Preparation method of pure chlorine dioxide solution and method for treating Ebola virus infection

Abstract

The invention relates to the technical field of medical science and discloses a method for treating virus infection. The method utilizes intravenous injection of a pure chlorine dioxide solution to treat Ebola virus-infected patients and is a method for known or unknown malicious virus-infected patient treatment. The invention discloses a preparation method of the pure chlorine dioxide solution, material storage requirements, a storage method, storage conditions, and basis and a method for treating Ebola virus-infected patients by the pure chlorine dioxide solution. If the method for treating Ebola virus infection is allowed to be used in the human body and especially in subhealth people, through regular human body disinfection 1-2 times every year, the method can prevent cancer incidence.

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Claims (5)

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1. the manufacture method of pure chlorine dioxide solution and Ebola virus treatment of infection method, the manufacture method that can be used for intravenous pure chlorine dioxide solution adopts carbon dioxide and sodium chlorite or potassium chlorite to react to produce chlorine dioxide and carbon dioxide gas mixture, the pure chlorine dioxide solution obtained is dissolved with pure water, pure chlorine dioxide solution adopts intravenous method, can be used for prevention and Ebola virus treatment of infection.

2. the manufacture method of pure chlorine dioxide solution according to claim 1 and Ebola virus treatment of infection method, one of its feature does not calculate carbonate and carbon dioxide is impurity, and purity is more than 99.5%; It is CO 2 gas-shielded that two of its feature is that the storage of pure chlorine dioxide solution needs to add; Three of its feature is conditions of storage of pure chlorine dioxide solution is at 0 ~ 15 DEG C; Four of its feature is that the storage of pure chlorine dioxide solution uses glass container, and sealing gasket uses Foamed polyvinylidene fluoride; Five of its feature is pure chlorine dioxide solution when operating for intravenous injection, forbids and Metal Contact.

3. the manufacture method of pure chlorine dioxide solution according to claim 1 and Ebola virus treatment of infection method, when it is characterized in that pure chlorine dioxide solution for intravenous injection, concentration is between 0.5 ~ 200ppm, be divided into chlorine dioxide laundering period and treatment phase, through the data that animal experiment and human trial obtain, with virus produce suppress or deactivation for index, and make human body autologous drug reaction in allowed limits.

4. the manufacture method of pure chlorine dioxide solution according to claim 1 and Ebola virus treatment of infection method, is characterized in that adopting the method for including but not limited to the malignant virus treatment that hepatitis virus, papillomavirus etc. are known or unknown.

5. the manufacture method of pure chlorine dioxide solution according to claim 1 and Ebola virus treatment of infection method, is characterized in that adopting the method for the annual health of regularly sterilizing for 1 ~ 2 time of sub-health population, the health purpose that prophylaxis of cancer occurs.

Description

The manufacture method of pure chlorine dioxide solution and Ebola virus treatment of infection method

Technical field: the present invention relates to medicine technology field, being utilize pure chlorine dioxide solution as intravenous method treatment Ebola virus the infected, is also a kind of Therapeutic Method of known or unknown malignant virus patient.

The market product of chlorine dioxide, there is the effusion of generation chlorine in actual use and cause niff, cause the detest of user, I devises pure chlorine dioxide generator (utility model patent of invention: patent No. ZL 01205297.3) in calendar year 2001 is the first of research pure chlorine dioxide solution, ites is desirable to solve the difficult problem in using; Through the repetition test of 6 months, Resolving probiems, but the too high production finally abandoning pure chlorine dioxide solution of packing cost.April in this year rises, and Ebola virus is multinational rapid spread in West Africa, has the symptom of a trend out of control at present, and cause the economy pause of epidemic disease district, local people to the fear that cannot predict, helpless worry, impels World Health Organization (WHO) WHO to solicit solution to the whole world.I thumb once did experiment, process, test data sheet, be sure of that pure chlorine dioxide solution is the sharp weapon for the treatment of Ebola virus the infected, tackling known or unknown malignant virus, will the therapeutic scheme of standard become.

The history of 1.1 chlorine dioxide and the general character: chlorine dioxide (ClO2) is that Humphrey Dai Wei found in 1811, according to the difference of concentration, chlorine dioxide is that a kind of yellow green is to orange-yellow gas.Time dense, there is the penetrating odor similar to chlorine, when concentration is extremely low, there is grass smell and slight sweet taste, when working concentration is lower than 500ppm, it can be ignored the impact of human body, can not produce any impact during below 100ppm on human body, comprise the impact of Physiology and biochemistry aspect, to skin also without any sensitization and stimulation.In fact, the conventional working concentration of chlorine dioxide will well below 500ppm, general only at about tens ppm, therefore, chlorine dioxide also by be known as in the world safety, nontoxic green disinfectant (with water peer 1 grade), be described as " chlorine dioxide is that God gives the mankind the most sincere present ".

1.2 chlorine dioxide (ClO_2) be a kind of brownish red gas, concentration is low is yellow green gas, and relative atmospheric proportion is 1.1, is heavier than air.Liquid specific gravity 2.37, has the penetrating odor similar to chlorine; 100ppm chlorine dioxide (ClO_2) aqueous solution, there is grass smell and slight sweet taste, chlorine dioxide (ClO_2) boiling point 11 DEG C, freezing point-59 DEG C.Soluble in water, glacial acetic acid and carbon tetrachloride equal solvent.Liquefaction chlorine dioxide and high concentration of chlorine dioxide extremely unstable, clash into or sun exposure all can be blasted.In atmosphere, concentration just may be blasted more than 10%, is the material of excellent stability lower than 10%, does not have the danger of exploding.

Chlorine dioxide toxicity ratio chlorine, ozone are much little, in air, and chlorine gas concentration 1.2mg/m^3, ozone 1.6mg/m^3, people just presents acute headache, even death; And pure chlorine dioxide is lower than 120mg/m^3, the phenomenon of above-mentioned danger can not be there is in concentration.Chlorine dioxide stability is higher than ozone, and in air, ozone just decomposes at 18 DEG C, and chlorine dioxide is less than 35 DEG C and can not decomposes.

Chlorine dioxide is soluble in water, and dissolubility is 5 times of chlorine, divides pressure at room temperature 30mm/Hg, and dissolubility is 2.9g/L; At room temperature 760mm/Hg pressure (normal pressure), dissolubility is 3.1g/L.Chlorine dioxide is not easily hydrolyzed, and exists, at low concentrations (below 10mg/L) in water with monomolecular formation, its sterilization, disinfecting power, mainly carry out in the mode of oxidation, different from chlorine sterilizing, disinfection by chlorine carries out in the mode of electron transfer.Therefore ClO_2kill mattress can pH value in a big way in (2 ~ 10) efficient sterilization, and harmless.

ClO_2in water after testing (under various medium, the time that correspondence is killed, residual bacterium quantity, contrasts ClO in the conclusion and existing document drawn more than more than 5 times to contrast the mattress ability of killing of 1mg/L chlorine time below 1mg/L concentration $_2$sterilizing ability is greater than Cl by effective chlorine $_2$the data of 2.6 times there is any discrepancy).

Affect $ClO_2$the factor of sterilizing ability:

Dysgenic to it: Cl_2or the ClO of correspondence $^-$ion, ClO_2^-, ClO_3^-.

Facilitation is produced to it: dissolved oxygen, H_2O_2, Fe^{2+}ion, Cl^-.

Do not have influential to it: CO_3^{2-}, Na^+, Ca^{2+}.

The definition of pure chlorine dioxide solution refers to and does not calculate $CO_3^{2-}$the aqueous solution of chlorine dioxide of ion concentration, purity is more than 99%.

2.2 physicochemical properties

The structural formula of chlorine dioxide: the angle between two double bonds of 2 O and Cl is 117.7 ° ± 1.72 °, and the distance between 2 O and Cl is equal, i.e. D=1.784 ± 0.01A.

The infrared spectrum of chlorine dioxide: $\upsilon_1$945cm $^{-1}$; $\upsilon_2$445cm $^{-1}$; $\upsilon_3$1108cm $^{-1}$.

The uv absorption of chlorine dioxide in carbon tetrachloride: λ_{max}375nm and 355nm, also has a weak absorbing at 263nm place.

Chlorine dioxide is with AB_2resonant structure exist.

The electronic structure of Chlorine Dioxide Molecules is undersaturated condition, but in water, but do not exist with dimerization or poly state, this is favourable to the rapid diffusion of chlorine dioxide in water.Chlorine dioxide is comparatively responsive to light.The chlorine dioxide dissolved in water, be 0.20mol/E in the photodissociation quantum rate at 436nm place, rise to 1.0mol/E at 405nm place, its mechanism is as follows:

$2ClO_2+h\upsilon = 2ClO^{1-}+2O$

$ClO+H_2O = H_2ClC_O2$

$H_2ClO_2+ClO = HClO_3+HCl$

$2ClO_2+h\upsilon+H_2O = HClO_3+HCl+2O$

Therefore, in actual applications, chlorine dioxide must keep in Dark Place.

In theory, chlorine dioxide should be the anhydride of chlorous acid and chloric acid, i.e. $2ClO_2+ H_2O=HClO_2+ HClO_3$but, under actual water treatment condition, when pH value is 6 ~ 8, chlorine dioxide but has larger stability in water, and its concentration Absorbable organic halogens is at more than 48h, and this can find out from following formula:

During water temperature 20 DEG C, $[HClO_2]\,[HClO_3]/[ClO_2]^2=1.2\times10^{-7}$.

Only under the alkali condition of pH >=9, just there is dismutation reaction in chlorine dioxide:

$2ClO_2+2OH^- = ClO_2^-+H_2O$

2.2.1 to $ClO_2$the influence factor of oxidability

There is negative response factor: Cl_2or the ClO of correspondence $^-$ion, ClO_2^-, ClO_3^-.

There is the factor of promotion: dissolved oxygen, H_2O_2, Fe^{2+}ion, Cl^-.

Factor to it does not have an impact: CO_3^{2-}, Na^+, Ca^{+2}plasma.

2.2.2 chlorine dioxide (ClO_2) very strong to corrosion of metal, in use, can not contact with metal object.

2.2.3 solubility: very easily water-soluble and do not react with water, be hydrolyzed hardly, the dissolubility in water is 58 times of chlorine.Be dissolved in aqueous slkali and generate chlorite.

Adopt pure chlorine dioxide (ClO_2) mode of gas absorption measures, chlorine dioxide (ClO_2) dissolubility in water: 2300mg/L when 20 DEG C; This is under the effect of non-complete reaction remaining carbon dioxide air stripping, the reason that dissolubility declines.

2.4 advantage

1. broad spectrum activity: the thalline that can kill virus, antibacterial, protista, algae, fungus and various spore and Sporulation

2. efficient: can to kill all virus breeding bodies and many Causative viruss under 0.1ppm, 5ppm can kill vegetative forms of bacteria, hepatitis virus, phage and bacterial spore completely

3. affect little by temperature and ammonia: under low temperature and higher temperature, fungicidal effectiveness is basically identical

4.pH is applied widely: can keep very high germicidal efficiency within the scope of pH2-10

5. safe noresidue: not with Organic substance generation chlorination, does not produce three and causes material and other noxious substance

6. the advantage such as pair human body is non-stimulated: during lower than 5000ppm, its impact can be ignored, and below 100ppm does not have any impact to people

3.1 safety

Experimentation displays a large amount of abroad, chlorine dioxide is safety, nontoxic disinfectant, without " three cause " effect (carcinogenic, teratogenesis, mutagenesis), in disinfecting process, do not generate the organic chloride or other poisonous class material that can produce " three-induced effect " with Organic substance generation chlorination simultaneously yet.But because chlorine dioxide has extremely strong oxidability, when high concentration (> 500ppm) should be avoided to use.When working concentration is lower than 500ppm, it can be ignored the impact of human body, can not produce any impact, comprise the impact of Physiology and biochemistry aspect during below 100ppm on human body.To skin also without any sensitization.In fact, the conventional working concentration of chlorine dioxide will well below 500ppm, generally only at about tens ppm.Therefore, chlorine dioxide is also known as safety, nontoxic green disinfectant in the world.

Two results are obtained in 3.2 Carassius auratus toxicity tests and white mice toxicity test:

A. chlorine dioxide (ClO_2) long-term living safety concentration be 0.75mg/l;

B. tested by white mice acute oral toxicity, ClO_2true border nontoxic type.

Acute toxicity test, when the highest filling is with dosage 10000mg/kg chlorine dioxide, mice is still without obvious poisoning symptom, and diet and activity are all normal.Each treated animal all none mortality tables in process of the test.As calculated, its LD50 of passing through mouth > 10000mg/kg.

3.2.2 acute skin irritation, observation shows, to coat after medicine 1 ~ 48 hour, the irritation such as erythema and edema does not all appear in rabbit back application site skin, and reaction integration is 0.

Acute ocular mucous membrane irritation is instill concentration 9.7 ~ 11.4mg/L ClO 2 solution 5s in rabbit conjunctival capsule after, clean with normal saline flushing.Rabbit conjunctival blood vessel occurs slightly permitting blood in 6h, and substantially disappear to 24h symptom, symptom 48h disappears completely.Rabbit 48h eye irritation score index is 0, belongs to nonirritant material.

The pure chlorine dioxide solution of my test 120 ~ 150ppm concentration, is applied to trauma wounds place, the zest of contrast tap water, the zest of pure chlorine dioxide solution lower than tap water, analgesia.

4.1 disinfection effects: chlorine dioxide is a kind of wide spectrum, efficiently biocide.Results of study many abroad shows, chlorine dioxide, under extremely low concentration (01ppm), can kill many pathogenic bacterium such as such as escherichia coli, staphylococcus aureus etc.Even if under organic interference, when working concentration is 20ppm, also can the microorganism such as kill vegetative forms of bacteria, hepatitis virus, phage and bacterial spore completely, do not find the virus resisting more than 5ppm concentration, do not find the unicellular microorganism resisting more than 20ppm concentration.

Disinfection agent of chlorine dioxide applicating history

Human use's chemosterilant carries out sterilizing from 19 beginnings of the century.After within 1820, first generation chemosterilant bleaching powder comes out, people are mainly used in the treatment of drinking water disinfection and contaminated wound, and achieve effect well, open first milestone of chemical sterilization sterilization.After this, people have found second filial generation disinfectant oxirane in succession, third generation disinfectant glutaraldehyde.A new generation's efficient chemical disinfectant is come out finally in calling again and again, and Here it is is referred to as the chlorine dioxide of forth generation disinfection sanitizer.

After large-scale production, people just start extensive use.The Big Fall In Niagara of the U.S. in 1940 takes the lead in adopting its Drinking Water, obtains good result, is generalized to the whole world rapidly afterwards.People are when discovery chlorine carries out disinfection to drinking water successively, Organic substance in water can with chlorine generation substitution reaction, generate organochlorine compound, organochlorine can accumulate and produce chronic progressive poisoning in human body, also carninomatosis can be brought out, environmental protection alliance of the world is about to completely forbid the sterilization using chlorine to be used for drinking water, and suggestion adopts universal, has the sterilization that the high effect disinfectants chlorine dioxide of strong oxidizing property carries out drinking water.Chlorine dioxide united state health organization (WHO) is classified as AI level disinfectant (medicine of the toxicity ad eundem of unique and water).

China's application Chloride Dioxide Disinfection Technology starts from the eighties.1987, health supervision department of Guangdong Province ratified it and may be used for food sterilization, fresh-keeping and food apparatus, equipment disinfection.Nineteen ninety Shanghai sanitation approved by management its may be used for water treatment, food processing and aquaculture, deodorization etc.China's Ministry of Public Health also clearly proposed before 2000, progressively substituted with

chlorine dioxide the sterilization that chlorine carries out drinking water.Within 2003, rise, chlorine dioxide is listed in again the important chlorine-containing disinfectant of prevention SARS.

Summary of the invention:

The present invention seeks to find and allow pure chlorine dioxide solution as medicine, adopt intravenous method, treatment Ebola virus the infected, and become the Therapeutic Method of this viral a kind of standard.

The technical problem that current Chlorine dioxide production exists:

1, stability chlorine dioxide must activate before use, uses hydrochloric acid or citric acid and sodium chlorite to react 15 minutes, pH value less than 1, there is reaction depth requirement and because there being a large amount of chlorine conversion to produce under acid state, produce painful abnormal smells from the patient.

2, the corresponding concentration that is diluted to after activation uses, and is generally 500ppm; And will be finished in 2 hours;

Even if 3 professional and technical personnel's operations, reaction depth is low, and under the prerequisite having auxiliary facilities, transformation efficiency is lower than 70%;

4, due to the special nature of chlorine dioxide, under the state that PH is less than 1, conversion ratio could improve, but low PH, chlorine dioxide also can be made to be Cl_2or the ClO of correspondence $^-$ion, ClO_2^-, ClO_3^-deng impurity, these Uncertainty materials forbid intravenous injection, before not having the appearance of pure chlorine dioxide solution, due to prohibitive existence, once thought that use ClO 2 solution was for intravenous injection without any pharmaceuticals researcher, structural chemistry of the present invention, needs the inquiry that pharmaceuticals researcher is strict, under the excess exemplary applications of animal, through the test of several years, can be used for the intravenous injection application of human body, only have in case of emergency, the application of human body just may be allowed to.

Chlorine dioxide production due to market has above shortcoming, and except when special, medical worker, cleaner, the daily sterilization of household are all unwilling to use Chlorine dioxide production.The pharmacy of the overwhelming majority all sells without Chlorine dioxide production, and no special situation only has Disease Control and Prevention Center to store Chlorine dioxide production for subsequent use, and annual renewal is a collection of.

Object of the present invention, is exactly use pure chlorine dioxide solution as medicine, applies intravenous method, treatment Ebola virus the infected, and therefore become the standard treatments of known or unknown malignant virus the infected; Pure chlorine dioxide solution is once be permitted to can be applicable to intravenous injection, because the method use amount is extremely low, without any predictable side effect and viral resistance, drug resistance problem, also likely become a kind of method of sub-health population annual Periodic physical health care.

Technical scheme: as far back as 2000, professor Wu Yuejun finds, carbon dioxide and sodium chlorite react, can when pH value is neutral (pH value 57) making pure chlorine dioxide, I am under the cooperation of Wu professor, the pure chlorine dioxide generator designed, in calendar year 2001 application utility model patent, the patent No.: ZL 01205297.3, utilize the method for this patent, the mist of the chlorine dioxide containing carbon dioxide can be manufactured, carbon dioxide does not affect the physicochemical properties of chlorine dioxide, do not calculate as impurity, this chlorine dioxide is after pure water absorption, the pure chlorine dioxide appearance liquid that concentration is below 1980ppm can be made, preserve under lucifuge sealing room temperature 25 DEG C of normal pressures, it is 1760ppm that 15 days ClO 2 solutions measure concentration, the concentration measuring chlorine dioxide for 3 months is 1285ppm,

Fig. 1 is the general assembly drawing producing pure chlorine dioxide solution, is made up of medical carbon dioxide steel cylinder gas, air relief valve, pure chlorine dioxide generator, politef water pump, Purified Water Station, storage tank, venturi gas adsorbing device etc.

According to the specification of disinfectant, disinfectant must within the shelf-life of 1 year, and effective ingredient loss is less than 5%; This pure chlorine dioxide solution can't meet the requirements, the research through front and back more than 4 years, under the following conditions, can meet the demands:

1, the capacity of Brown Glass Brown glass bottles and jars only less than 70%;

2, carbon dioxide pressurization, pressure is greater than 0.02Mpa;

3, bottle sealing rubber cushion adopts Foamed polyvinylidene fluoride;

4, be stored in the refrigerator of 0 ~ 5 DEG C;

5, pure chlorine dioxide solution is below 1000ppm concentration.

Test data is, initial pure chlorine dioxide solution concentration 1550ppm; After 352 days, pure chlorine dioxide solution concentration is 1280ppm, and loss is 21%, and the effusion of deduction carbon dioxide compensates, lose 8 10%, test sample number only has 1, and other sample is not surveyed because uncapping or using, do not meet the sample number requirement of more than 10, only can represent conclusion qualitatively.As disinfectant, such packaging, condition of storage do not possess commercial value, only has as medicine, and its value just can obtain embodiment.

To the way of method virus, be use medicine to make viral kill or lost cell replication capacity, the harmless or low toxicity of this medicine, low side effect simultaneously; Major part virus is in very small and weak state outside human body, air borne, soap lather cannot have very strong virus killing ability.But in human body, owing to being hidden in, blood, human organ are inner, common medicine belongs to macromole, its concentration allowed often cannot produce virus and suppress, also can because of the obstruct of cell membrane, cannot infiltrate and virus is worked, chlorine dioxide belongs to monomolecular substance, can infiltrate the cell interior be destroyed by the virus and work.The cell of human normal, its cell membrane has the character of semipermeable membrane, chlorine dioxide can not infiltrate, other chlorine goods are as hypochlorous acid, and the toxic action that can produce normal cell because of electron transfer forbids the direct intravenous injection of medicine containing this material, pure chlorine dioxide solution transforms through absorption of human body, whether, be also the factor that need consider, chlorine dioxide degraded main component is ClO if having noxious substance to generate $_2^-$, confirmed harmless.If only considering to produce virus suppresses, in blood, chlorine dioxide concentration has 0.25ppm.

As the medicine of injection purposes, the adverse side effect that also will consider medicine to the body fluid balance of human body, blood pH, plasma carbon dioxide combining power, toxic and side effects, nerve centre to factors such as the sensitivitys of chlorine dioxide, carbon dioxide, whether medication suitable, can work, may occur.

1.1 water balance

The amount of body fluid is relevant with age, sex and the bodily form.Adult male body fluid is about 60% of percentage of liveweight, and women accounts for 55%, and baby accounts for 70%.Adult's total Water 2/3 in cell, 1/3 in extracellular.Extracellular fluid about 3/4 exists in the gap of cell, claims intercellular fluid (interstitial fluid);

1/4 at Ink vessel transfusing, claims blood plasma.Intercellular fluid is divided into functional cell interstitial fluid and non-functional intercellular fluid.Functional cell interstitial fluid refer to can rapidly and intravascular fluid or intracellular fluid exchange, the part liquid of maintenance body fluid balance.Cerebrospinal fluid, joint fluid and digestive secretion liquid etc. belong to non-functional intercellular fluid, form third space, in maintenance body, on body fluid balance, role is very little, but in pathological conditions, third space hydrops increases as a large amount of sepage of peritonitis patient intraperitoneal, and body fluid also can be caused unbalance.Liquid in normal human, at the distribution relative constancy at each position, constantly exchanges between them, remains dynamic equilibrium.Under normal circumstances, the intake of human body water every day and output are metastable.

Usual every day discharges moisture by breathing and skin evaporation and is about 850ml, and the discharge of this part water is imperceptible, is also uncontrollable, is called invisible dehydration.In order to digest food, the Digestive system of gastrointestinal secretion every day is about 8200ml, but the overwhelming majority is heavily absorbed at terminal ileum and right hemicolon, only has the water of about 150ml to be discharged by feces.Adult is generally no less than 35g from renal excretion solid waste every day, and every gram at least needs 15ml urine to dissolve to excrete, and thus every day, urine volume generally should maintain 1000 ~ 1500ml.More than can find out, the intake bottom line of the every sky and water of normal person is 1500ml, is more reasonably about 2500ml.

1.2 electrolyte balance

Electrolyte is distributed with remarkable difference in intracellular fluid and extracellular fluid, and intracellular fluid cation is based on potassium ion (K+), and anion has protein, phosphoric acid hydrogen radical ion (HPO42-) etc.; Extracellular fluid cation is based on sodium ion (Na+), and anion has chloride ion (Cl-) and bicarbonate ion (HCO3-) etc.In blood, the normal value of leading ion is shown in.

The normal value of leading ion in table 1 blood

1.2.1 sodium ion (Na+) is due to the Na+-K+ pumping action on cell membrane, constantly will enter intracellular Na+ to discharge, make K+ enter in cell simultaneously, thus sodium ion is mainly present in extracellular fluid, account for extracellular fluid cationic sum more than 90%, play a decisive role in maintenance extracellular fluid osmotic pressure and capacity.Na+ loses, and extracellular fluid volume will reduce; Na+ retention, extracellular fluid volume then expands.

1.2.2 potassium ion (K+) is the dominant cation in intracellular fluid, whole body K+ total amount 98% in cell.K+ plays an important role to maintenance intracellular osmotic pressure, and can activate multiple enzyme, participates in Cellular Oxidation and ATP generation.Though K+ is few in extracellular fluid, there is appreciable impact to neuro-muscular irritability, cardiac muscular tension and irritability.When cell glycogen biosynthesis and protein, K+ enters in cell by extracellular; And when glycogen and breaks down proteins, K+ then overflows in cell.The source of potassium entirely by absorbing from food, and 85% is discharged by kidney.Kidney is very low to the regulating power of potassium, when fasting and blood K+ very low, every day still will from urine discharge suitable potassium salt, therefore, patient's fasting more than two days just must through intravenous potassium supplement.

1.2.3 in calcium ion (Ca2+) body, the calcium of 99% is stored in skeleton and tooth with the form of calcium phosphate and calcium carbonate.In blood calcium, half is free calcium, is the important Auto-regulator of cell function, can reduces the irritability of blood capillary, membrane passage and neuro-muscular, and participate in the processes such as muscle contraction, emiocytosis, blood coagulation; All the other half and protein bound.

1.2.4 magnesium ion (Mg2+) about has half to be present in skeleton, and all the other are nearly all present in cell, only has 1% to be present in extracellular fluid.Magnesium is the activator of multiple enzyme in cell, to involved in sugar, protein metabolism, reduces neuro-muscular irritability and plays an important role.

1.2.5 chloride ion (Cl-) is the Main Anions in extracellular fluid, and collaborative Na+ etc. maintain osmotic pressure and the capacity of extracellular fluid.Because of C]- with Na+ through intestinal absorption, discharged by kidney, and renal tubules has the Na+ effect of heavily absorbing, therefore Cl-often loses many than Na+, the anion of minimizing can be compensatory supplementary by HCO3-.

1.2.6 bicarbonate ion (HCO3-) is a kind of types of transportation of metabolite CO2 in blood, is again the alkali that in blood, content is maximum.Mainly be combined with Na+ in extracellular fluid, be mainly combined with K+ in intracellular fluid.

1.3 osmotic balance:

The water absorbing capacity (or tension force) that solute produces in water is called osmotic pressure.Osmotic pressure height is directly proportional to the granule (molecule or ion) of solute number, and has nothing to do with the electric charge of granule, size.Inorganic salt molecule is little, and exist with ionic condition again in water, therefore granule number is many, the osmotic pressure of generation is large; Though glucose molecule is greatly medium, can not dissociate, the osmotic pressure of generation takes second place; Although protein molecule can dissociate, but molecule is too large, and granule number is few, and the osmotic pressure of generation is little.Dividing a word with a hyphen at the end of a line of the inside and outside water of cell, is determined by the difference of the inside and outside osmotic pressure of cell membrane substantially.The outer Na+ lowering of concentration of film, namely infiltration is forced down, and water enters cell, causes intracellular edema; Otherwise the outer Na+ concentration of film increases, and namely osmotic pressure is high, and water goes out extracellular, causes dehydration in cell.But the exchange of water between blood plasma and interstitial fluid, because crystal (inorganic salt, glucose etc.) granule is little, freely can pass through capillary wall, make both sides crystalloid osmotic pressure suitable, the exchange of Gu Shui between blood plasma and interstitial fluid, depends primarily on blood capillary inner fluid pressure (making water go out blood capillary) and effective colloid osmotic pressure (making water enter blood capillary).Blood plasma internal protein can not through capillary wall, and the colloid osmotic pressure that it produces plays an important role to the endovascular moisture of maintenance.During body temperature 37 DEG C, the blood plasma total osmotic pressure average out to 280 ~ 310mmol/L of normal person is hypotonic lower than 280mmol/L, is that height oozes higher than 310mmol/L.

Body fluid balance regulates by nerve-endocrine, generally first by Hypothalamus-pituitary posterior lobe-normal osmotic pressure of vassopressin system recovery, then recovers blood volume by feritin-aldosterone system.Kidney is the vitals regulating body fluid balance, and the vassopressin (ADH) that this regulating action discharges by lobus posterior hypophyseos and the aldosterone of adrenocortical secretion affected.When in body during loss of water, extracellular fluid osmotic pressure increases, Hypothalamic Stimulation-lobus posterior hypophyseos-vassopressin system, and secretion ADH increases, and produces thirsty sense, increases drinking-water, and secretes ADH, impels kidney recycle-water to assign to recover and maintain the normal osmotic pressure of body fluid.On the other hand, extracellular fluid reduces, and particularly during hypovolemia, intravascular pressure declines, and stimulates feritin-aldosterone system, makes kidney recovery sodium and moisture recover and maintain blood volume.But when blood volume falls sharply, body feritin-Aldosterone Secretion increases, and will preferentially keep and recover blood volume, makes the perfusion of important vital organ be guaranteed.

1.4 acid-base balance

Human body is in metabolic process, not only produce acid but also produce alkali, [H+] in body fluid is often changed, but human body is by the regulating action of the buffer system of body fluid, the breathing of lung and kidney, [H+] in blood is only changed among a small circle, namely keeps the pH value of blood between 7.35 ~ 7.45.

In blood, HCO3-/H2CO3 is most important a pair buffer substance.When in body, acid increases, HCO3-and H+ combines (H++HCO3-→ H2CO3 → CO2 ↑+H2O), makes acid neutralization; When alkali increases, H2CO3 releases H+ and goes neutralization bases (OH-+H2CO3 → HCO3-+H2O), keeps pH value of blood within normal

range.The effect of buffer system occurs fast, but total amount is limited, and lung and kidney finally also will be relied on to regulate.

Lung is the vitals of discharging volatile acid (H2CO3) in body.When CO2 dividing potential drop increases in blood, stimulate excited respiratory center, exaggerated respiration is accelerated, accelerate CO2 and discharge, reduce the H2CO3 concentration in blood; When CO2 dividing potential drop reduces in blood, breathe just slack-off shoaling, reduce CO2 and discharge.

Kidney regulates the ability of acid-base balance the strongest, and all non-volatile acids and superfluous bicarbonate all have to pass through kidney and discharge, and its Main Function discharges H+, and resorption receives Na+ and HCO3-.

2, CO2 combining power, CO2 CP

CO2 combining power, CO2 CP mainly refers to the carbon dioxide content in blood plasma in bicarbonate radical.Measure the situation that CO2 combining power, CO2 CP can understand acid-base balance in human body.The normal value of CO2 combining power, CO2 CP be 23 ~ 31 mM/ls (18 ~ 27 milliequivalents/liter).

Metabolic acidosis reduces with breathing alkalosis patients blood plasma's bicarbonate luxus consumption or loss, concentration, and patient CO2CP is lower than normal value; The CO2cP of metabolic alkalosis and respiratory acidosis patient is then equilibrated higher than normal value (pCO2 is 5.32kpa), the content of CO2 in measured blood plasma, deducts the known value being dissolved in the CO2 part gained in blood plasma.

2.1 clinical meaning

Represent the total amount of the CO2 from bicarbonate and carbonic acid, by the impact of metabolic and respiratory two factors.CO2CP is similar to the effect of standard carbonate (SB), and it only reflects the CO2 content in HCO3, that is the CO2 amount of bonding state.The height of result represents the number of HCO3 storage level in human body, that is reflects metabolic acid soda balance situation.If use titration measuring.Namely its value comprises the CO2 in bonding state HCO3, also comprises the CO2 be dissolved in blood plasma, so value is very approximate with TCO2.

CO2 combining power, CO2 CP measures and substantially represents alkaline reserve amount in blood.Alkaline reserve is main buffer agent in blood.The increase of alkaline reserve both may be the compensatory of respiratory acidosis, also may be the direct result of metabolic alkalosis.On the contrary, alkaline reserve reduces, and may be metabolic acidosis, or respiratory alkalosis is compensatory.Therefore CO2CP representative is breathed and result comprehensive both metabolism.When the concurrent metabolic acidosis of respiratory acidosis.CO2CP is only borrowed to illustrate that respiratory failure is then comprehensive not.Alkaline reserve needs to be regulated by kidney, but delayed action.When acute respiratory failure, CO2 is retention sharply, the increase of alkaline reserve, lags behind carbonic acid and gathers way, and CO2CP is just on the low side.

2.2 degree of correlation

In addition take excess acid medicine (as sodium salicylate etc.), also can cause CO2 combining power, CO2 CP and reduce.The weight of metabolic acidosis, reduces degree according to CO2 combining power, CO2 CP and is divided into:

Slight acidosis: 22.45 ~ 17.96mmol/L;

Moderate acidosis: 17.96 ~ 13.47mmol/L;

Severe acidosis: < 13.47mmol/L;

Prognosis is extremely serious: < 6.74mmol/L.

3, pure chlorine dioxide solution is as the scheme of medical intravenous injection for curing:

The scheme of pure chlorine dioxide solution as medical intravenous injection for curing is formulated in conjunction with the controlling element of above human body necessity and the impression of the oral pure chlorine dioxide of following individual:

Because WHO allows chlorine dioxide directly to eat, the oral process of pure chlorine dioxide solution and the feature of appearance in person

3.1.1 the impression of oral pure chlorine dioxide solution, 150ppm concentration (undetermined, large approximate number) 10 milliliters, test 2 days, abnormal smells from the patient is gentle, and tongue has excitement strong, and oral meeting makes oral cavity pained, and can the sense of taste be lost, any food homogeneous taste, withdraws 2 ~ 3 days aftertastes and recovers, can produce the phenomenon snotty of flu simultaneously, nasal mucus is clear water sample, transference cure after oral 2-4 hour.

3.1.2 use the impression of gargling of pure chlorine dioxide solution, 50 ~ 60ppm concentration, oral cavity fresh and cool, but when smoking, smoke being very unpleasant, is likely a kind of method of smoking cessation.

3.1.3 the impression of oral pure chlorine dioxide solution, 50ppm concentration (undetermined, large approximate number) 30 milliliters, long run test 15 days, abnormal smells from the patient is gentle, and oral meeting makes astringent sense between oral cavity, teeth space strong, and can the sense of taste be lost, any food homogeneous taste, withdraws three days aftertastes and recovers, can produce the phenomenon of the clear nasal mucus of stream of flu simultaneously, transference cure after oral 1-2 hour, when period drives more than 2 hours after there are 2 hypoglycemia and lose consciousness, dizzy about 10 seconds, recover after drinking-water.During smoking, smoke is unpleasant, is all the sensation of false smoke.There is 2 dizzinesses during daily life, wherein once survey blood glucose lower than 3.1 and blood pressure abnormal, be systolic pressure 125mmHg, diastolic pressure 95mmHg.Somatosensory is easily tired, and after half an hour of playing table tennis, muscle power sensation is not propped up.

3.1.4 the impression of oral pure chlorine dioxide solution, 15 ~ 20ppm concentration (undetermined, large approximate number) 50 ~ 80 milliliters, long run test 15 days, abnormal smells from the patient is gentle, and oral meeting makes there is astringent sense, oral cavity fresh and cool between oral cavity, teeth space, the sense of taste lowers, the mouthfeel of taste of food meat and green goods, rice is poor, notes keeping the skin wet when period drives, and drives, after more than 4 hours, 1 hypoglycemia occurs continuously and loses consciousness, dizzy about 10 seconds, recover after drinking-water.During smoking, smoke is unpleasant, is all the sensation of false smoke.Somatosensory is normal.

Above test, draws following preliminary conclusion

1, pure chlorine dioxide solution is by absorbing, and in the blood of local, the concentration of chlorine dioxide is more than 50.0ppm; Blood acidosis phenomenon can not be caused, have nasal mucus be clear water sample think cold symptoms, belong to the normal reaction of human immune system.

2, pure chlorine dioxide solution kills gastral lactobacillus, food absorption ability is declined, can cause hypoglycemic effect.

Although 3, sense of taste extinction tests belongs to of short duration, the scheme of oral medication is undesirable, can cause hypoglycemic disadvantage.Intravenous injection is only appropriate therapeutic scheme.

According to above comprehensive, formulate treatment Ebola virus therapeutic scheme.

Detailed description of the invention:

1.1 pure chlorine dioxide solution are used for Ebola virus the infected therapeutic scheme

Ebola (Ebola virus) translations Ebola virus again.Be a kind of very rare virus, after within 1976, area, Ebola river that is southern in the Sudan and Congo's (being once called as Zaire) finds its existence, cause extensive concern and the attention of medical circle, " Ebola " gains the name therefrom.Be one to be used for calling a group and to belong to the generic term of fiber Viraceae Ebola virus subordinate several viral.Be a kind of deadly infectious disease virus that the mankind and primate can be caused to produce ebola hemorrhagic fever, have very high mortality rate, between 50% to 90%, the cause of death is mainly apoplexy, myocardial infarction, hypovolemic shock or Multiple Organ Failure.Be one to be used for calling a group and to belong to the generic term of fiber Viraceae Ebola virus subordinate several viral.

Ebola virus is the potent virus causing the mankind and primate generation ebola hemorrhagic fever, its ebola hemorrhagic fever caused (EBHF) is viral hemorrhagic fever the most fatal in the world today, the infected's symptom is very similar to the Marburg virus being all fiber Viraceae, comprises nausea,vomiting,diarrhea, colour of skin change, systemic pain, body internal hemorrhage, external hemorrhage, fever etc.

Ebola virus, bio-safety grade is 4 grades (acquired immune deficiency syndrome (AIDS) is 3 grades, and SARS is 3 grades, and the larger protection of progression is stricter).Virus latency can reach 2 to 21 days, but usually only has 5 days to 10 days

Ebola virus (EBV) belongs to filamentous virus section, and length is 970 nanometers, and in long filars, sub-thread minus-stranded rna virus, has 18959 bases, and molecular weight is 4.17×10^{6}.Have peplos outward, the about 80nm of virion diameter, size 100nm × (300 ~ 1500) nm, the virus that infection ability is stronger generally grows (665 ~ 805) about nm, and have branch shape, U-shaped, 6 ring shapes, branch shape is more common.Have cyst membrane, the fibre of nm length that surface has (8 ~ 10) is dashed forward, and pure virion is made up of a spiral type ribonucleocapsid complex, containing minus strand linear rna molecule and 4 virion structural protein.Longer grotesque virion dependency structure can be branched or coil-shape, reaches 10 microns.Different with biological characteristics with its antigenicity of Ai Bola strain of the Sudan from Congo (Congo-Kinshasa), the Ivory Coast.

The shape of " Ebola " virus is just like ancient Chinese " complying with one's wishes ", and utilize ultramicroscope to belong to the research display of member to Ebola virus, it presents the linear structure of general fiber virus.Also may there is " U " word, figure six, winding, ring-type or branch shape in virion, but laboratory purification technique also may be one of factor causing these shapes to produce, and running up of such as centrifuge may make virion be out of shape.The general diameter of virion about 80 nanometer, but length can reach 1400 nanometers, and typical Ebola virus particle average length is then close to 1000 nanometers.Be made up of with nucleocapsid protein matter and protein sickness toxalbumin VP35, VP30, L the genosome RNA of spiral wound at the nucleocapsid protein of virion division center, the glycoprotein that virus comprises gos deep into virion 10 nanometer from surface long, other 10 nanometers are then outwardly on mantle surface, and this layer of mantle is from the cell membrane of host, region between mantle and nucleocapsid protein, be called medium space, be made up of virus protein VP40 and VP24.

EBOV is more stable at normal temperatures, has medium degree resistance to heat, and 56 DEG C can not complete inactivation, and 60 DEG C of 30min can destroy that it is infectious; Ultraviolet radiation 2min can make it complete inactivation.Responsive to chemical drugs, the disinfectant such as ether, sodium deoxycholate, beta-propiolactone, formalin, sodium hypochlorite can complete inactivation viral infection;

Ebola virus is mainly propagated by approach such as the blood of patient, saliva, sweat and secretions.The common lymphopenia of lab testing, platelet seriously reduce and transaminase raises (AST > ALT), and blood amylase also increases sometimes.Diagnose available ELISA detection specificity IgG antibody (occurring that IgM antibody prompting is infected); The antigen in blood, serum or tissue homogenate is detected with ELISA; With IFA by the virus antigen in monoclonal antibody detection hepatocyte; Or by cell culture or Cavia porcellus inoculation isolated viral.Sometimes virus can be observed in liver slice with ultramicroscope.Detect antibody with IFA and often cause erroneous judgement, particularly when carrying out the serosurvey of previous infection.Laboratory research has very large danger, should only have safeguard procedures to prevent the place of staff and Nosocomial Infections from carrying out (4 grades of biocontainment laboratories).

Infection incubation period is 2-21 days.Suddenly there is hyperpyrexia, headache, throat pain, weak and myalgia in the infected.Then be vomiting, stomachache, diarrhoea.In fortnight after morbidity, virus is excessive, and cause external haemorrhage in human body, blood coagulation, downright bad blood passes and each organ of whole body very soon, the symptoms such as oral cavity, nasal cavity and archorrhagia finally appear in patient, and patient can death in 24 hours.

In Ebola's case that about 1500 examples are made a definite diagnosis, mortality rate is up to 88%.

Ebola is the common viruses of people and animals, although World Health Organization's hammer away, not recognizing the animal reservoir of any survival when breaking out of having the ability so far, thinking that flying fox is the former host that virus is possible.Because the fatal power of Ebola, add and not yet have any vaccine to be proved effectively at present, Ebola is listed in the bio-safety fourth stage (Biosafety Level 4) virus, also one of instrument being considered to be bioterrorism simultaneously.

1.1.1I the phase---adapt to the chlorine dioxide phase, get 100 milliliters, concentration 500 ~ 580ppm pure chlorine dioxide solution, adds normal saline to 2000 milliliter, and the concentration of chlorine dioxide is 25.0 ~ 29.0ppm, adopts continuous intravenous infusion, drips speed 6 ~ 8/MIN; Every day 2000 milliliters.With the man of 50KG weight, body fluid 36KG, after instillation, the chlorine dioxide concentration of blood is 1.3ppm, the chlorine dioxide concentration of intercellular fluid calculates according to 65%, reach 0.85ppm, the chlorine dioxide of this concentration, can kill known virus, but Mycophyta antibacterial, spore there is part deficiency to kill, and measure the concentration of chlorine dioxide before instiling, observe body fluid balance and the adaptation symptom to chlorine dioxide, check the number change state of virus, 1 ~ 3 day by a definite date, treat to enter the II phase after antisecosis.

1.1.2II the phase---the serious symptom treatment phase, get 200 milliliters, concentration 500 ~ 580ppm pure chlorine dioxide solution, adds normal saline to 2000 milliliter, and the concentration of chlorine dioxide is 50.0 ~ 55.0ppm, adopts continuous intravenous infusion, drips speed 6 ~ 8/MIN; Every day 2000 milliliters.With the man of 50KG weight, body fluid 36KG, after instillation, the chlorine dioxide concentration of blood is 5.5ppm, and the chlorine dioxide concentration of intercellular fluid calculates according to 65%, reaches 3.5ppm, the chlorine dioxide of this concentration, can kill known virus, pathogenic bacteria, bacterial spore, the concentration of chlorine dioxide is measured before instiling, vacuum drawn pure chlorine dioxide solution may be needed, it is the carbon dioxide preventing pure chlorine dioxide solution from containing, (quantity not sufficient of carbon dioxide is to cause acidosis as calculated to form carbon dioxide bubble dividing potential drop in blood, if local causes carbon dioxide bubble to gather, likely cause stimulation respiratory nerve, therefore must take precautions against), cause blood acidosis, observe body fluid balance simultaneously, for preclude blood acidosis should take corresponding measure to prepare, oxygen+5% carbon dioxide hyperoxia gas as 99%, prepare the medicine preventing respiratory nerve from suppressing, 1 ~ 3 day by a definite date.

2.1 pure chlorine dioxide solution are used for health therapy and the therapeutic scheme of sub-health population

Virus (virus) is formed by a nucleic acid molecules (DNA or RNA) and protein (Protein) or is only made up of (as Protein virus) protein.Viremic individuals is small, and structure is simple.Owing to not realizing the necessary fundamental system of metabolism, so virus self not reproducible.But when it touches host cell, just deproteinising overcoat, its nucleic acid (gene) invades in host cell, by the dubbing system of the latter, copies new virus according to the instruction of viral gene.Today, many biologists think that virus is the existence of the intersection region being in life and non-inanimate object.

Virus

Virus

Be granule very little, be measurement unit with nanometer, structure is simple, parasitics is strict, to copy the class noncellular microorganism carrying out breeding.Virus is than antibacterial also little, the microorganism that do not have cellularity, can only breed in cell.Be made up of protein and nucleic acid.Majority ultramicroscope just can be observed

Virus is that a class does not have a cellularity, the microorganism of the vital signs such as have heredity, copy.

Virus is the same with all biologies, there is heredity, variation, the ability of evolving, that a kind of volume is very small, the extremely simple life form of structure, virus has the parasitics of height, rely on energy and the metabolic system of host cell completely, obtain the matter and energy needed for vital movement, leave host cell, it is a large chemical molecular, stop action, can be made into crystallization of protein, it is a non-life body, it can by absorption to run into host cell, enter, copy, assembling, discharge progeny virus and show typical life entity feature, so virus is between biological and abiotic a kind of original life entity.

The viral hereditary material primarily of inside and protein coat composition.Because virus is a class acellular organism body, therefore single virus individuality can not be called " unicellular ", this creates the terminal virion or virion (virion).Virion also claims virion or virion (virus particle) sometimes, specially refers to ripe, structural integrity and has infective single virus.Nucleic acid is positioned at its center; be called core (core) or genome (genome), protein is enclosed in around core, defines capsid (capsid); capsid is main support structure and the antigenic component of virion, has the effects such as protection nucleic acid.Capsid is that under Electronic Speculum, recognizable morphology subunit (subunit)---capsomere (capsomere) formed by many.Core and capsid are collectively referred to as core shell (nucleocapsid).Some more complicated virus, (be generally animal virus, as influenza virus), its core shell is outer to be also covered with by the lipid bilayer of one deck containing protein or glycoprotein (glycoprotein), and this tunic is called peplos (envelope).Lipoid in peplos is from host cell membrane.On some peplos, also length has the appurtenances such as furcella (spike).The presence or absence of peplos and character relevant with the function such as host specificity and intrusion of this virus.Have 1 class polyhedrosis virus in insect viruses, its nucleocapsid wrap by albumin crystal quilt, form polygon inclusion body.

The reproduction process of virus is called replicative cycle.It is broadly divided into continuous print double teacher: absorption, intrusion, propagation, ripe (assembling), cracking (release).

Mark Lewis-Francis is worn and is born in the U.S. Louth (Francis Peyton Rous) on October 5th, 1879, is internist and the virologist of Rockefeller, New York institute.

Louth doctor graduates from Johns Hopkins University of Baltimore city, the Maryland State.On January 21st, 1911, a report has been delivered in a Mark Lewis-Francis pendant Louth: cancerous tumour is caused by virus.This lifting manipulation is first in medical history.Because also not evidence suggests that cancer is infectious to human or animal.Louth also becomes the first of discovery this " oncovirus ", because this virus is found with it by the chicken seen and treated patients in Louth at that at first, virus is named as " Louth fowl sarcoma virus ".1966, the Louth at 87 years old advanced age, after this virus 5 of distance discovery 5 years, obtained Nobel prize's soul.

2.1.1 nature has millions of kinds of viruses; thousands of kinds of viruses are had to coexist with health in human body; due to the immune protective effect of human body; only has the morbidity of minority virus; incubation period is long; not easily be found; due to the gene recombinaton of virus; the virus meeting of following malignant virus, initiation organ lesion is constantly developed, if can sterilize by regular human body, reduces the probability of virus morbidity; reduce the cancer caused because infecting virus; having very important meaning to the health care of life, as the antivirus software of computer, is indispensable innovative significance.

2.1.2 for the treatment of universality; operation sequence must be succinct, and the malicious combability measurements of chlorine dioxide has common recognition, and pure chlorine dioxide solution is because of the reason of storage life; must carbon-dioxide protecting be added, eliminate the impact of carbon dioxide on blood and make treatment convenient succinct.

2.1.3 the health therapy of sub-health population and therapeutic scheme, get 100 milliliters, concentration 500 ~ 580ppm pure chlorine dioxide solution, add normal saline to 2000 milliliter, the concentration of chlorine dioxide is 25.0 ~ 29.0ppm, adopts continuous intravenous infusion, drips speed 6 ~ 8/MIN; Every day 2000 milliliters.With the man of 50KG weight, body fluid 36KG, after instillation, the chlorine dioxide concentration of blood is 1.3ppm, the chlorine dioxide concentration of intercellular fluid calculates according to 65%, reach 0.85ppm, the chlorine dioxide of this concentration, known virus can be killed, the concentration of chlorine dioxide is measured before instiling, observe body fluid balance and the adaptation symptom to chlorine dioxide, check the number change state of virus, 1 ~ 3 day by a definite date.

3.1 pure chlorine dioxide solution are used for hepatites virus infections person therapeutic scheme

Hepatitis virus refers to the pathogen causing viral hepatitis.Human hepatitis virus have A type, B-mode, the third type, fourth type and penta type and heptan type virus point.Hepatitis A virus is spherical in shape, and without peplos, nucleic acid is single stranded RNA.Hepatitis B virus is spherical in shape, has double-layer shell structure, and the peplos of outer quite general virus, nucleic acid is double-stranded DNA.Except hepatitis B virus hereditary material is double-stranded DNA, other types virus is single stranded RNA.Except A type and penta type virus are by except intestinal infection, other types virus is all propagated by close contact, blood and injection system.

Hepatitis is the general designation of inflammation.Typically refer to by multiple paathogenic factor--as virus, antibacterial, parasite, chemical toxicant, medicine, ethanol, role of autoimmune factors etc. make liver cell be damaged, the function of liver suffers damage, cause a series of malaise symptoms of health, and the exception of liver function index.

Because the cause of disease causing hepatitis is different, although there is similar clinical manifestation, damages outward nosetiology, serology, damage mechanisms, clinical process and prognosis, liver, often have obvious difference in Treatment and diagnosis etc.

Chlorine dioxide deactivation A type HAV mechanism and evaluate the feasibility of Disinfection Effect with PCR, adopts cell culture, ELISA and large fragment progressively to walk to move that RT-PCR method is infectious to HAV before and after sterilization, HAAg antigenicity and HAV nucleic acid complete sequence detects.As a result, with the disinfectant solution effect 10min containing chlorine dioxide 7.5mg/L, 100% is to the infective inactivation ratio of HAV, all can destroys HAV nucleic acid 5 ' noncoding region; But HAAg antigenicity P/N value is respectively 3.21 (positives) and 2.02 (feminine genders) both detecting. result shows, it is consistent that the infective deactivation of HAV destroys with HAV nucleic acid 5 ' noncoding region, and available round pcr detects HAV nucleic acid 5 ' coding region whether to judge HAV deactivation.Hepatitis B virus, chlorine dioxide 10 ~ 15 minutes when concentration only has 3.5ppm can 100% deactivation.

3.1.1 hepatites virus infections person therapeutic scheme: I phase---adapt to the chlorine dioxide phase, get 50 milliliters, concentration 500 ~ 580ppm pure chlorine dioxide solution, add normal saline to 2000 milliliter, the concentration of chlorine dioxide is 13.0 ~ 15.0ppm, adopts continuous intravenous infusion, drips speed 6 ~ 8/MIN; Every day 2000 milliliters.With the man of 50KG weight, body fluid 36KG, after instillation, the chlorine dioxide concentration of blood is 0.65ppm, the chlorine dioxide concentration of intercellular fluid calculates according to 65%, reach 0.42ppm, the chlorine dioxide of this concentration, can kill or suppress hepatitis virus, because the liver of hepatitis is often seriously impaired, body constitution is poor, treatment initial concentration should reduce as far as possible, the concentration of chlorine dioxide is measured before instiling, observe body fluid balance and the adaptation symptom to chlorine dioxide, check the number change state of virus, 1 ~ 3 day by a definite date, treat to enter the II phase after antisecosis.

3.1.2II the phase---the treatment phase, get 100 milliliters, concentration 500 ~ 580ppm pure chlorine dioxide solution, adds normal saline to 2000 milliliter, and the concentration of chlorine dioxide is 25.0 ~ 29.0ppm, adopts continuous intravenous infusion, drips speed 6 ~ 8/MIN; Every day 2000 milliliters.With the man of 50KG weight, body fluid 36KG, after instillation, the chlorine dioxide concentration of blood is 1.3ppm, and the chlorine dioxide concentration of intercellular fluid calculates according to 65%, reaches 0.75ppm, the chlorine dioxide of this concentration, can suppress copying of hepatitis virus; Because hepatitis belongs to chronic disease, be difficult to dig up the roots, under liver damage, use low concentration to treat comparatively appropriate for a long time, measure the concentration of chlorine dioxide before instiling, 10 ~ 30 days by a definite date, and health of taking regular exercise accelerated to recover.

3.1.3III phase---the after treatment phase, get 200 milliliters, concentration 500 ~ 580ppm pure chlorine dioxide solution, adds normal saline to 2000 milliliter, and the concentration of chlorine dioxide is 50.0 ~ 58.0ppm, adopts continuous intravenous infusion, drips speed 6 ~ 8/MIN; Every day 2000 milliliters.With the man of 50KG weight, body fluid 36KG, after instillation, the chlorine dioxide concentration of blood is 2.6ppm, and the chlorine dioxide concentration of intercellular fluid calculates according to 65%, reaches 1.5ppm, the chlorine dioxide of this concentration, can kill hepatitis virus; Because hepatitis belongs to chronic disease, be difficult to dig up the roots, under liver damage, low concentration is used to treat comparatively appropriate for a long time, measure the concentration of chlorine dioxide before instiling, 10 ~ 30 days by a definite date, and health of taking regular exercise is accelerated to recover, under checking that patient body recovers good state, suitably raising blood chlorine dioxide concentration value can be adopted to be 3.0 ~ 4.0ppm; Thorough deactivation hepatitis virus, is as the criterion with the scheme of clinical formulation.

Accompanying drawing explanation

Fig. 1: the process units constitutional diagram of pure chlorine dioxide solution

1. 2. carbon dioxide steel cylinder reduces pressure pressure regulator valve 3. sodium chlorite medicine-adding bin 4. politef pump

5. carbon-dioxide flow gauge 6. heat pipe-type reaction tower 7. venturi water sprayer pipeline reactor

8. venturi water sprayer chlorine dioxide adsorbs 9. pure water container and pure chlorine dioxide solution 10. politef circulating pump.

Patent Citations (3)

Publication number	Priority date	Publication date	Assignee	Title
CN2463375Y *	2001-02-14	2001-12-05	深圳市保利马环保工程有限公司	Carbon dioxide generator
CN1638632A *	2002-01-08	2005-07-13	伯纳德技术公司	Antimicrobial body covering articles
CN103502141A *	2011-05-31	2014-01-08	大曹株式会社	Chlorine dioxide-containing product and method for generating chlorine dioxide
Family To Family Citations				

* Cited by examiner, † Cited by third party

Cited By (2)

Publication number	Priority date	Publication date	Assignee	Title
CN104666330A *	2015-03-17	2015-06-03	周伟文	Disinfector for internal use
WO2017152718A1 *	2016-03-08	2017-09-14	刘学武	Injection comprising chlorine dioxide and preparation method therefor
Family To Family Citations				

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title
CN101189017B	2013-04-03	Method of using oxidative reductive potential water solution in dental applications
KR20120030524A	2012-03-28	Solution containing hypochlorous acid and methods of using same
Parr et al.	1997	Hyponatraemia and death after “ecstasy” ingestion
Dasta	1978	Paraquat poisoning: a review
Smith	2012	Fluoride toxicity

CN101163492B	2013-01-30	Method of treating skin ulcers using oxidative reductive potential water solution
Barillo	2008	Topical antimicrobials in burn wound care: a recent history
Manjunath et al.	2021	Recent case studies on the use of ozone to combat coronavirus: Problems and perspectives
CN104586880A	2015-05-06	Preparation method of pure chlorine dioxide solution and method for treating Ebola virus infection
CN106794198A	2017-05-31	Use the treatment and prevention of the common cold of PVP-I
US7097852B1	2006-08-29	Solution comprising sea water as expectorant and virucidal for the treatment of respiratory diseases and method to use and develop
CN106138093A	2016-11-23	A kind for the treatment of clearing up pulmonary's dust and the auxiliary treating method of pulmonary infection
CN101473857B	2012-10-24	Chinese medicine environmental medical science treating agent first medical preparation
CN104666330B	2018-03-16	Pure chlorine dioxide solution prepares the application of interior disinfectant
Kumar et al.	2012	Accidental inhalational poisoning by multiple pesticides of organophosphorus group in an aged person; an uncommon occurrence
US20210401876A1	2021-12-30	Pharmaceutical composition of chlorine for treatment of respiratory viral infection
Reddy et al.	2021	Chlorine and the Chemistry of Disinfectants
Derry	2009	Iodine: the forgotten weapon against influenza viruses
Fry	2006	Chemical threats
CN1565475A	2005-01-19	Pertinent cure, immunity and prevention for atypical pneumonia, all kinds of virus infection of respiratory tract
Altman	2017	The New Oxygen Prescription: The Miracle of Oxidative Therapies
El-Badry et al.	2021	Epidemiological and Disinfectants as Controlling Aspect on COVID-19
WO2021195017A1	2021-09-30	Iodine compounds for treating respiratory pathogens
Carpenter et al.	1977	Algorithms in the diagnosis and management of exotic diseases. XXVI. Cholera
Ryabokon et al.	2016	Particularly dangerous infections: cholera, plague, contagious hemorrhagic fevers

Priority And Related Applications

Priority Applications (1)

Application	Priority date	Filing date	Title
CN201410478453.5A	2014-09-17	2014-09-17	Preparation method of pure chlorine dioxide solution and method for treating Ebola virus infection

Applications Claiming Priority (1)

Application	Filing date	Title
CN201410478453.5A	2014-09-17	Preparation method of pure chlorine dioxide solution and method for treating Ebola virus infection

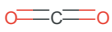
Legal Events

Date	Code	Title	Description
2015-04-08	DD01	Delivery of document by public notice	**Addressee**: Zhou Weiwen **Document name**: Notification of Passing Preliminary Examination of the Application for Invention
2015-05-06	C06	Publication	
2015-05-06	PB01	Publication	
2017-07-25	SE01	Entry into force of request for substantive examination	
2017-07-25	SE01	Entry into force of request for substantive examination	
2020-12-18	RJ01	Rejection of invention patent application after publication	**Application publication date**: 20150506
2020-12-18	RJ01	Rejection of invention patent application after publication	

Concepts

machine-extracted

Download Filter table

Name	Image	Sections	Count	Query match
Chlorine dioxide		title,claims,abstract,description	350	0.000
Chlorine dioxide		title,claims,abstract,description	175	0.000
chlorine dioxide		title,claims,abstract,description	175	0.000
Ebola disease		title,abstract,description	5	0.000
Ebola hemorrhagic fever		title,abstract,description	5	0.000
preparation method		title,abstract	2	0.000
solution		claims,abstract,description	62	0.000
intravenous injection		claims,abstract,description	11	0.000
storage		claims,abstract,description	10	0.000
cancer		claims,abstract,description	4	0.000
Viruses		claims,description	91	0.000
carbon dioxide		claims,description	50	0.000
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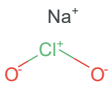
water		claims,description	44	0.000
Ebolavirus		claims,description	25	0.000
carbon dioxide		claims,description	22	0.000
drug		claims,description	21	0.000
Hepatitis		claims,description	14	0.000
health		claims,description	14	0.000
hepatitis		claims,description	14	0.000
sterilising		claims,description	14	0.000
manufacturing process		claims,description	13	0.000
intravenous administration		claims,description	12	0.000
diseases by infectious agent		claims,description	11	0.000
chemical reaction		claims,description	10	0.000
malignant		claims,description	5	0.000
Sodium chlorite		claims,description	4	0.000
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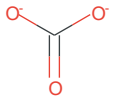
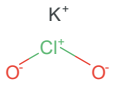
metal		claims,description	3	0.000

mixture		claims,description	3	0.000
prevention		claims,description	3	0.000
sealing		claims,description	3	0.000
Carbonate dianion		claims,description	2	0.000
PVDF binder		claims,description	2	0.000
drugs		claims,description	2	0.000
polyvinylidene fluoride		claims,description	2	0.000
Papillomaviridae		claims	1	0.000
laundering		claims	1	0.000
potassium;chlorite		claims	1	0.000
prophylaxis		claims	1	0.000
desinfective		abstract,description	26	0.000
sterilization and disinfection		abstract,description	20	0.000
material		abstract,description	9	0.000
Virus Disease		abstract,description	4	0.000

Show all concepts from the description section