1 CERNEVIT (injection, powder)

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Content of lyophilisate in each vial.

Active Ingredients	*Quantity*	*Corresponding to*	*Quantity*
Retinol (present as retinyl palmitate	3500IU	Vitamin A	3500IU
Colecalciferol	5.5µg	Vitamin D3	5.5µg
dl-α-tocopherol	10.20mg	Alpha tocopherol (Vitamin E)	11.20IU
Asorbic acid	125mg	Vitamin C	125mg
Cocarboxylase tetrahydrate	5.80mg	Thiamine (Vitamin B1)	3.51mg
Riboflavin sodium phosphate	5.67mg	Riboflavin (Vitamin B2)	4.14mg
Pyridoxine hydrochloride	5.50mg	Pyridoxine (Vitamin B6)	4.53mg
Cyanocobalimin	6µg	Vitamin B12	6µg
Folic acid	414µg	Folic acid (Vitamin B9)	414µg
Dexpanthenol	16.15mg	Dexpantothenic acid (Vitamin B5)	17.25mg
d-Biotin	69µg	Biotin (Vitamin B7)	69µg
Nicotinamide	46mg	Niacin (Vitamin PP/B3)	46mg

The active ingredients in CERNEVIT are water-soluble and fat-soluble vitamins, which are well characterised.

The Glycine component is included in the formulation as an excipient in order to facilitate the reconstitution of the lyophilised product with Water for Injection.

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Injection, powder.

CERNEVIT is a multivitamin preparation, lyophilised, sterile powder, for reconstitution in 5mL of Water for Injection or other compatible parenteral fluids.

CERNEVIT is a sterile dosage form for injection containing nine water-soluble and three fat- soluble vitamins (Vitamin K is not included in CERNEVIT), using mixed micelles (glycocholic acid and lecithin) as a solubilising agent. It is presented as a lyophilised, orange-yellow, sterile powder. That is to be reconstituted with 5mL of Water for Injections or other parenteral fluids, (e.g. as 0.9% Sodium chloride, 5% Glucose or nutritional mixtures), prior to administration by parenteral route.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

CERNEVIT is indicated in adults and children over 11 years of age requiring parenteral multi-vitamins supplementation to correct or prevent vitamin deficiencies when oral administration is contraindicated, impossible or insufficient. This product does not contain Vitamin K, which may be given separately if required.

4.2 Dose and method of administration

Posology

Adults and children aged over 11 years: one vial/day reconstituted with Water for Injection (5mL) or other compatible IV solutions (5mL) as described under Administration and Reconstitution.

If infused intravenously, CERNEVIT should be administered slowly. If injected intravenously, the injection must be administered slowly (over at least 10 minutes).

The patient's clinical status and vitamin levels should be monitored to ensure maintenance of adequate levels.

It should be taken into account that some vitamins, especially A, B2, and B6 are sensitive to ultraviolet light (e.g., direct or indirect sun light). In addition, loss of vitamins A, B1, C, and E may increase with higher levels of oxygen in the solution. These factors should be considered if adequate vitamin levels are not achieved.

Administration and Reconstitution

CERNEVIT is a sterile preparation. Thus, aseptic procedure must be applied throughout the administration and reconstitution. The single dose vial of CERNEVIT is reconstituted by adding 5mL of sterile Water for Injection or other intravenous fluids (0.9% Sodium Chloride Injection or 5% Glucose Injection). Five millilitres (5mL) of diluent should be added by means of sterile syringe into the vial and gently mixed to dissolve the lyophilised powder. Before transfer from the vial, CERNEVIT must be completely dissolved. Do not use product unless the reconstituted solution is clear and the original seal is intact. The entire volume of the resultant solution should then be administered by slow Intravenous Injection (at least over 10 minutes) or further diluted for intravenous infusion.

Mix the final solution thoroughly when CERNEVIT is used as an admixture in parenteral nutrition. Any unused portion of reconstituted CERNEVIT should be discarded and should not be stored for subsequent admixing. Parenteral medicinal products should be inspected visually for particulate matter and abnormal discoloration prior to administration, whenever solution and container permit. Use of a final filter is recommended during administration of all parenteral nutrition solutions.

After reconstitution, CERNEVIT should be used immediately or stored at 2°C to 8°C for no more than 24 hours.

4.3 Contraindications

Hypersensitivity to the active substances or to any of the excipients listed in section 6.1.

CERNEVIT is contraindicated in patients with pre-existing hypervitaminosis or known hypersensitivity to CERNEVIT, to any of the active ingredients, or soy/protein products in particular patients with hypersensitivity to thiamine (Vitamin B1). Thus, CERNEVIT should not be injected to patients with pre-existing intolerance to thiamine. Similarly, this product should not be administered to patients with impaired hepatic function.

CERNEVIT should not be administered to those suffering from hyperparathyroidism due to hypercalcaemic complications.

4.4 Special warnings and precautions for use

Allergic reactions

Anaphylactic reactions may occur in allergic subjects who are susceptible to thiamine (Vitamin B1) and nicotinamide components of this product. Mild allergic reactions such as sneezing or mild asthma are warning signs that further injection may give rise to anaphylactic shock.

In some cases, the manifestations of a hypersensitivity reaction during intravenous administration of multivitamins may be rate related. The infusion or injection must be stopped immediately if signs or symptoms of a hypersensitivity reaction develop.

CERNEVIT contains soy-derived lecithin and should be used with caution in patients with peanut allergies due to potential cross-reactivity.

Vitamin toxicity

The patients's clinical status and blood vitamin concentrations should be monitored to avoid overdose and toxic effects, especially with Vitamins A,D and E, and in particular in patients who receive additional vitamins from other sources or use other agents that increase the risk of vitamin toxicity.

Monitoring is particularly important in patients receiving long-term supplementation.

Daily vitamin requirements must be calculated in order to avoid overdose and toxic effects, in particular with fat soluble vitamins, such as Vitamin A. Caution should be exercised when administering CERNEVIT to patients who may be receiving Vitamin A from other sources.

The recommended Dietary Intakes (RDI) of Vitamin A in pregnant and lactating women as recommended by the NH&MRC is 2500IU (750mcg retinol equivalents). CERNEVIT IV contains 3500IU Vitamin A, administered by intravenous route, thus the use of this product in pregnant or lactating women is not recommended. Teratogenic effects have been observed in isolated cases with a dose of Vitamin A over 10,000IU per day.

The risk for hypervitaminosis A and Vitamin A toxicity (e.g., skin and bone abnormalities, diplopia, cirrhosis) is increased in, for example:

- patients with protein malnutrition,
- patients with renal impairment (even in the absence of Vitamin A supplementation),
- patients with small body size (e.g., paediatric patients), and
- patients on chronic therapy.

Caution should be exercised when administering CERNEVIT to patients who may be receiving Vitamin A, D and E from other sources and those receiving long-term supplementation.

Refeeding syndrome

Refeeding severely undernourished patients may result in refeeding syndrome that is characterised by the shift of potassium, phosphorus, and magnesium intracellularly as the patient becomes anabolic. Thiamine deficiency and fluid retention may also develop. Careful monitoring and slowly increasing nutrient intakes while avoiding overfeeding can prevent these complications.

Precipitates

Pulmonary vascular precipitates have been reported in patients receiving parenteral nutrition. In some cases, fatal outcomes have occurred. Excessive addition of calcium and phosphate increases the risk of the formation of calcium phosphate precipitates. Precipitates have been reported even in the absence of phosphate salt in the solution. Precipitation distal to the in-line filter and suspected precipitate formation in the bloodstream have also been reported.

In addition to inspection of the solution, the infusion set and catheter should also periodically be checked for precipitates.

If signs of pulmonary distress occur, the infusion should be stopped and medical evaluation initiated.

Hepatic effects
Monitoring of liver function parameters is recommended in patients receiving CERNEVIT. Close monitoring is recommended in patients with hepatic jaundice or other evidence of cholestasis.

In patients receiving CERNEVIT, instances of liver enzyme increases have been reported, including isolated alanine aminotransferase (ALT) increases in patients with inflammatory bowel disease.

In addition, increases in bile acid levels may occur in patients receiving CERNEVIT.

Hepatobiliary disorders including cholestasis, hepatic steatosis, fibrosis and cirrhosis, possibly leading to hepatic failure, as well as cholecystitis and cholelithiasis are known to develop in some patients on parenteral nutrition (including vitamin supplemented parenteral nutrition). The etiology of these disorders is thought to be multifactorial and may differ between patients. Patients developing abnormal laboratory parameters or other signs of hepatobiliary disorders should be assessed early by a clinician knowledgeable in liver diseases in order to identify possible causative and contributory factors, and possible therapeutic and prophylactic interventions.

Intravenous bolus injection
Following intravenous bolus injection, a moderate rise in SGPT transaminases has been noted in some patients with active inflammatory enterocolitis. The increased levels are rapidly reversible following the cessation of the treatment. It is recommended to monitor transaminase levels in patients of this type.

Renal effects
Patients with renal impairment may need individualised vitamin supplementation, depending on the degree of renal impairment and the presence of concomitant medical conditions. In patients with severe renal impairment, particular attention should be placed on maintaining adequate Vitamin D status and preventing Vitamin A toxicity, which may develop in such patients with low-dose Vitamin A supplementation or even without supplementation.

Pyridoxine (Vitamin B6) hypervitaminosis and toxicity (peripheral neuropathy, involuntary movements) have been reported in patients on chronic haemodialysis receiving intravenous multivitamins containing 4mg pyridoxine administered three times a week.

Also in the case of impaired kidney function, fat-soluble vitamin levels should be carefully monitored.

Vitamin K
CERNEVIT does not contain Vitamin K. If the patient requires this vitamin, it should be administered separately.

General monitoring
Clinical status and vitamin levels should be monitored in patients receiving parenteral multivitamins as the only source of vitamins for extended periods of time. It is particularly important to monitor for adequate supplementation of, for example:

- Vitamin A in patients with pressure ulcers, wounds, burns, short bowel syndrome or cystic fibrosis
- Vitamin B1 in dialysis patients
- Vitamin B2 in cancer patients
- Vitamin B6 in patients with renal impairment
- Individual vitamins whose requirements may be increased due to interactions with other medicines (see section 4.5).

Deficiency of one or more vitamins must be corrected by specific supplementation.

Vitamin B12 deficiency
Evaluation of Vitamin B12 status is recommended before starting supplementation with CERNEVIT in patients at risk for Vitamin B12 deficiency and/or when supplementation with CERNEVIT over several weeks is planned.

After several days of administration, both the individual amounts of cyanocobalamin (Vitamin B12) and folic acid in CERNEVIT may be sufficient to result in an increase in red blood cell count, reticulocyte count, and haemoglobin values in some patients with Vitamin B12 deficiency-associated megaloblastic anaemia. This may be masking an existing Vitamin B12 deficiency. Effective treatment of Vitamin B12 deficiency requires higher doses of cyanocobalamin than provided in CERNEVIT.

Folic acid supplementation in patients with Vitamin B12 deficiency, who do not also receive Vitamin B12, does not prevent the development or progression of neurologic manifestations associated with the Vitamin B12 deficiency. It has been suggested that neurologic deterioration may even be accelerated.

When interpreting levels of Vitamin B12, it should be taken into account that recent intake of Vitamin B12 may result in normal levels despite a tissue deficiency.

4.5 Interaction with other medicines and other forms of interaction

In an *in vitro* study using human serum, therapeutic concentration of glycocholic acid increased the unbound fraction of medicines known to bind to a1-acid glycoprotein by 50-80%. It is not known whether this effect is clinically relevant if the amount of glycocholic acid contained in a standard CERNEVIT dose (as a component of the mixed micelles) is administered by slow intravenous injection, intramuscular injection, or infused over a longer period of time. Patients receiving medicines that bind to a1-acid glycoprotein should be closely monitored for increases in response to these medicines, e.g. propranolol, prazosin and quinidine.

The dosage of medicines known to be influenced by folic acid, for example phenytoin (Dilantin), must be carefully monitored. Folic acid may obscure pernicious anaemia. Folic acid may increase the metabolism of some antiepileptics, such as phenobartbitol, phenytoin and primidone. Pyridoxine can reduce the effect of levo-dopa. Bleomycin can be inactivated by ascorbic acid and riboflavin. Several vitamins can decrease the effectiveness of antibiotics, such as tetracycline.

It has been reported that PVC bags and plastic tubing delivery systems absorb fat-soluble vitamins onto the plastic surface, in particular Vitamin A in the form of pure Vitamin A or Vitamin A acetate, which are highly prone to this phenomenon. The use of Vitamin A palmitate and 'mixed micelles' as solubilising agents in the formulation of CERNEVIT reduces the absorption of fat- soluble vitamins onto plastic bags as a result of the high rate of Vitamin A palmitate being trapped into the micelles cages. Using non-PVC bags may prevent this interaction. Some of the vitamins, especially A, D, pyridoxine and riboflavin are light sensitive. Thus, light protection is recommended during administration of an IV infusion admixture containing CERNEVIT, by wrapping the container with an adequate light-barrier cover.

In addition, loss of Vitamins A, B1, C, and E may increase with higher levels of oxygen in the solution. These factors should be considered if adequate vitamin levels are not achieved.

Interactions between specific vitamins in CERNEVIT and other agents should be managed accordingly. Such interactions include:

- Agents that can cause pseudotumor cerebri (including certain tetracyclines): Increased risk for pseudotumor cerebri by concomitant administration of Vitamin A
- Alcohol (chronic excessive consumption): Increases the risk of Vitamin A hepatotoxicity

- Anticonvulsants (phenytoin, fosphenytoin, phenobarbital, primidone): Folic acid supplementation can decrease the anticonvulsant serum concentration and increase seizure risk
- Antiplatelet agents (e.g., aspirin): Vitamin E can add to the inhibition of platelet function
- Aspirin (high dose therapy): Can reduce folic acid levels by increasing urinary excretion
- Certain anticonvulsants (e.g., phenytoin, carbamazepine, phenobarbital, valproate): Can cause folate, pyridoxine and Vitamin D deficiencies
- Certain antiretroviral agents: Decreased Vitamin D levels have been associated with, e.g., efavirenz and zidovudine. Decreased formation of the active Vitamin D metabolite has been associated with protease inhibitors.
- Chloramphenicol: Can inhibit the haematological response to Vitamin B12 therapy
- Deferoxamine: Increased risk of iron-induced cardiac failure due to increased iron mobilization by supraphysiologic Vitamin C supplementation. For specific precautions, refer to deferoxamine product information.
- Ethionamide: Can cause pyridoxine deficiency
- Fluoropyrimidines (5-fluorouracil, capecitabine, tegafur): Increased cytotoxicity when combined with folic acid
- Folate antagonists, e.g., methotrexate, sulfasalazine, pyrimethamine, triamterene, trimethoprim, and high doses of tea catechins: Block the conversion of folate to its active metabolites and reduce the effectiveness of supplementation
- Folate antimetabolites (methotrexate, raltitrexed): Folic acid supplementation can decrease the antimetabolite effects
- Pyridoxine antagonists, including cycloserine, hydralazine, isoniazid, penicillamine, phenelzine: Can cause pyridoxine deficiency
- Retinoids, including bexarotene: Increase the risk of toxicity when used concomitantly with Vitamin A
- Theophylline: Can cause pyridoxine deficiency
- Tipranavir oral solution: Contains 116IU/mL of vitamin E, which is in excess of daily recommended intake
- Vitamin K antagonists (e.g. warfarin): Enhanced anticoagulant effect by vitamin E

Patients receiving CERNEVIT as well as medicines that bind to alpha1-acid glycoprotein (AAG) should be closely monitored for increases in response of these medicines. E.g. propranolol, prazosin.

Some medications can interact with certain vitamins at doses markedly higher than those provided with CERNEVIT. This should be taken into consideration in patients receiving vitamins from multiple sources, and when applicable, patients should be monitored for such interactions and managed accordingly.

Effect on laboratory tests
Depending on the reagents used, the presence of ascorbic acid in blood and urine may cause false high or low glucose readings in some urine and blood glucose testing systems, including test strips and handheld glucose meters. The technical information for any laboratory test should be consulted to determine the potential interference from vitamins.

4.6 Fertility, pregnancy and lactation

Use in Pregnancy (Category D)
Animal reproduction studies have not been performed with CERNEVIT. However, embryofoetal toxicity studies were carried out in rats and rabbits using heat-degraded mixed micelles, a solubilising agent used in CERNEVIT. In rabbits, maternotoxic doses of heat-degraded mixed micelles led to an increased abortion rate, but there were no adverse effects on the foetus.

Vitamin A is classified as category D in the Australian Categorisation of risk of medicine in pregnancy. The amount of Vitamin A in this product is below the RDA adopted by the FDA/USA, but above that recommended by the NH&MRC. This product has not been formally assessed in human pregnancy, therefore use of this product in pregnancy is not recommended. Teratogenic effects have been observed in isolated cases with doses of Vitamin A over 10,000IU/day.

Use in Lactation
It is not known if this medicine is excreted in breast milk, but as many vitamins are, the use of this product in lactating women is not recommended.

4.7 Effects on ability to drive and use machines
Not relevant.

4.8 Undesirable effects
Anaphylactic reactions have been reported following intravenous doses of thiamine. There have been reported very rare events of anaphylactic reaction following IV injection of CERNEVIT over 1 – 4 minutes. Giant urticaria has been very rarely reported, as well as rash. Transient rises in SGPT transaminases have been observed after bolus injection in patients with active inflammatory enterocolitis. Individuals susceptible to the effects of nicotinamide may experience flushing, itching or burning of the skin.

Adverse effects from clinical trials
- Gastrointestinal disorders – Vomiting, nausea
- General disorders and administration site conditions – Injection/infusion site pain
- Metabolism and nutrition disorders - Vitamin A increased, Retinol binding protein increased
- Hepatobiliary disorders - Transaminases increased, Isolated alanine aminotransferase increased, Glutamate dehydrogenase increased, Blood alkaline phosphatase increased, Bile acids increased.

Post-marketing Adverse effects
IMMUNE SYSTEM DISORDERS: Systemic hypersensitivity reactions with manifestations such as Respiratory distress, Chest discomfort, Throat tightness, Urticaria, Rash, Erythema, Epigastric discomfort, as well as Cardiac arrest with fatal outcome.

NERVOUS SYSTEM DISORDERS: Dysgeusia (metallic taste)

CARDIAC DISORDERS: Tachycardia

RESPIRATORY, THORACIC AND MEDIASTINAL DISORDERS: Tachypnoea

GASTROINTESTINAL DISORDERS: Diarrhoea

SKIN AND SUBCUTANEOUS TISSUE DISORDERS: Pruritus

HEPATOBILIARY DISORDERS: Gamma-glutamyltransferase increased

GENERAL DISORDERS AND ADMINISTRATION SITE CONDITIONS: Pyrexia, Generalised aching, Infusion site reactions, i.e., Burning sensation, Rash

Hypersensitivity reactions
Severe systemic hypersensitivity reactions have been reported with CERNEVIT, other multivitamin preparations, and individual vitamins (including A, B1, B2, B12 and folic acid). Reactions with fatal outcome have been reported with CERNEVIT and other parenteral vitamin products.

In some cases, the manifestations of a hypersensitivity reaction during intravenous administration of multivitamins may be rate related (see section 4.4).

Reporting of suspected adverse reactions
Reporting suspected adverse reactions after authorisation of the medicine is important. It allows continuing monitoring of the benefit/risk balance of the medicine. Healthcare professionals are asked to report any suspected adverse reactions https://nzphv.otago.ac.nz/reporting/

4.9 Overdose
There is little data concerning the overdosage of CERNEVIT.

Acute or chronic overdose of vitamins (in particular A, B6, D, and E) can cause symptomatic hypervitaminosis.

The risk of overdose is particularly high if a patient receives vitamins from multiple sources and overall supplementation of a vitamin does not match the patient's individual requirements, and in patients with increased susceptibility to hypervitaminosis.

The signs of overdose of CERNEVIT are mostly those resulting from administration of excessive doses of Vitamin A:

- Clinical signs of acute overdose of Vitamin A (doses exceeding 150,000IU): gastrointestinal disorders, headache, raised intracranial pressure, papilloedema, psychiatric disorders, irritability, or even convulsions, delayed generalised desquamation.
- Clinical signs of chronic intoxication (prolonged Vitamin A supplementation with supraphysiological doses in non-deficient subjects): raised intracranial pressure, cortical hyperostosis of long bones and premature epiphyseal fusion. The diagnosis is generally based on the presence of tender or painful subcutaneous swellings in the extremities of the limbs. X-rays demonstrate diaphyseal periosteal thickening of the ulna, fibula, clavicles and ribs.
- Action to be taken in the event of acute or chronic overdose: stop administration of CERNEVIT, reduce calcium intake, increase diuresis and rehydrate.
- Hypercalcaemia occurs as a result of Vitamin D hypervitaminosis. Symptoms of hypercalcaemia include nausea, vomiting, polyuria, anorexia, weakness, apathy, thirst and constipation. Chronic overdose can lead to vascular and organ calcification.

Chronic overdoses can lead to vascular and organ calcification as a result of hypercalcaemia. Treatment should consist of stopping all intakes of calcium and Vitamin D and rehydration.

In cases of suspected overdose, symptomatic and supportive therapy should be instituted as appropriate, and further administration of the product discontinued.

Given the doses of these vitamins contained in CERNEVIT, it is unlikely that, used as directed, toxicity would occur, however, care must be taken if patients are receiving any additional supplementation from other sources.

For advice on the management of overdose please contact the National Poisons Centre on phone number: 0800 764 766 [0800 POISON] in New Zealand (or 131126 in Australia).

5 PHARMACOLOGICAL PROPERTIES
5.1 Pharmacodynamic properties
CERNEVIT contains active ingredients from a combination of pharmacotherapeutic groups:

Pharmacotherapeutic group:	*ATC Code:*
ALIMENTARY TRACT AND METABOLISM, VITAMINS	A11
BLOOD AND BLOOD FORMING ORGANS, ANTIANEMIC PREPARATIONS	B03

A general mode of action of CERNEVIT is to provide a balanced physiological effect mediated by the water-soluble and fat-soluble vitamins in adults and children.

Composition and proportion of each vitamin correspond to the recommendations of the American Medical Association, Food and Drug Administration and Food and Nutrition Board in parenteral nutrition.

Pharmacodynamics
Each vitamin has its specific function in regulating metabolic process in living cells. As CERNEVIT contains more than one active ingredient, it has multifactorial physiological effects. Some functions are performed by one vitamin, such as Vitamin A, which is necessary for proper functioning of the retina and the integrity of epithelial cells. Insufficient retinol (Vitamin A) supplies for the formation of rhodopsin lead to a night blindness syndrome. Other fat-soluble vitamins (Vitamin D and E) are involved in different functions. That is, Vitamin E preserves the essential cell constituents by virtue of its anti-oxidant property, whilst Vitamin D exerts its physiological effect via a hormone-like mode of action on bone formation and mineral homeostasis.

An excess intake of fat-soluble vitamins, such as Vitamin A, may lead to a toxic effect because of its accumulation in the body. This is caused by a slow metabolism and excretion of this vitamin. More than 90% of Vitamin A body supply is stored in the liver and this reserve is usually sufficient for several months to a year. Thus, frequent replacement of Vitamin A is not needed, in contrast to water-soluble vitamins (Vitamin B-complex and Vitamin C), which require a continuous replacement due to their fast excretion from the body.

Water-soluble vitamins act as co-enzymes, mainly in energy metabolism. The B-complex vitamins are necessary for conversion of carbohydrate, protein and fat into tissue and energy. That is, biotin and niacin function as a component of carboxylase enzymes in those metabolic reactions, whilst Vitamin C is involved in collagen formation and tissue repair. Tetrahydrofolic acid, the co-enzyme form of the vitamin, serves as an acceptor and a donor of one carbon unit in amino acid and nucleotide metabolism. Excess intake of water-soluble vitamins is excreted readily by the kidney in the urine by virtue of a high solubility of the parent and their metabolites in water, thereby accumulations rarely take place. Thus, toxicity is less often experienced with water-soluble vitamins than with fat-soluble vitamins.

5.2 Pharmacokinetic properties
The mode of administration of CERNEVIT is by injectable route, thus the bioavailability of this product is considered 100% as it is directly provided into systemic circulation.

5.3 Preclinical safety data
Carcinogenity, mutagenicity, and teratogenicity
No carcinogenicity, mutagenicity or fertility studies have been performed with CERNEVIT. In a single test for mutagenicity in bacteria, heat-degraded mixed micelles, a solubilising agent in the product, were not mutagenic.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Glycine 250mg,
Glycocholic acid 140mg,
Lecithin 112.5mg, (Lecithin [Soybean] 112.5mg),
Sodium hydroxide 10% qs and/or, 1 M hydrochloric acid qs pH 5.9.

6.2 Incompatibilities

- Additives may be incompatible with parenteral nutrition containing CERNEVIT.
- Do not add other medicinal products or substances without first confirming their compatibility and the stability of the resulting preparation.
- If co-administration of medicines that are incompatible at the Y-site is necessary, administer via separate IV lines.
- Vitamin A and thiamine in CERNEVIT may react with bisulfites in parenteral nutrition solutions (e.g., as a result of admixtures) leading to degradation of Vitamin A and thiamine.
- An increase in pH of a solution may increase the degradation of some vitamins. This should be considered when adding alkaline solutions to the admixture containing CERNEVIT.
- Folic acid stability can be impaired with increased calcium concentrations in an admixture.
- Numerous other incompatibilities between vitamins and other medicinal products, including certain antibiotics, and trace elements have been described.
- Refer to appropriate compatibility references and guidelines as needed.

6.3 Shelf life

24 months.

6.4 Special precautions for storage

Store below 25°C. Protect from light. Do not freeze. After reconstitution, the reconstituted product should be used immediately, or failing this, it should be stored at 2°C to 8°C for no more than 24 hours. Contains no antimicrobial agent. The product is for single use in one patient only. Discard any unused portion of the reconstituted solution.

Note: see section 4.4, during infusion, light protection should be obtained by wrapping the container with an adequate light barrier.

6.5 Nature and contents of container

Lyophilised sterile powder in a brown glass vials, with elastomer closures and crimped by an aluminium cap. Packs available in 1's, box of 10 and box of 20 ampoules.

6.6 Special precautions for disposal

Any unused product or waste material should be disposed of in accordance with local requirements.

7 MEDICINE SCHEDULE

General Sale Medicine.

8 SPONSOR

CERNEVIT is distributed in New Zealand by:

Baxter Healthcare Ltd
33 Vestey Drive
Mt Wellington
Auckland 1060.

Baxter Healthcare Ltd
PO Box 14 062
Panmure
Auckland 1741

Phone (09) 574 2400.

CERNEVIT is distributed in Australia by:
Baxter Healthcare Pty Ltd
1 Baxter Drive
Old Toongabbie, NSW 2146.

9 DATE OF FIRST APPROVAL

Date of publication in the New Zealand Gazette of consent to distribute the medicine:
29 April 1999.

10 DATE OF REVISION OF THE TEXT

5 April 2017

SUMMARY TABLE OF CHANGES

Section changed	Summary of new information
All	Entire document reformatted to new standard format based on the European Summary of Product Characteristics (SPC).
10	Date of Revision of Text updated.

Based on Australian PI approved on 1 March 2016 and ccsi42720151030.

Please refer to the Medsafe website (www.medsafe.govt.nz) for most recent data sheet.

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