SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE MEDICINAL PRODUCT

POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE SOLUTION FOR I.V. INFUSION
Sterile

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Active ingredients
Each 100 ml solution contains:
Dextrose anhydrous 5 g
Sodium chloride 0.2 g

Ionic concentrations of the solution:
- Sodium: 34 mEq/l
- Chloride: 34 mEq/l

Excipients:
See section 6.1 for excipients

3. PHARMACEUTICAL FORM

Sterile solution for intravenous infusion

4. CLINICAL PARTICULARS

4.1 Therapeutical indications

It is used in the treatment of conditions where the losses of sodium and chloride are less than the loss of water including vomiting, diarrhea, renal disorders or excessive use of diuretics as the source of fluid, electrolyte and carbohydrate.

4.2 Posology and method of administration

Posology/ Frequency and period of administration
The dosage to be administered must be decided individually for each patient by the doctor based on the age, body weight, and biological conditions (acid-base balance) and the concomitant treatments given.

POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE is preferred as the first hydration solution in pre-and post-operative care that can meet kidney extraction by meeting extracellular fluid losses since it contains less sodium and chloride compared to 0.45% and 0.9% sodium chloride containing 5% dextrose solutions.

In general, it is recommended in dosages of 500-3000 ml /24 hours for the adults, adolescents and elderly, and 20-100 ml/kg/24 hours for children, unless otherwise recommended by the doctor.
The frequency and dosage will be adjusted by the doctor according to the clinical conditions of the patient. The recommended infusion rate in adults and the elderly is 40 ml/kg per 24 hours and the recommended infusion rate in pediatric cases is 5 ml/kg per hour in the average (6-8 ml/kg in infants, 4-6 ml/kg in children between 1 and 6 years of age and 2-4 ml/kg in children older than 6 years of age).

With the purpose of preventing the development of hyperglycemia, the infusion rate must not exceed the glucose oxidation capacity of the patient. Therefore, the maximum dextrose administration rate must be 500 to 800 mg/kg/hour.

Route of administration:
Administration will be made intravenously using sterile apyrogen sets.

Patients must be carefully monitored as regards urinary output and serum sodium and electrolyte concentrations during the administration of POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE.

Special populations:
Renal/ hepatic impairment:
Since there are no studies performed specifically on this population, there are no special dosages recommended for this patient group.

Paediatric population:
Like in the adults, the dosage to be administered and the infusion rate will be adjusted according to the weight and clinical and biological status of the patient and also according to the treatment to be administered concomitantly.

It is generally recommended in the dosage range of 20-100 ml/kg /24 hours for this population, and this dosage will be adjusted according to the body weight as follows.
0-10 kg: 100 ml/kg/day
10-20 kg: 1000 ml + 50 ml/day for each kg over 10 kg
> 20 kg: 1500 ml + 20 ml/day for each kg over 20 kg

Geriatric population:
Like in the adults, the dosage to be administered and the infusion rate will be adjusted according to the weight and clinical and biological status of the patient and also according to the treatment to be administered concomitantly.

4.3 Contraindications
This solution is contra-indicated in patients who administration of sodium or chloride will be clinically harmful.

Solutions containing dextrose are contra-indicated in patients with hypersensitivity against products containing corn.

4.4 Special warnings and precautions for use

Warnings

Administration of the intravenous solutions can lead to dilution of the serum electrolyte concentrations, over-hydration, and overloading of fluid and/or solute to cause congestive conditions and/or pulmonary edema. The risk of dilution is inversely proportional with the electrolyte concentration. The risk of developing congestive conditions that lead to peripheral or pulmonary edema, however, is directly proportional with the electrolyte concentrations in the solution.

Solutions containing sodium must be used carefully in patients with congestive cardiac insufficiency, serious renal failure or sodium retention together with edema. Administration of solutions containing sodium ions can cause sodium retention in patients with reduced renal functions.

Over administration of solutions not containing potassium can cause significant hypokalemia. Serum potassium levels must be maintained in normal levels and potassium must be added to the solution if needed.

Could lead to cluster in erythrocytes, dextrose and 0.20%, 0.30% or 0.33% sodium chloride solutions should not be applied with blood from the same infusion line.

Precautions:

This solution must be administered carefully in conditions of hypervolemia, renal failure, and obstruction of urinary tracts, potential cardiac failure or overt cardiac insufficiency.

Administration of additional electrolytes can be needed in excessive nasogastric irrigation, vomiting, diarrhea or drainage from gastrointestinal fistulas.

Essential electrolytes, minerals and vitamins must also be added to the treatment where required.

Sodium-containing solutions must be administered carefully in patients taking corticosteroids or corticotropins or who have salt retention with other reasons. In cases with renal or cardiovascular insufficiency accompanied or not accompanied by congestive heart failure, particularly in the postoperative period or in the elderly, sodium-containing solutions must be used carefully.

Solutions containing dextrose must be administered carefully in patients known to be diabetic as well as those with subclinical diabetes or in those with carbohydrate intolerance with any reason.

Hypokalemia can develop during the parenteral use of hypertonic dextrose solutions. Dextrose solutions must be used by adding potassium in sufficient amount in fasting patients with good renal functions particularly is the patient is under treatment with digitalis-type drugs.

With the purpose of minimizing the risk compatibility with any drug that might be added to the solution, turbidity or sedimentation must be checked in the final solution to be infused immediately after mixing and with certain intervals during the administration.

In case the administration will be made through a controlled infusion pump, it must be checked is the operation of the pump has been stopped before the complete emptying of the bag; otherwise, air embolism can result.

The solution is administered intravenously through sterile sets. It is recommended that sets used for intravenous administrations will be replaced every 24 hours.

Use only if the solution is clear and if the packaging and caps are intact.

Laboratory tests:
Clinical evaluations and periodic laboratory tests must be performed to monitor changes in the fluid balance, electrolyte concentrations and acid-base balance in long-term parenteral administrations or whenever the status of the patient requires. Such values must be returned to normal with sodium chloride solutions containing dextrose or with alternative solutions when significant deviations from the normal values are seen.

Warning and precautions for pediatric use:
Effectiveness and reliability of dextrose solutions containing sodium chloride have not been shown in duly designed controlled studies carried out on pediatric patients.

Dextrose is effective and reliable in the pediatric patients in the stated indications (See: Indications). It has been stated in the literature that intravenous dextrose dosage and administration rate must be adjusted carefully in pediatric patients and particularly in the neonates and infants with low birth weights because of the increased risk of hyper-/hypoglycemia. The serum glucose concentrations must be monitored closely in pediatric patients and particularly in the neonates and infants with low birth weights.

The fluid and electrolyte balance of the neonates or very young infants can be affected from administration of very small volumes of fluids. Care must be taken in the treatment of neonates and particularly the preterm neonates with immature renal functions and limited capability of excretion of fluids and solutes. Fluid intake, urinary output and serum electrolyte levels must be monitored closely (See: “Warnings” and “Posology and route of administration”).

Warnings and precautions related to is in geriatric patients:
In the clinical studies carried out with dextrose solutions containing sodium chloride, individuals 65 years old or older have not been included to allow determining if the elderly respond differently as compared to young adults. Based on the other clinical experiences reported, no differences were found in the responses of the elderly and the young adults.

In general, the dosage must be selected carefully in the elderly. Considering that the liver, renal or cardiac functions may have been reduced in these patients, other drugs may be used concomitantly, or there may be co-morbidities accompanying the currently treated disease, it is recommended to start therapy with dosages in the lower limit of the dosage range.

These drugs are largely excreted through the kidneys, and therefore, the risk of toxic reaction increases in patients with impaired renal functions.

Since reducing of renal functions is more frequent in the elderly than in the young adults, care must be taken in selecting the dosage in the elderly patients (See: "Warnings" section). This medicine contains 34 mmol sodium per liter. This should be considered for patients on a controlled sodium diet.

4.5 Interactions with other medical products and other modes of interaction

Solutions containing sodium can cause sodium and water retention (edema and hypertension) in patients taking corticosteroids or carbenoxolone.

Solutions containing dextrose should not be administered with blood transfusion, they may cause hemolysis and erythrocyte agglomeration.

4.6 Pregnancy and lactation

General recommendations
Pregnancy category: C.

Women of childbearing potential /Contraception
Adequate data related to the use of dextrose solutions containing sodium chloride in pregnant women are not available.

Studies carried out on animals are inadequate as regards the effects on pregnancy and/or embryonic /fetal development and/or natal/ postnatal development (see: Section 5.3). Potential risks on humans are not known.

POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE must not be used during pregnancy unless it is required for vitally important conditions.

Pregnancy
Studies on animal reproduction with dextrose solutions containing sodium chloride have not been carried out.

Whether or not POLİFLEKS 5% DEXTROSE 0.2% SODIUM causes fetal damage if used in pregnant women, or if it causes impairment on ability of fertility are not known.

POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE must be used in pregnant women only when it is absolutely necessary.

Labor
Effects of POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE on the labor, effects on labor with forceps or other interventions, and the effects on other interventions required on the neonate together with the effects on growth, development and functional maturity of the infant when used during labor are not known.

It has been reported in the literature that solutions containing dextrose and sodium chloride have been used during labor. It must be considered when required by the fluid balances of the mother and fetus, glucose or electrolyte concentrations and acid-base balance, or when required by the conditions of the mother or fetus.

Lactation
It is not known whether or not this drug is excreted to human milk. Since it is known that many drugs are excreted to human milk, POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE must be used carefully in breastfeeding mothers.

Reproduction Ability/Fertility
It has no known negative effects.

4.7 Effects on driving and using machines
Driving is practically impossible during the use of solutions administered through infusion. It has no known effects on driving or use of machines.

4.8 Undesirable effects
Adverse effects can be related to the deficiency or abundance of the ions and dextrose in the solutions; therefore, sodium and chloride levels must be monitored closely. Also, one should be cautious that additional drugs administered after diluting can cause adverse effects. In this case, the product characteristics of the additional drug must be referred to.

Infusion must be stopped upon any adverse effects seen during the administration, status of the patient must be evaluated and proper treatment measures must be taken.

Very common (≥1/10); common (≥1/100 to <1/10); uncommon (≥1/1,000 to <1/100); rare (≥1/10,000 to <1/1,000); very rare (<1/10,000), and unknown (available data do not allow deciding)

Metabolism and nutrition disorders
Unknown: Water retention and edema; deterioration of congestive cardiac failure (related to hypernatremia); acidosis (related to hyperchloremia), fluid and electrolyte imbalance*; Hyperglycemia and dehydration**

Nervous system disorders
Unknown: Headache, vertigo, uneasiness, irritability, convulsions, coma and death (related to hypernatremia).

Cardiac disorders
Unknown: Tachycardia (related to hypernatremia).

Vascular disorders
Unknown: Hypertension (related to hypernatremia).

Respiratory, thoracic and mediastinal disorders
Unknown: Pulmonary edema, respiratory depression and respiratory arrest (related to hypernatremia).

Gastrointestinal disorders
Unknown: Nausea, vomiting, diarrhea, abdominal cramps, thirst, and reducing the saliva amount (related to hypernatremia).

Skin and subcutaneous tissue disorders
Unknown: Reducing of sweating (related to hypernatremia).

Musculoskeletal and connective tissue disorders
Unknown: Fasciculation and hardening of muscles (related to hypernatremia).

Renal and urinary disorders
Unknown**:** Renal failure (related to hypernatremia), polyuria

General disorders and administration site conditions
Unknown: Fever; fatigue (related to hypernatremia)

Surgical and medical procedures***
Unknown: Febrile reactions; infection in the injection site; local pain or irritation; venous irritation; venous thrombosis or phlebitis starting the injection site and spreading; extravasation and hypervolemia

* Including hypokalemia, hypomagnesemia or hypophosphatemia
** Adverse effects generally seen as a result of erroneous parenteral administration
*** Adverse effects that can be seen as a result of application technique

It must be kept in mind that the drugs administered after dilution also can cause adverse effects. In such cases, the product information of the additional drug administered must be referred to.

Infusion must be stopped in case of adverse effects, the patient must be evaluated, proper therapeutical measures must be taken and the residual drug within the bag must be kept for examination if needed.

4.9 Overdose and treatment

If fluid or electrolyte overload related to excessive infusion is seen during the parenteral treatment, the patient must be re-evaluated and proper corrective treatments must be started.

5. PHARMACOLOGICAL PARTICULARS

Pharmacodynamic and pharmacokinetic characteristics of POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE is related to dextrose, sodium and chloride contained.

5.1 Pharmacodynamic properties

Pharmacotherapeutical group: Solutions affecting the electrolyte balance / Electrolyte solutions containing carbohydrates

ATC code: B05BB02

Ions like sodium pass through the cellular membrane using various transport mechanisms include sodium pump (Na-K-ATPase). Sodium plays an important role in neurotransmission, cardiac electrophysiology and renal metabolism.

Chloride is mainly an extracellular anion. Intracellular chloride is found in high concentration in red blood cells and in the gastric mucosa. Reuptake of chloride follows the reuptake of sodium.

Dextrose is the main energy source in the cellular metabolism. Such solutions can stimulate diuresis depending on the clinical conditions of the patients. Dextrose is fully metabolized and decreases the protein and nitrogen losses in the body, and increases glycogen storage. It decreases or prevents ketosis when administered in adequate dosages.

Sodium chloride solutions containing carbohydrates have been developed with the purpose of replacing the fluid and electrolyte deficiencies in the body and meeting some part of the energy requirement. Such solutions have beneficial effects when chloride loss is equal to or greater than the loss of sodium because of sweating, vomiting or gastric aspiration.

Since 5% dextrose solutions containing 0.2% sodium chloride contain less sodium and chloride compared to those containing 0.45% and 0.9% sodium chloride, it is preferred as the first hydration solution that can initiate kidney function by meeting extracellular fluid losses before and after surgery.

5.2 Pharmacokinetic properties

General properties

Pharmacokinetic properties of POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE consist of the properties of its components (dextrose, sodium and chloride).

Absorption:

The active ingredients in the drugs administered through the intravenous route reach the maximum plasma concentrations immediately after the administration.

Distribution:

Dextrose can be administered with dosages up to 0.5 g/kg per hour without causing glycosuria. Approximately 95% of the dextrose administered with the rate of 0.8g/kg, which is the highest administration rate, will remain within the body.

Sodium distribution varies according to the tissues: it is fast in muscle, liver, kidney, cartilage and skin, slow in erythrocytes and neurons and very slow in bones.

Chloride is distributed mainly in the extracellular fluids.

Biotransformation:

Dextrose is easily and fully metabolized in the body through pyruvic acid or lactic acid route and provides energy while largely turning into carbon dioxide and water.

The half-life following radioactive-labeled sodium (^{24}Na) injection is 11 to 13 days for 99% of the injected sodium, and one year for the remaining 1%.

Chloride closely follows the sodium metabolism, and the changes in the acid-base balance of the body are reflected in the chloride concentration changes.

Elimination:

Carbon dioxide forming as a result of the biotransformation of dextrose is excreted via the lungs, while water is mainly excreted through the kidneys, and through sweat, feces and expiration air in small amounts.

Sodium is excreted mainly through the renal route; however, majority is absorbed back with the renal route. A small amount of sodium is excreted through feces and sweat.

Since chloride follows sodium in the metabolic sense, it is mainly excreted through the renal route, and with feces and sweat in small amounts.

Linearity/ nonlinear conditions:

The electrolytes and dextrose in the composition of POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE display linear pharmacokinetic behavior if administered in rates

adequate for the supplementation of the deficiencies in the body, that is, in therapeutical dosages.

5.3 Pre-clinic safety data

Since the components of the solutions are physiological components of the human and animal plasma, and since no toxic effects are expected from clinical administrations, no studies have been performed on POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE to evaluate its carcinogenic or mutagenic potentials and its effects on fertility.

Safety of the drugs added to the solution must be handled separately.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Water for injection

6.2 Incompatibilities

Compatibility of the drug to be added to the solution must be evaluated in advance. Any drug without compatibility data must not be added to the solution.

Solubility and stability of the drug at the pH (pH:3.5-6.5) of POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE must be confirmed before adding the drug to the solution.

Some of the drugs incompatible with POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE:

- Ampicilin sodium
- Mitomycin
- Amphotericin B
- Erythromicin lactobinate

Drugs known to be incompatible must not be added to the solution.

Since POLİFLEKS 5% DEXTROSE 0.2% SODIUM CHLORIDE may cause pseudo agglutination due to its dextrose content, it should not be administered from the same infusion set with massive blood transfusions.

6.3 Shelf life

24 months

6.4 Special precautions for storage

It must be kept at room temperature under 25 °C away from direct light.

6.5 Nature and contents of the packaging

In 100, 250, 500 and 1000-ml PVC and PP bags
It has two forms, namely the forms with and without sets.

6.6 Destruction of the residual materials human medicinal product and other special precautions

The unused or waste products must be discarded according to the "Regulation Related to the Control of Medical Wastes" and the "Regulation Related to the Control of Packaging and Packaging Wastes".

Preparation for use:

The solution must be checked before use.

Application will be made through the intravenous route using sterile apyrogen sets.

Only clear solutions not containing any particles within intact packaging must be used.

Administration must be started within the shortest time possible after the application set is attached to the product.

With the purpose of preventing air embolism because of the residual air in the bag, serial connection to other infusion liquids must not be made.

The solution must be administered through the sterile application set using the aseptic technique. Fluid must be passed through the application set to prevent entry of air to the system.

Additional drug can be added with the help of a injector under aseptic conditions before or during the infusion. Isotonicity of the final products must have been determined before the parenteral administration.

The added drug must be mixed thoroughly before administering to the patient. Solutions containing additional drugs must be used immediately after the addition of the drug, and must not be kept to be used later.

Addition of drugs to the solution or erroneous application technique can cause febrile reaction depending on the contamination of the product with pyrogens. Infusion must be stopped immediately in case adverse reactions are seen.

It is for single use.

Partially used solutions must not be stored.

Partially used bags must not be re-connected to systems applied to the patient.

How to open:

1. Check the intactness of the outer packaging and if there is any leakage; do not use the packaging if the packaging is damaged.
2. Tear off the protective outer packaging.

3. Check if the bag within the protective packaging is intact. Check the clarity of the solution within the bag and there is no foreign material within.

Preparations for the administration:
1. Hang the bag.
2. Remove the protective cap at the application tip.
3. Stab the spike of the application set to the application tip tightly.
4. The instructions of use of the set must be followed when administering the solution to the patient.

Addition of drugs before administration
Caution: Like in all the parenteral solutions, all the substances to be added to the product must be compatible with the product. If any drug will be added to the product, compatibility must be checked before administration to the patient.
Adding drugs before administration:
1. The administration end will be disinfected.
2. The drug to be added will be added into the bag using and injector with a 19-22 gauge tip.
3. The solution with the added drug will be mixed thoroughly. For drugs with high density like potassium chloride, mixing will be ensured by tapping the application outlet of the bag gently when it is in the upside position.

Caution: Bags with added drugs must not be stored.

Mixing drugs during administration
1. The clamp of the set will be closed.
2. The administration end will be disinfected.
3. The drug to be added will be added into the bag using and injector with a 19-22 gauge tip.
4. Solution is removed from the hanger and turned upside down.
5. In this position, mixing of the added drug and the solution will be ensured by tapping the administration end and the injection input gently of the bag.
6. The bag will be brought to the previous position and administration will be continued.

7. MARKETING AUTHORISATION HOLDER
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