Summary of Product Characteristics

1 NAME OF THE MEDICINAL PRODUCT

Nutrineal Solution for Peritoneal Dialysis 4 with 1.1% Amino Acids

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Tyrosine 300 mg/l
Tryptophan 270 mg/l
Phenylalanine 570 mg/l
Threonine 646 mg/l
Serine 510 mg/l
Proline 595 mg/l
Glycine 510 mg/l
Alanine 951 mg/l
Valine 1393 mg/l
Methionine 850 mg/l
Isoleucine 850 mg/l
Leucine 1020 mg/l
Lysine hydrochloride 955 mg/l
Histidine 714 mg/l
Arginine 1071 mg/l
Calcium chloride dihydrate 184 mg/l
Magnesium chloride hexahydrate 51 mg/l
Sodium Lactate 4480 mg/l
Sodium Chloride 5380 mg/l
For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Solution for peritoneal dialysis.
A clear, colourless to pale yellow, sterile solution.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

Nutrineal is recommended as a non-glucose based peritoneal dialysis solution as part of a peritoneal dialysis regimen for the treatment of chronic renal failure patients. In particular, it is recommended for the malnourished peritoneal dialysis patients.

4.2 Posology and method of administration

Administration
Nutrineal is intended for intraperitoneal administration only. Not for intravenous administration.
Peritoneal dialysis solutions may be warmed in the overpouch to 37°C to enhance patient comfort. However, only dry heat (for example, heating pad, warming plate) should be used. Solutions should not be heated in water due to an increased risk of contamination. Solutions should not be heated in a microwave oven due to the potential for damage to the solutions container and patient injury or discomfort.
Aseptic technique should be employed throughout the peritoneal dialysis procedure.
Do not administer if the solution is discolored, cloudy, contains particulate matter or shows evidence of leakage, or if seals are not intact.
The drained fluid should be inspected for the presence of fibrin or cloudiness, which may indicate the presence of peritonitis.
For single use only.
Posology
The mode of therapy, frequency of treatment, exchange volume, duration of dwell and length of dialysis should be initiated and supervised by the prescribing physician.
Treatment should be re-evaluated after 3 months if there is no clinical or biochemical improvement in the status of the patient.

Adults: one peritoneal dialysis exchange per day of one 2.0 l or one 2.5 l bag is the recommended dose for a 70 kg body weight patient. In smaller patients the fill volume may need to be reduced depending on body size. In exceptional cases, a different posology may be indicated but the dose should not exceed two exchanges per day. Note that the recommended daily total intake of proteins is over or equal to 1.2 g/kg body weight for adult dialysis patients. A 2.0 l bag of Nutrineal contains 22 g of amino acids which corresponds to 0.30 g/kg body weight/24 h (approximately 25% of the daily protein requirements) for an adult dialysis patient of 70 kg body weight.
Elderly: as for adults.
Children and adolescents: The recommended posology is one peritoneal dialysis exchange per day. The risk/benefit ratio should be assessed and individual dialysis prescription is necessary which includes appropriate adaptation of fill volumes.

4.3 Contraindications

Nutrineal is contraindicated in patients with:
- known hypersensitivity to any amino acids in the product or to any of the excipients.
- serum urea level above 38 mmol/L,
- uraemic symptoms,
- metabolic acidosis,
- inborn errors of amino acid metabolism,
- liver insufficiency
- severe hypokalaemia.
- uncorrectable mechanical defects that prevent effective PD or increase the risk of infection
- documented loss of peritoneal function or extensive adhesions that compromise peritoneal function.

4.4 Special warnings and precautions for use

Encapsulating peritoneal sclerosis (EPS) is considered to be a known, rare complication of peritoneal dialysis therapy. EPS has been reported in patients using peritoneal dialysis solutions including nutrineal.
-If peritonitis occurs, the choice and dosage of antibiotics should be based upon the results of identification and sensitivity studies of the isolated organism(s) when possible. Prior to identification of the involved organism(s), broad-spectrum antibiotics may be indicated.
-Metabolic acidosis should be corrected before and during Nutrineal treatment.
- Safety and effectiveness in paediatric patients has not been established.
-Significant losses of medicinal products (including water soluble vitamins) may occur during peritoneal dialysis. Replacement therapy should be provided as necessary.
-Dietary protein intake should be monitored.
-Peritoneal dialysis should be done with caution in patients with: 1) abdominal conditions, including disruption of the peritoneal membrane and diaphragm by surgery, from congenital anomalies or trauma until healing is complete, abdominal tumours, abdominal wall infection, hernias, faecal fistula, colostomyor iliostomy, frequent episodes of diverticulitis, inflammatory or ischemic bowel disease**,** large polycystic kidneys, or other conditions that compromise the integrity of the abdominal wall, abdominal surface, or intra-abdominal cavity; and 2) other conditions including aortic graft placement and severe pulmonary disease.
-Overinfusion of a peritoneal dialysis solution into the peritoneal cavity may be characterised by abdominal distension/abdominal pain and/or shortness of breath.
-Treatment of peritoneal dialysis solution overinfusion is to drain the solution from the peritoneal cavity.
-Patients should be carefully monitored to avoid over- and underhydration. An accurate fluid balance record should be kept and the patient's body weight monitored.
- Potassium is omitted from nutrineal solutions due to the risk of hyperkalaemia.
In situations in which there is a normal serum potassium level or hypokalaemia, the addition of potassium chloride (up to a concentration of 4 mEq/L) may be indicated to prevent severe hypokalemia and should be made after careful evaluation of serum and total body potassium, only under the direction of a physician.
-Serum electrolyte concentrations (particularly bicarbonate, potassium, magnesium, calcium and phosphate), blood chemistry (including parathyroid hormone) and haematological parameters should be monitored periodically.
-In diabetic patients, blood glucose levels should be regularly monitored and the dosage of insulin or other treatment for hyperglycaemia should be adjusted.
-A portion of the amino acids in Nutrineal is converted to metabolic nitrogenous waste, such as urea. If dialysis is insufficient, the additional metabolic waste generated by the use of Nutrineal may lead to the appearance of uraemic symptoms such as anorexia or vomiting. Symptoms can be managed by reduction of the number of Nutrineal exchanges, or discontinuation of Nutrineal or an increased dialysis dose with a non amino acid based solution.

-In patients with secondary hyperparathyroidism, the benefits and risks of the use of dialysis solution with a low calcium content should be carefully considered as it might worsen hyperparathyroidism.

4.5 Interaction with other medicinal products and other forms of interaction

- No interaction studies have been conducted with nutrineal. Blood concentration of other dialysable medicinal products may be reduced during dialysis.
- Plasma levels of potassium, calcium and magnesium in patients using cardiac glycosides must be carefully monitored, as there is a risk of digitalis intoxication. Potassium supplements may be necessary.

4.6 Fertility, pregnancy and lactation

There are no clinical data on exposed pregnancies and lactation, and no animal studies are available. Nutrineal should not be used during pregnancy or lactation unless clearly necessary. See section 4.4.

4.7 Effects on ability to drive and use machines

End stage renal disease (ESRD) patients undergoing peritoneal dialysis may experience undesirable effects, which could affect the ability to drive or use machines (e.g. Malaise, Hypovolaemia).

4.8 Undesirable effects

The adverse reactions within this section represent those that are thought to have an association with Nutrineal or in conjunction with performing the peritoneal dialysis procedure.

Undesirables effects which occurred in patients treated with Nutrineal from clinical trials and post marketing are listed below.

Frequency is based upon the following scale: Very Common (≥1/10); Common (≥1/100 - <1/10), Uncommon (≥1/1,000 - <1/100), Rare (≥1/10,000 - <1/1,000), Very Rare (<1/10,000)

System Organ Class (SOC)	Preferred MedDRA Term	Frequency
INFECTIONS AND INFESTATIONS	Infection	Common
IMMUNE SYSTEM DISORDERS	Hypersensitivity	Not Known
BLOOD AND LYMPHATIC SYSTEM DISORDERS	Anaemia	Common
METABOLISM AND NUTRITION DISORDERS	Acidosis	Very Common
	Hypervolaemia	Very Common
	Hypokalaemia	Common
	Hypovolaemia	Common
	Anorexia	Very common
PSYCHIATRIC DISORDERS	Depression	Common
RESPIRATORY, THORACIC AND MEDIASTINAL DISORDERS	Dyspnoea	Common
GASTROINTESTINAL DISORDERS	Vomiting*	Very Common
	Nausea	Very Common
	Gastritis	Very Common
	Abdominal pain	Common
	Abdominal discomfort	Not known
	Sclerosing encapsulating peritonitis	Not known
	Peritonitis	Not known
	Peritoneal Cloudy effluent	Not known
GENERAL DISORDERS AND ADMINISTRATION SITE CONDITIONS	Asthenia	Very Common
	Pyrexia	Not known
	Malaise	Not known

INVESTIGATIONS	Blood urea increased Peritoneal fluid analysis abnormal	Very Common Not known
SKIN AND SUBCUTANEOUS DISORDERS	Pruritis Angioedema	Not known Not known

*The term nausea and vomiting is not available in MedDRA 11.0. The term has been retained to reflect the available source data.

Other undesirable effects of peritoneal dialysis related to the procedure: catheter site infection, catheter related complication, hypocalcaemia and peritonitis bacterial.

Reporting of suspected adverse reactions
Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions: HPRA Pharmacovigilance, website: www.hpra.ie.

4.9 Overdose

There is potential for overdose resulting in hypervolaemia and electrolyte disturbances.
Management of Overdose:
- Hypervolaemia may be managed by using hypertonic peritoneal dialysis solutions and fluid restriction.
- Electrolyte disturbances may be managed according to the specific electrolyte disturbance verified by blood testing. The most probable disturbance, hypokalaemia, may be managed by the oral ingestion of potassium or by the addition of potassium chloride in the peritoneal dialysis solution prescribed by the treating physician (see section 6.2).

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Sterile and nonpyrogenic solution for extrarenal waste removal in continuous ambulatory peritoneal dialysis.

The concentration of electrolytes in the fluid is similar to the electrolyte composition of normal extracelluar fluid (except for lactate).

Osmolarity of the Nutrineal PD4 solution with the 1.1% amino acids: 365 mOsm/litre.

5.2 Pharmacokinetic properties

The solution is administered into the peritoneal cavity, and then drained.
The solution takes effect across the peritoneal membrane according to the principles of osmosis and diffusion; the exchange (dialysis) is made between the solution (dialysate) and the patient's plasma.
Electrolytes follow the standard metabolism of each ion.
Lactate is a biological precursor of bicarbonate.
Seventy to eighty percent of the amino acids infused are absorbed after 6 hours of dwell in the peritoneal cavity.

5.3 Preclinical safety data

Toxicity data on 1.1% amino acids solutions show predicted margins of safety in rats and dogs. There is no evidence of adverse effects in studies of foetal toxicity or fertility, mutagenic potential, carcinogenic potential, irritancy or sensitization potential, or risk of addiction or dependency.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Concentrated hydrochloric acid
Water for injections

6.2 Incompatibilities

Nutrineal PD4 in the PVC container should not be mixed with other medicinal products except those mentioned in section 6.6.

6.3 Shelf life

2 years.
12 months (for medicinal products manufactured at Alliston, Canada only).

6.4 Special precautions for storage

Do not store above 30°C. Keep the container in the outer carton in order to protect from light.

6.5 Nature and contents of container

Flexible poly (vinyl chloride) bags.
Pack contents: 500 ml, 1000 ml, 1500 ml, 2000 ml, 2500 ml and 3000 ml.

6.6 Special precautions for disposal of a used medicinal product or waste materials derived from such medicinal product and other handling of the product

For details on the conditions of administration see section 4.2.
Heparin or insulin medicinal products have shown no evidence of incompatibility with NUTRINEAL in the PVC container.
The product should be used immediately after adding any drug.
Drug compatibility must be checked before admixture and the pH and salts of the solution must be taken into account.
- The intraperitoneal administration route requires the use of a specific catheter and an appropriate administration set which connects the solution container to the patient's catheter
- Detailed instruction on the peritoneal dialysis exchange procedure is given to patients by means of training, in a specialised training centre, prior to home use.
- In case of damage, the container should be discarded.
- Do not remove unit from overpouch until ready for use.
- Do not administer unless solution is clear.
- Discard any unused remaining solution.

7 MARKETING AUTHORISATION HOLDER

Vantive Belgium SRL
Boulevard D'Angleterre 2
Braine-L'Alleud
1420
Belgium

8 MARKETING AUTHORISATION NUMBER

PA25288/002/001

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

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Date of last renewal: 30th June 2010

10 DATE OF REVISION OF THE TEXT

February 2026