Albuked™ 5

DESCRIPTION

Albuked (Human) 5%, USP (Albuked™ 5) is made from pooled human venous plasma using the Cohn cold ethanol fractionation process. Part of the fractionation may be performed by another licensed manufacturer. It is prepared in accordance with the applicable requirements established by the U.S. Food and Drug Administration. Albuked 5 is a 5% sterile solution of albumin in an aqueous diluent. The preparation is stabilized with 0.004 M sodium caprylate and 0.004 M acetyltryptophan. The approximate sodium content of the product is 145 mEq/L. It contains no preservative. Albuked 5 must be administered intravenously.

Each vial of Albuked 5 is heat-treated at 60°C for 10 hours against the possibility of transmitting the hepatitis viruses.

Additionally, the manufacturing process was investigated for its capacity to decrease the infectivity of an experimental agent of transmissible spongiform encephalopathy (TSE), considered as a model for the variant Creutzfeldt-Jakob disease (vCJD) and Creutzfeldt-Jakob disease (CJD) agents.6,7,8 The production steps from Pooled Plasma to Effluent IV-1 in the Albuked 5 manufacturing process have been shown to decrease TSE infectivity of that experimental model agent (a total of ~7.0 logs). These studies provide reasonable assurance that low levels of vCJD/CJD agent infectivity, if present in the starting material, would be removed.

CLINICAL PHARMACOLOGY

Albuked 5 is oncotically equivalent volume for volume to normal human plasma.

When administered intravenously to an adequately hydrated subject, the oncotic (colloid osmotic) effect of Albuked 5 is to expand the circulating blood volume by an amount approximately equal to the volume infused. It is primarily used in the treatment of shock associated with hemorrhage, surgery, trauma, burns, bacteriaemia, renal failure, and cardiovascular collapse. Albuked 5 is a transport protein and it may be useful in severe jaundice in hemolytic disease of the newborn.7 This could also be of importance in acute liver failure where albumin might serve the dual role of supporting plasma oncotic pressure, as well as binding excessive plasma bilirubin.9

INDICATIONS AND USAGE

Emergency Treatment of Hypovolemic Shock

Albuked 5 is iso-oncotic with normal plasma and on intravenous infusion will expand the circulating blood volume by an amount approximately equal to the volume infused. In conditions associated mainly with a volume deficit, albumin is to be administered as a 5% solution (Albuked 5), but where there is an oncotic deficit, Albuked (Human) 25%, USP (Albuked™ 25) may be preferred. This is also an important consideration where the treatment of the shock state has been delayed. If Albuked 25 is used, appropriate additional crystalloid should be administered.6

Crystalloid solutions in volumes several times greater than that of Albuked 5 may be effective in treating shock in younger individuals who have no preexisting illness at the time of the incident. Older patients, especially those with preexisting debilitating conditions, or those in whom the shock is caused by a medical disorder, or where the state of shock has existed for some time before active therapy could be instituted, may not tolerate hypalbuminemia as well.8 Removal of asotic fluid from a patient with cirrhosis may cause changes in cardiovascular function and even result in hypovolemic shock. In such circumstances, the use of albumin infusion may be required to support the blood volume.1

Burn Therapy

An optimal therapeutic regimen with respect to the administration of colloids, crystalloids, and water following extensive burns has not been established. During the first 24 hours after sustaining thermal injury, large volumes of crystalloid are required to replace the depleted extracellular fluid volume. Beyond this, additional albumin can be used to maintain plasma colloid osmotic pressure. Albuked 25 may be preferred for this purpose.1

Cardiopulmonary Bypass

With the relatively small priming volume required with modern pumps, preoperative dilution of the blood using albumin and crystalloid has been shown to be safe and well-tolerated. Although the limit to which the hematocrit could be lowered for the management of certain conditions, it is common practice to adjust the albumin and crystalloid pump prime to achieve a hematocrit of 20% and a plasma albumin concentration of 2.5 g per 100 mL in the patient.

Acute Liver Failure

In the uncommon situation of rapid loss of liver function, with or without coma, administration of albumin may serve the double purpose of supporting the colloid osmotic pressure of the plasma as well as binding excessive plasma bilirubin.2

Sequestration of Protein Rich Fluids

This occurs in such conditions as acute peritonitis, pancreatitis, mediatinitis, and extensive cellulitis. The magnitude of loss into the third space may require treatment of reduced volume or oncotic activity with an infusion of albumin.2

Situations In Which Albumin Administration is Not Warranted

In chronic nephrosis, infused albumin is promptly excreted by the kidneys with no relief of the chronic edema or effect on the underlying renal lesion. It is of occasional use in the rapid “priming” diuresis of nephrosis. Similarly, in hypoproteinemic states associated with chronic cirrhosis, malabsorption, protein losing enteropathies, pancreatic insufficiency, and undernutrition, the infusion of albumin as a source of protein nutrition is not justified.

CONTRAINDICATIONS

Certain patients, e.g., those with a history of congestive cardiac failure, renal insufficiency or stabilized chronic insufficiency, and undernutrition, the infusion of albumin as a source of protein nutrition is not justified.

WARNINGS

Albuked 5 is made from human plasma. Products made from human plasma may contain infectious agents, such as viruses, and, theoretically, the Creutzfeldt-Jakob Disease (CJD) agent that can cause disease. The theoretical risk for transmission of CJD is considered extremely remote. No cases of transmission of viral diseases or CJD have ever been identified for albumin. The risk that such products will transmit an infectious agent has been reduced by screening plasma donors for prior exposure to certain viruses, by testing for the presence of certain current virus infections, and by inactivating and/or removing certain viruses. Despite these measures, such products can still potentially transmit disease. There is also the possibility that unknown infectious agents may be present in such products.
the relative anemia associated with hemodilution. In hemorrhage, the administration of albumin should be supplemented by the transfusion of whole blood to treat additional crystalloids should be administered, if required by the patient, to maintain normal fluid balance.

In hemorrhage, the administration of albumin should be supplemented by the transfusion of whole blood to treat the relative anemia associated with hemodilution. When circulating blood volume has been reduced, hemodilution follows the administration of albumin for many hours. In patients with a normal blood volume, the clinical effects of hemodilution lasts for a much shorter period. The rapid rise in blood pressure, which may follow the administration of a crystalloid with positive oncotic activity, necessitates careful observation to detect and treat severe blood vessels which may not have bled at the lower blood pressure.

Drug Interactions

Albuked 5 is compatible with whole blood and packed red cells, as well as the standard carbohydrate and electrolyte solutions intended for intravenous use. It should not be mixed with protein hydrolysates, amino acid solutions nor those containing alcohol.

Pediatric

Safety and effectiveness in the pediatric population have not been established.

ADVERSE REACTIONS

Adverse reactions to albumin are rare. Such reactions may be allergic in nature or be due to high plasma protein levels following excessive albumin administration. Allergic manifestations include urticaria, chills, fever, and changes in respiration, pulse and blood pressure.

DOSAGE AND ADMINISTRATION

Albumin should always be administered by intravenous infusion. The choice between the use of Albuked 5 and Albumin (Human) 25% USP (Albuked® 25) depends upon whether the patient requires primarily volume (Albumin) or primarily colloid osmotic activity (Albuked 5). Since both total serum protein concentration of 5.2 g per 100 mL) there is evidence which suggests that the risk of complication increases when the oncotic pressure is <20 mm Hg (equivalent to a total serum protein concentration of 2.5 g per 100 mL). This is best achieved by the intravenous administration of Albuked, usually as Albuked 25. The duration of therapy is decided by the loss of protein from burned areas and the resultant increase in plasma colloid osmotic pressure. The aim should be to maintain the plasma albumin concentration at the level of 0.5 to 1.0 g albumin/kg body weight.

Dosage

The volume administered and the speed of administration should be adapted to the response of the individual patient. A number of factors beyond our control could reduce the efficacy of this product or even result in an ill effect following its use. These include improper storage and handling of the product after it leaves our hands, diagnosis, dosing, method of administration, and biological differences in individual patients. Because of these factors, it is important that this product be stored properly and that the directions be followed carefully during use.

Hypovolemic Shock

The volume infused should be related to the estimated volume deficit and the speed of administration adapted to the response of the patient. In neonates or infants, Albuked 5 may be given in large amounts. The recommended dose is 10 to 20 mL/kg equivalent to 0.5 to 1.0 g albumin/kg body weight.

Burns

After a burn injury (usually beyond 24 hours) there is a close correlation between the amount of albumin infused and the resultant increase in plasma colloid osmotic pressure. The aim should be to maintain the albumin concentration in the region of 2.5 - 3.0 g per 100 mL with a plasma oncotic pressure of 20 mm Hg (equivalent to a total serum protein concentration of 2.5 - 3.0 g per 100 mL). This is best achieved by the intravenous administration of Albuked, usually as Albuked 25. The duration of therapy is decided by the loss of protein from burned areas and in the urine. In addition, oral or parenteral feeding with amino acids should be initiated, as the long-term administration of albumin should not be considered as a source of nutrition. Other dosage recommendations are given under the specific indications referred to above.

Preparation for Administration

Remove seal to expose stopper. All vials should be examined for defects. Rubber-stoppered vials should be used. All rubber-stoppered vials should be used. All patients should be carefully observed for signs and/or symptoms of anaphylactic shock or other allergic reaction. If such symptoms occur, administration should be discontinued immediately. Remove seal to expose stopper. Alternate methods of administration include the use of an electric injection pump or an infusion pump. Use of Albuked 5 does not replace the need for careful monitoring of patients with burns. Albuked 5 should always be administered by the intravenous route. Albuked 5 is compatible with whole blood and packed red cells, as well as the standard carbohydrate and electrolyte solutions intended for intravenous use. It should not be mixed with protein hydrolysates, amino acid solutions nor those containing alcohol.

HOW SUPPLIED

Albuked 5 is available in 50 mL and 250 mL rubber-stoppered vials. Each single dose vial contains albumin in the following approximate amounts:

<table>
<thead>
<tr>
<th>NDC Number</th>
<th>Size</th>
<th>Grams Albumin</th>
</tr>
</thead>
<tbody>
<tr>
<td>76125-785-05</td>
<td>50 mL</td>
<td>25 g</td>
</tr>
<tr>
<td>76125-785-25</td>
<td>250 mL</td>
<td>125 g</td>
</tr>
</tbody>
</table>

STORAGE

Store at room temperature not exceeding 30°C (86°F). Do not freeze. Do not use after expiration date.

CAUTION

U.S. federal law prohibits dispensing without prescription.

REFERENCES