close to the anus or the vulvae of the patient after the step a1).
5. An apparatus used in the method in any one of claim 1-4 for cleansing the lower intestinal tract of a patient comprising:
 - 25 a) housing 9 having an inlet 10 and an outlet 11;
 - b) heating means 2 disposed at the lower portion within the housing 9, including a container 201 which comprises a water inlet 203 and a water outlet 204 and a heater 202, said water inlet 203 connected with the inlet 10 of said housing 9 and the water outlet 204 connected with the outlet 11 of said housing 9 through a channel 200;
 - 30 c) cleansing means 1 connected to said outlet 11 of said housing 9, including a cleansing instrument 101 comprising an upper surface 102 having a curve plane 105 with a cleansing opening 103 matched with the portion of the body close to the anus, so that when the curve plane 105 contact the portion, the upper surface 102 is completely matched with the anus; and
 - 35 d) controlling means 6 connected to said heating means 2 and cleansing means 1, for controlling the temperature of water in the heating means 2 and the flow of water in said cleansing means 1 by pressure-controlled switch 2031 to guarantee the

pressure of water in a safety range.

6. The apparatus of claim 5, wherein said heating means 2 comprises a pressure-controlled switch 2031 connected with the water inlet 203, and a temperature sensor
5 2041 connected with the water outlet 204.

7. The apparatus of claim 5, wherein said apparatus further comprises an ozonizer 3, output of which directed to said water outlet 200 in said heating means 2 through one way valve 4.
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8. The apparatus of claim 5, wherein said controlling means 6 is connected to said ozonizer 3 and controls its operation.

9. The apparatus of claim 8, wherein said ozonizer 3 includes:
15 a casing 301;
an ozonizing tube 302 arranged in said casing 301 having a gas opening 305 which connected to said water outlet 204 through a delivery conduit ; and
a pump means 303 disposed within the casing 301 for delivering an ozone generated from said ozonizing tube 302 to said water outlet 200.
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10. The apparatus of claim 5 further including a filtering means 5 connected between the inlet 10 in housing 9 and heating means 2.

11. The apparatus of claim 11 said filtering means 5 comprising a casing 501) with a
25 filtering mesh 502 and a filtering layer 503, and activated carbon 504 filled in said filtering layer 503.

12. The apparatus of claim 5, wherein said cleansing means 1 further comprises a connection member 106 attached to the cleansing instrument 101 and connected to
30 said outlet 11 of the housing 9 through a hose 900, and a control means for controlling the flow of water from the instrument, said upper surface 102 has a cylindrical shaped project 107 extended from the central of the said plane 105, and said cleansing opening 103 is disposed at the end of the project 107.