“TBSF” (20%) Human Albumin Solution

Human Albumin 20% (200 g/L)

Taiwan **Imported Biological Product Permit No. 000842 Department of Health**

NAME OF THE MEDICINE

Human albumin, solution for intravenous infusion.

DESCRIPTION

“TBSF” (20%) Human Albumin Solution is manufactured in cooperation with the ‘Self sufficiency’ recommendation set forth by the Taiwan Ministry of Health and Welfare, from pooled human plasma donated by Taiwan’s voluntary and non-remunerated donors. “TBSF” (20%) Human Albumin Solution is a clear, slightly viscous liquid; it is almost colourless, yellow, amber or green. It is prepared using predominantly chromatographic techniques. It is a sterile, preservative-free 20% w/v human albumin solution. It is hyperoncotic and hypo-osmotic compared to human serum. It has a nominal osmolality of 130 mOsm/kg, is hypotonic and the pH is 6.7 to 7.3. The manufacturing process for “TBSF” (20%) Human Albumin Solution contains dedicated steps to reduce the possibility of virus transmission including pasteurisation (heating at 60°C for 10 hours) and incubation at low pH to inactivate viruses. The composition of “TBSF” (20%) Human Albumin Solution is as follows:

Human Albumin	200 g/L
Sodium	48–100 mmol/L
Octanoate	32 mmol/L

PHARMACOLOGY

Albumin accounts quantitatively for more than half of the total protein in the plasma and represents about 10% of the protein synthesis activity of the liver. The metabolic half-life of albumin *in vivo* is about 19 days and the turnover in an adult is approximately 15 g per day. There is rapid interchange of albumin between the intra- and extravascular spaces.

“TBSF” (20%) Human Albumin Solution has two main functions: maintenance of plasma colloid osmotic pressure and carriage of intermediate products in the transport and exchange of tissue metabolites.

The beneficial effect of human albumin for fluid resuscitation is thought to result principally from its contribution to colloid osmotic pressure (i.e. oncotic pressure).

"TBSF" (20%) Human Albumin Solution is hyperoncotic with human serum and supplies the oncotic equivalence of approximately four times its volume of human plasma.

INDICATIONS

Hypoproteinaemia, Shock, Burns.

INDICATIONS - Elaboration

Hypoproteinaemia in the acutely ill patient

"TBSF" (20%) Human Albumin Solution is administered when there are existing or anticipated clinical problems or complications from reduced oncotic pressure, and/or as an adjunct to diuretic therapy.

Shock

"TBSF" (20%) Human Albumin Solution may be used for the resuscitation of patients in shock due to acute loss of blood or plasma, but 4–5% human albumin is preferred when available.

Burns

Extensive burns are followed by sequential shifts in the distribution of body water, salt and proteins, resulting in hypovolaemic shock and circulatory failure.

Initially (during the first 24 hours) there is an increased vascular permeability leading to loss of water and proteins into the extravascular compartment, and haemoconcentration. Large volumes of crystalloid solutions should be infused to restore the constricted intravascular fluid space, and smaller amounts of "TBSF" (20%) Human Albumin Solution are required to maintain adequate plasma volume and colloid osmotic pressure.

CONTRAINDICATIONS

"TBSF" (20%) Human Albumin Solution must not be used if there is a history of allergy to this product. Albumin is contraindicated in patients with cardiac failure, pulmonary oedema or severe anaemia.

The infusion of "TBSF" (20%) Human Albumin Solution is not justified in hypoproteinaemic states associated with chronic cirrhosis, malabsorption, protein losing enteropathies, pancreatic insufficiency or undernutrition.

In chronic nephrosis, infused albumin solution (20%) is promptly excreted by the kidneys with no relief of the chronic oedema.

PRECAUTIONS

The sodium levels in this product are 48–100 mmol/L. This should be noted when the product is used in patients requiring sodium restriction.

Administration of albumin can aggravate myocardial depression when present in patients with shock. A paradoxical effect of refractory oliguria has been reported in burns patients receiving albumin, possibly because of insufficient accompanying crystalloids.

"TBSF" (20%) Human Albumin Solution is normally clear or slightly opalescent but, if it appears to be turbid by transmitted light, it must not be used and the bottle should be returned unopened to the distributor listed on the label.

The product contains no antimicrobial preservative. It must, therefore, be used immediately after opening the bottle. Any unused solution should be discarded appropriately. Use in one patient on one occasion only. Do not use if the solution has been frozen.

Allergic reactions

Hypersensitivity reactions occur rarely when human albumin solutions are administered because of the human origin of the product. Should an anaphylactic reaction to "TBSF" (20%) Human Albumin Solution develop, the infusion should be stopped and treatment instituted with adrenaline, hydrocortisone and antihistamines, as appropriate.

Circulatory overload

The colloid osmotic effect of "TBSF" (20%) Human Albumin Solution is approximately four times that of plasma and patients should always be monitored for symptoms of circulatory overload (see section below, **Monitoring advice**).

Patients with a history of cardiac failure or pulmonary oedema, or who have renal insufficiency, severe or stabilised chronic anaemia or are on cardiopulmonary bypass are at special risk of developing circulatory overload if dosage and rate of infusion are not adjusted to the patient's circulatory situation. Patients should be carefully monitored for this potential complication.

At the first clinical signs of circulatory overload (headache, dyspnoea, jugular vein congestion), or increased blood pressure or raised venous pressure associated with pulmonary oedema, the infusion is to be stopped immediately.

In the presence of dehydration, as "TBSF" (20%) Human Albumin Solution is hyperoncotic, it must be given with, or followed by crystalloid solution (see section below, **Dilution of concentrated Albumin 20%**).

The rise in blood pressure which may follow rapid administration of albumin necessitates observation of the injured patient to detect bleeding points which failed to bleed at the lower blood pressure; otherwise, new haemorrhage and shock may occur.

The use of albumin for fluid resuscitation of patients with traumatic brain injury is not recommended.

In chronic nephrosis, infused albumin solution (20%) is promptly excreted by the kidneys with no relief of the chronic oedema.

Monitoring advice

It is recommended that blood pressure is monitored during administration of "TBSF" (20%) Human Albumin Solution.

To avoid circulatory overload the rate and volume of infusion should be monitored frequently.

Myocardial function should also be monitored e.g. central venous pressure, arterial pressure and pulse rate.

It is also recommended that plasma electrolytes, prothrombin time, biochemistry and haematological status should be monitored.

"TBSF" (20%) Human Albumin Solution contains trace elements of aluminium (≤200 μg/L). Accumulation of aluminium in patients with chronic renal insufficiency has led to toxic manifestations such as hypercalcaemia, vitamin D-refractory osteodystrophy, anaemia and severe progressive encephalopathy. Therefore, when large volumes of albumin are contemplated for administration to such patients, serious consideration of these potential risks relative to the anticipated benefits should be given.

Pathogen safety

This product is made from human plasma. Products made from human plasma may contain infectious agents, such as viruses and theoretically Creutzfeldt-Jakob Disease (CJD) agents, that can cause disease. The risk that such products will transmit an infectious agent has been reduced by screening plasma donors for prior exposure to certain infectious agents and by testing for the presence of certain virus markers.

In addition, virus inactivation/removal procedures are included in the manufacturing process. The current process and procedures applied in the manufacture of this product are effective against enveloped viruses such as human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV), and the non-enveloped virus, hepatitis A (HAV). These procedures contribute significantly to ensure freedom from parvovirus B19.

Despite these measures, such products may still potentially transmit disease. There is also the possibility that other known or unknown infectious agents may be present in such products. Hence, if patients are infected after using this product, it must be reported to the medical practitioner, the distributor or the manufacturer. Please discuss the risks and benefits of this product with your medical practitioner.

Vaccination for patients in receipt of medicinal products from human plasma should be considered where appropriate.

Dilution of concentrated Albumin 20%

"TBSF" (20%) Human Albumin Solution can be diluted to an iso-oncotic protein concentration (4–5% albumin) prior to administration in the proportion of 1 mL "TBSF" (20%) Human Albumin Solution to 4 mL of suitable crystalloid solution and

administered by the usual intravenous technique. Under no circumstances should water be used since the lower tonicity will lead to intravascular haemolysis.

Use in shock

In the treatment of shock, monitor blood pressure frequently. Widening of the pulse pressure is correlated with an increase in stroke volume or cardiac output.

Effects on fertility

No studies examining the effect of "TBSF" (20%) Human Albumin Solution on fertility have been conducted.

Use in pregnancy

Reproductive toxicity studies with "TBSF" (20%) Human Albumin Solution in animals have not been conducted. Such studies are impracticable due to the development of antibodies to human albumin in animal models.

The use of "TBSF" (20%) Human Albumin Solution in human pregnancy has not been established in controlled clinical trials; therefore, it should be given to pregnant women only if clearly needed.

Use in lactation

Like endogenous serum albumin, "TBSF" (20%) Human Albumin Solution may be excreted in milk. No safety information is available.

Paediatric use

There have been no specific clinical studies of "TBSF" (20%) Human Albumin Solution in children.

Use in the elderly

There have been no specific clinical studies of "TBSF" (20%) Human Albumin Solution in the elderly.

Genotoxicity

No genotoxicity studies have been conducted with "TBSF" (20%) Human Albumin Solution.

Carcinogenicity

No carcinogenicity studies have been conducted with "TBSF" (20%) Human Albumin Solution.

Effect on laboratory tests

Albumin is an endogenous plasma protein so no specific effects on laboratory tests are anticipated.

INTERACTIONS WITH OTHER MEDICINES

Hypotension has been reported in patients given albumin who are on Angiotensin-Converting Enzyme (ACE) inhibitors. The addition of other medicines to "TBSF" (20%) Human Albumin Solution has not been evaluated (see also **Compatibility with other fluids**).

ADVERSE EFFECTS

Adverse reactions to albumin solutions are uncommon and are usually mild and transient.

Adverse reactions reported with albumin solutions in general include hypotension, chills, fever and allergic reactions including anaphylaxis, urticaria, skin rashes, nausea, vomiting and increased salivation. Mild reactions such as mild hypotension, flushing headache, urticarial, fever, and nausea normally disappear rapidly when the infusion rate is slowed down or the infusion is stopped (see **Monitoring advice**).

Very rarely, severe allergic reactions such as anaphylactic shock may occur. In these cases, in the infusion should be stopped and an appropriate treatment should be initiated (see **PRECAUTIONS**).

Adverse events in clinical trials

Although formal clinical studies with Albumex® 20 have not been conducted to determine the frequency or severity of adverse events, results from studies with Albumex® 4 and 5 (4% and 5% albumin solutions respectively) may be applicable. The Saline versus Albumin Fluid Evaluation (SAFE) study (using Albumex 4%) was conducted by the Australian and New Zealand Intensive Care Society Clinical Trials Group. Adverse reactions by body system from the SAFE study comparing albumin and saline are provided in **Table 1.**

Table 1: Total adverse reactions reported from the SAFE study

Product	*Albumex® 4 (n = 3497)*	*Saline (n = 3500)*
Total adverse drug reactions	***22***	***14***
Hepatobiliary disorders		
ascites	-	1
Renal & urinary disorders		
hyperchloraemic acidosis	1	4
hypernatraemia	1	1
lactic acidosis	-	1
Respiratory, thoracic & mediastinal		
hypoxia	7	1
pleural effusion	-	1
pulmonary embolus	-	1
pulmonary oedema	12	3
Skin & subcutaneous tissue		
oedema	-	1
Vascular		
hypotension	1	-

In an earlier generation of Albumex®, when used in plasma exchange, 1% (1/99) of patients had a clinically significant increase in prothrombin time and there was a reduction in levels of potassium, calcium, bicarbonate, total serum protein concentrations and platelet count. These results could reasonably be expected in a plasma exchange procedure.

Post-marketing surveillance

Post-market reporting of adverse reactions in voluntary and from a population of uncertain size, and consequently it is not always possible to reliably estimate the frequency of these reactions or establish a causal relationship to product exposure.

Overall a low number of reports have been received for the current generation Albumex® 20 which primarily involve chills and fever. The main adverse reactions reported during routine surveillance for the current product are as follows: hypotension, hypertension, tachycardia, decreased oxygen saturation, dyspnoea, flushing, dizziness, chills, pyrexia and muscle spasms. Although true anaphylactic reactions are believed to occur rarely, no reports of anaphylaxis have been received.

DOSAGE AND ADMINISTRATION

This product should be administered by a medical practitioner only.

Dosage

Hypoproteinaemia in the acutely ill patient

The usual daily dose is 50–75 g human albumin (250–375 mL of "TBSF" (20%) Human Albumin Solution). The rate of administration should not exceed 2 mL per minute, as more rapid infusion may precipitate circulatory overload and pulmonary oedema.

The infusion of "TBSF" (20%) Human Albumin Solution is not justified in hypoproteinaemic states associated with chronic cirrhosis, malabsorption, protein losing enteropathies, pancreatic insufficiency or undernutrition.

Shock

The dose should be determined by the patient's condition and response to treatment. The usual initial dose of 20 g human albumin (100 mL of "TBSF" (20%) Human Albumin Solution) may be administered as a blood volume expander at a rate of 2 to 4 mL per minute.

The rate of infusion may be increased in emergencies and repeated in 15 to 30 minutes if necessary. The total dose should not exceed the level of albumin found in the normal individual i.e. about 2 g per kg body weight in the absence of active bleeding.

If concentrated albumin (>4–5%) is given, it should be accompanied by the intravenous infusion of a crystalloid solution. Failure to supply this additional fluid may lead to dehydration of the tissues.

The precise nature and strength of the crystalloid solution will depend on the requirements of the patient for electrolytes and fluid.

Burns

The usual dose is 20–80 g human albumin (100–400 mL of "TBSF" (20%) Human Albumin Solution) given daily at the rate of about 1 mL per minute.

Beyond 24 hours, "TBSF" (20%) Human Albumin Solution can be used to maintain plasma colloid osmotic pressure. A reasonable goal is the maintenance of a plasma albumin concentration of 25 g/L or a colloid osmotic pressure of 20 mmHg.

The continuing need for albumin is occasioned by losses from denuded areas and decreased albumin synthesis.

Administration

"TBSF" (20%) Human Albumin Solution should always be administered by intravenous (IV) infusion using appropriate IV administration equipment. "TBSF" (20%) Human Albumin Solution is packaged in a glass bottle that must be vented during use.

In some cases a dose of albumin is added to a suitable crystalloid solution in the proportion of 1 mL "TBSF" (20%) Human Albumin Solution to 4 mL crystalloid solution (see **PRECAUTIONS, Dilution of concentrated Albumin 20%**) and administered by the usual intravenous technique.

If the product was stored in the refrigerator it should be allowed to reach room temperature or body temperature before administration. Do not use the product if it has been frozen.

It is strongly recommended that every time "TBSF" (20%) Human Albumin Solution is administered to a patient, the name and batch number of the product be recorded in order to maintain a link between the patient and the batch of the product.

The following procedure is recommended for the 50 mL and 100 mL pack size:

1. Remove the plastic cover from the seal.
2. Apply a suitable antiseptic to the exposed part of the rubber stopper and allow to dry.
3. Stand the bottle upright and insert the air vent needle vertically in one of the indentations of the stopper. It is preferable to use a long airway needle fitted with a filter. If not available, a short needle attached to a non-wettable filter may be used.
4. Clamp the tubing of the giving set and insert the perforator vertically through one of the indentations of the stopper. **Should the stopper become dislodged, do not use this bottle and discard the solution appropriately.**
5. Invert the bottle and attach the hanger to a support approximately one metre above the patient.
6. Allow the tubing to fill by adjusting the clamp. Insert the giving set needle into a vein and adjust the rate of flow.
7. When the bottle is empty, clamp the tubing and transfer the air vent needle and the needle at the upper end of the giving set to a further bottle of "TBSF" (20%) Human Albumin Solution or to a bottle containing a crystalloid solution, according to requirements.

8. **Should leakage become evident during administration, cease the infusion and discard the solution appropriately. Recommence the infusion with a new bottle and giving set.**

Compatibility with other fluids

The addition of other drugs to "TBSF" (20%) Human Albumin Solution has not been evaluated.

"TBSF" (20%) Human Albumin Solution should not be mixed with protein hydrolysates, amino acid solutions, solutions containing alcohol, or solutions containing drugs that bind to albumin e.g. calcium channel blockers, antibiotics and benzodiazepines.

OVERDOSAGE

Excess human albumin may lead to circulatory overload (see **PRECAUTIONS**).

PRESENTATION AND STORAGE CONDITIONS

"TBSF" (20%) Human Albumin Solution is issued in two sizes:

- 10 g of human albumin in 50 mL of electrolyte solution;
- 20 g of human albumin in 100 mL of electrolyte solution.

Store below 30°C (Do not freeze). Protect from light. Do not use after the expiry date.

NAME AND ADDRESS OF THE MANUFACTURER

CSL Behring (Australia) Pty Ltd
189–209 Camp Road
Broadmeadows VIC 3047
Australia

NAME AND ADDRESS OF THE DISTRIBUTOR

Taiwan Blood Services Foundation
3 Fl. No. 3 Nan-Hai Road
Taipei 100
Taiwan, R.O.C.
(02) 23511600

"國血製劑益康"(20%) 人血清白蛋白注射劑

“TBSF” (20%) Human Albumin Solution

人血清白蛋白 20% 200 克/公升 (g/L)

台灣 **衛署菌疫輸字第 000842 號**

成分名稱

人血清白蛋白，靜脈注射劑

說明

本產品係配合衛生福利部執行「推動我國血漿製劑方案」所製造，是由台灣自願、無償捐血者捐血之血漿原料，經製備而得之人血清白蛋白注射劑。

“國血製劑益康”(20%)人血清白蛋白注射劑為澄清、微黏稠液體，幾乎為無色、黃色、琥珀色、或綠色。主要以採用管柱層析技術製備而成。此為無菌、不含防腐劑的 20% w/v人類白蛋白溶液，相較於人血清屬於高膠體滲透壓與低滲透性溶液。本產品標記之滲透壓為 130 mOsm/kg ，為低張溶液，其 pH 值為 6.7 至 7.3。“國血製劑益康”(20%)人血清白蛋白注射劑之製程包含專作為降低病毒傳染可能性之步驟，包括經 60°C 下加熱 10 小時，並在低 pH 值下放置以去除病毒活性。“國血製劑益康”(20%)人血清白蛋白注射劑的組成如下：

人類白蛋白	200 克/公升 (g/L)
鈉	48-100 毫莫耳/公升 (mmol/L)
Octanoate	32 毫莫耳/公升 (mmol/L)

藥理學

白蛋白占血漿中蛋白質含量的半數以上，亦反映肝臟約 10%的蛋白質合成之活性。白

蛋白在體內的代謝半衰期約 19 日，成人的汰換率約每日 15 克。血管內和血管外的白蛋白交換速率很快速。

“國血製劑益康”(20%)人血清白蛋白注射劑有二個主要的功能：可維持血漿的膠體滲透壓及在交換和運輸組織代謝物過程中攜帶中間產物。

人類白蛋白用於輸液復甦的效益被認為主因於對膠體滲透壓的貢獻。(亦即 oncotic pressure)

“國血製劑益康”(20%)人血清白蛋白注射劑為含有較高膠體滲透壓的人類血清，其膠體滲透壓約和人類血漿的 4 倍體積等值。

適應症

低蛋白血症、休克、燒傷

適應症說明

急病患者的低蛋白血症

當病患因膠體滲透壓降低而引起臨床問題或併發症，可給予”國血製劑益康”(20%)人血清白蛋白注射劑作為利尿之輔助治療。

休克

“國血製劑益康”(20%)人血清白蛋白注射劑可以用來復甦因急性失血或流失血漿導致之休克，但應優先給予 4～5% 的人類白蛋白為宜。

燒傷

大範圍灼傷會伴隨身體水份、鹽類及蛋白質之分佈失調，而導致病患引起血液容積減少性休克及循環衰竭。

在一開始的 24 小時，血管滲透性會增加並導致水份及蛋白質流失至血管外區間及血濃度增加。應灌注大量的晶體溶液以復原壓縮的血管內液體空間，少量的”國血製劑益康”(20%)人血清白蛋白注射劑可以維持適當的血漿容積及膠體滲透壓。

禁忌

如過去曾對此產品過敏，請勿使用“國血製劑益康”(20%)人血清白蛋白注射劑。白蛋白禁用於心臟衰竭、肺水腫及嚴重貧血的病人。

“國血製劑益康”(20%)人血清白蛋白注射劑並未被證實適用於慢性肝硬化、吸收障礙、腸道蛋白質流失、胰臟功能不全及營養不良所引起的低蛋白血症。

慢性腎病注入 20% 的白蛋白溶液，會迅速地被腎臟排出而無法解除慢性水腫。

特殊警語

本產品的鈉含量為 48-100 毫莫耳/公升 (mmol/L)，使用本產品時應注意有鈉限制的病患。

白蛋白的給予會加重休克病人的心肌抑制。曾有報告指出，燒傷病人給予白蛋白後出現頑固性的少尿症，可能是因為同時給予的晶體輸液不足。

“國血製劑益康”(20%)人血清白蛋白注射劑正常的情況是透明或稍微帶些乳白色，若在透射光下觀察到混濁的情形則不應使用，應將此瓶產品維持封瓶狀態退至標籤上標示的代理商。

本產品不含任何抗微生物防腐劑，因此，在開瓶後應馬上使用。任何未用完的溶液應妥善丟棄處理。每次僅可使用於單一病人。切勿使用曾經被冷凍過的溶液。

過敏反應

當給予人類白蛋白溶液很少發生過度敏感反應，因為產品係源自人體。若因是注射“國血製劑益康”(20%)人血清白蛋白注射劑之故引起嚴重過敏反應，應停止注射，並且應適

當地給予腎上腺素、氫皮質酮(hydrocortisone)及抗組織胺。

循環系統負荷過重

“國血製劑益康”(20%)人血清白蛋白注射劑的膠體滲透效應約是血漿的 4 倍，應隨時監測病人是否有循環系統負荷過重的症狀(請見以下**監測建議**之章節)。

若劑量及注射速率不依照病人循環情況調整，則有心衰竭、肺水腫病史，或腎功能不全、嚴重或慢性貧血或進行心肺分流術的病患，有較高的風險會發生循環系統負荷過重。應小心病人監控這些潛在的併發症。

當出現循環系統負荷過重的初期臨床徵兆(頭痛、呼吸困難、頸靜脈鬱血)或血壓增加或與肺水腫相關之靜脈壓上升，應立即停止注射。

在脫水狀況下，因“國血製劑益康”(20%)人血清白蛋白注射劑是高膠體滲透壓，本產品應和晶體輸液同時給予，或於之後補充晶體輸液。(請見以下 **20%白蛋白的稀釋**的章節)

因快速給予白蛋白可能伴隨的血壓升高，使得有必要觀察受傷病患以檢視因血壓較低時不會流血的出血點，否則，可能會發生新的出血及休克。

不建議白蛋白用於創傷性腦損傷病患之輸液復甦。

慢性腎病注入 20% 的白蛋白溶液，會迅速地被腎臟排出而無法解除慢性水腫。

監測之建議

建議應監測病患在“國血製劑益康”(20%)人血清白蛋白注射劑給予期間的血壓。

為避免循環負荷過重，應頻繁地監測注射的速率及體積。

應監測心肌功能，如中央靜脈壓、動脈壓及脈搏速率。

建議應監測血漿電解質、凝血酶原時間、生化及血液學狀態。

“國血製劑益康”(20%)人血清白蛋白注射劑包含少量鋁元素(≤200 微克/ 公升)。患有慢性腎功能不全的病患，體內累積鋁會產生中毒現象，如高血鈣症、抗維生素 D 之骨骼發育不全、貧血及嚴重的漸進性腦病。因此當大量白蛋白給予此種病人時，應嚴謹考慮由此獲得的益處以及相對引發的潛在風險性。

注意事項

本品係由人類血漿製得，自人類血漿所製得之產品，可能存在著某些感染原，例如致病性之病毒和庫賈氏病 (Creutzfeldt-Jakob Disease, CJD)之病原；藉由篩檢血漿之捐血者，檢驗某些現有病毒感染原標記，即可降低此產品傳染感染原之危險性。

此外，生產過程包括病毒去除/去活化步驟。本產品製造過程所採用的方法，可有效地對抗含外套膜的病毒，如 HIV (人類免疫缺乏病毒)、B 型及 C 型肝炎病毒，及不含外套膜的 A 型肝炎病毒。這些方法可顯著地確保免除 parvovirus B19。

惟縱然採取上述措施，此類產品仍有可能存在某些未知的感染原。因此注射本產品後，若有感染之病人，均應直接向診療醫師及製造廠或代理商報告。請與你的醫師討論使用此產品之風險及利益。

使用血漿製品時可考慮給予疫苗之注射。

20%白蛋白的稀釋

在給予病患之前，“國血製劑益康”(20%)人血清白蛋白注射劑可稀釋成等膠體滲透壓之蛋白質溶液(4 ~ 5% 白蛋白)，其比例為 1 mL”國血製劑益康”(20%)人血清白蛋白注射劑

比 4 mL 晶體溶液，再以平常的靜脈注射法給予。不可用水來稀釋，因為其低滲透壓會導致血管內溶血。

休克時的使用

在休克時的使用上，應隨時監測血壓，脈搏壓變寬和心肌的輸出量有關。

對生育能力的影響

尚未有研究調查“國血製劑益康”(20%)人血清白蛋白注射劑對生育能力之影響。

懷孕期的使用

尚未有“國血製劑益康”(20%)人血清白蛋白注射劑在動物生殖毒性的研究。因為在動物模式中會對人類白蛋白產生抗體而無法進行此研究。

在懷孕期間使用“國血製劑益康”(20%)人血清白蛋白注射劑，尚未建立於對照臨床試驗中確立，因此，如有明確的需要才可給予孕婦。

哺乳期的使用

與內生性血清白蛋白相似，“國血製劑益康”(20%)人血清白蛋白注射劑可能分泌至乳汁。尚無此方面的安全資訊。

小兒的使用

“國血製劑益康”(20%)人血清白蛋白注射劑尚未有專為小兒的臨床研究。

老年人的使用

“國血製劑益康”(20%)人血清白蛋白注射劑尚未有專為老年人的臨床研究。

基因毒性

尚未有“國血製劑益康”(20%)人血清白蛋白注射劑的基因毒性研究。

致癌性

尚未有“國血製劑益康”(20%)人血清白蛋白注射劑的致癌性研究。

實驗室檢驗的影響

白蛋白是內生性的血漿蛋白質，因此預期不會有對實驗室檢驗的特別影響。

與其他藥物的交互作用

曾有報告指出正在服用 ACE(Angiotensin-Converting Enzyme 血管收縮素轉換酵素)抑制劑的病患，在給予白蛋白後出現低血壓。加入其他藥物至“國血製劑益康”(20%)人血清白蛋白注射劑則未評估。(請見**和其他液體的相容性**)

不良反應

對白蛋白溶液的不良反應並不常見，且通常為輕微及短暫的。

報告指出白蛋白溶液的不良反應一般包括低血壓、發冷、發燒及過敏反應包含急性嚴重過敏反應、蕁麻疹、皮膚疹、噁心、嘔吐和唾液分泌增加。當降低注射速率或停止注射，輕微反應如輕微低血壓、面潮紅、頭痛、蕁麻疹、發燒、噁心通常會迅速消失(請見**監測建議**之章節)。
雖然非常罕見，但嚴重過敏反應例如過敏性休克仍可能會發生。一旦發生應停止注射，並且應啟動適當的處理。(請見**特殊警語**之章節)

臨床試驗之不良反應

雖然未以 Albumex® 20 進行正式臨床試驗評估不良反應發生的頻率及嚴重性，但以

Albumex® 4 and 5(分別為 4%及 5%白蛋白溶液)進行的研究結果仍可適用。澳洲及紐西蘭重症照護協會臨床研究組曾進行生理食鹽水對照白蛋白溶液的評估試驗(SAFE)。自該比較白蛋白與生理食鹽水試驗(SAFE)所統計之不良反應如**表一**。

表一：SAFE 試驗之不良反應

產品	***Albumex® 4 (n = 3497)***	***生理食鹽水 (n = 3500)***
不良反應總數	***22***	***14***
肝膽疾病		
腹水	-	1
腎臟及泌尿疾病		
高氯血性酸中毒	1	4
高鈉血症	1	1
乳酸性酸中毒	-	1
呼吸、胸、縱隔		
缺氧	7	1
胸水	-	1
肺栓塞	-	1
肺水腫	12	3
皮膚及皮下組織		
水腫	-	1
血管		
低血壓	1	-

在前一代的 Albumex®，當使用於血漿交換術，1%(1/99)的病人在臨床上顯著增加凝血酶原時間，且發生鉀、鈣、碳酸氫鈉、血清總蛋白質濃度、血小板數量之下降。這些結果在血漿置換術被合理預期會發生。

上市後監控

上市後不良反應來自主動通報且其母群體數量未知，因此這些不良反應發生頻率難以正確估計且無法確認是否具因果關係。

在這一代 Albumex® 20 發生不良反應的總體次數是很低的，初期涉及發冷及發燒。在例行監控所發生的主要不良反應包含低血壓、高血壓、心搏過速、血氧飽和度下降、呼吸困難、面潮紅、頭昏、發冷、發熱及肌肉痙攣。雖然真正的嚴重過敏反應係為罕見，但從未接獲嚴重過敏反應報告。

劑量及用法

本藥限由醫師使用

劑量

急性病人的低蛋白血症

一般的每日劑量為 50～75 克人類白蛋白(250-375 mL 之“國血製劑益康”(20%)人血清白蛋白注射劑)。給予的速度每分鐘不應超過 2 毫升，若是注入速度超過此限，將會導致循環負荷過重及肺部水腫。

“國血製劑益康”(20%)人血清白蛋白注射劑並未被證實適用於慢性肝硬化、吸收障礙、腸道蛋白質流失、胰臟功能不全及營養不良所引起的低蛋白血症。

休克

藥量因病患的情況及治療的反應而異。一般的開始劑量 20 克人類白蛋白(100mL 之“國血製劑益康”(20%)人血清白蛋白注射劑)應當做血液體積的擴張劑來給予，每分鐘 2～4 毫升。

緊急的情況時可增加輸注速度，如有需要可以每 15 到 30 分鐘重複一次。當沒有主動

出血時，總劑量不應超過一般正常個體的白蛋白總量，即約為每公斤體重 2 克。

如果給予濃縮的白蛋白(>4 ~ 5%)，則必須伴隨晶體溶液的靜脈注射，若是未補充此額外的溶液，則會造成組織脫水。

晶體溶液正確的種類和濃度依病患對電解質和液體的需要而有所不同。

燒傷

一般的劑量是每日給予 20 到 80 克人類白蛋白(100-400 mL 之“國血製劑益康”(20%)人血清白蛋白注射劑)。注入速度為每分鐘 1 毫升。

24 小時後，“國血製劑益康”(20%)人血清白蛋白注射劑就可用來維持血漿膠體滲透壓。合理的目標是血漿的白蛋白濃度要維持在 25 克/公升或膠體滲透壓為 20 毫米汞柱。

因應白蛋白自燒傷的裸露區域流失和合成減少，以決定持續需要白蛋白之使用。

使用說明

“國血製劑益康”(20%)人血清白蛋白注射劑應使用適當的靜脈注射設備，作靜脈點滴注射。“國血製劑益康”(20%)人血清白蛋白注射劑是包裝於玻璃瓶內，使用時必須排氣。

在某些病例，給予一特定劑量的白蛋白加在合適的晶體溶液中，其比例為 1 毫升”國血製劑益康”(20%)人血清白蛋白注射劑比 4 毫升晶體溶液，再以平常的靜脈注射法給予。(請見特殊警語 ***20%白蛋白的稀釋***的章節)

若產品保存在冷藏室，應回復至室溫或體溫後再給予；若曾冷凍過，請勿使用。

強烈建議每次注射“國血製劑益康”(20%)人血清白蛋白注射劑時，應記錄品名、批號以連結病人及該批產品。

下列調配步驟適用於 50 毫升和 100 毫升的包裝：

1. 自封口處移去塑膠蓋。
2. 在橡皮塞的外露部分給予適當的消毒，並待其乾燥。
3. 使瓶身保持直立，並在橡皮塞的一凹痕處垂直插入排氣針，最好是一個附有過濾器的長針。如果沒有，也可以使用附有非濕性過濾器的短針。
4. 夾緊點滴管，將點滴穿刺針垂直地插入橡皮塞的一凹痕處。**若此橡皮塞移位或鬆動，請勿使用此瓶並適當地丟棄之。**
5. 倒轉瓶身，掛在支撐架的掛鉤上，約高於病人 1 公尺。
6. 調整夾子使點滴管充滿液體，將點滴用的套針插入靜脈血管，並調整流速。
7. 當瓶內無液體後，夾住點滴管，根據需要將排氣針及點滴套組上端的針移到另一瓶“國血製劑益康”(20%)人血清白蛋白注射劑或晶體溶液。
8. **給予時若滲漏變得明顯，應停止注射並適當地丟棄此溶液，再重新給予新的藥瓶及新的點滴套組。**

和其他液體的相容性

尚未評估加入其他藥物至“國血製劑益康”(20%)人血清白蛋白注射劑。

“國血製劑益康”(20%)人血清白蛋白注射劑不可和蛋白質水解物、胺基酸溶液、含酒精溶液或含與白蛋白可結合的藥物混合，如鈣離子通道阻斷劑、抗生素及苯二氮平類藥物。

過量使用

過量的人類白蛋白會導致循環負荷過重。(請見**特殊警語)**

包裝形式及儲存條件

“國血製劑益康”(20%)人血清白蛋白注射劑有二種規格：

- 10 克人類白蛋白溶於 50 毫升電解質溶液。
- 20 克人類白蛋白溶於 100 毫升電解質溶液。

儲存在 30°C 以下(不可冷凍)。應防止光線照射。超過保存期限者請勿使用。

製造廠

CSL Behring (Australia) Pty Ltd
189–209 Camp Road
Broadmeadows VIC 3047
Australia

藥 商

醫療財團法人台灣血液基金會

台北市中正區南海路三號 3 樓

(02) 23511600

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