Biotest

From Nature for Life

Pentaglobin®

Increases chances – prevents risks

For better results in treatment of severe bacterial infections such as secondary peritonitis.

Clinical studies show: Pentaglobin® (ivIgGMA) reduces the mortality rate

Characterisation of secondary diffuse peritonitis

Infections inside the peritoneum may run different courses, diffuse or localised. The secondary diffuse peritonitis, which usually occurs due to the aerobic and anaerobic Gram-negative bacteria (e.g. E. coli), changes over flowingly to sepsis.

Secondary forms are caused above all through perforation of a hollow organ, through post-operative insufficiency of anastomosis, ischemic necrosis of the intestinal wall or infections of intra-abdominal organs. These pose for surgeons and intensivists a big challenge.

Recently published epidemiological investigations on sepsis in Germany and in the USA stated, that the incidence of peritonitis among sepsis patients lay between 25 und 30 % (Engel et al., 2007, Martin et. al., 2006). The mortality rate in this patient group is about 40–50 % according to the literature.

The therapy

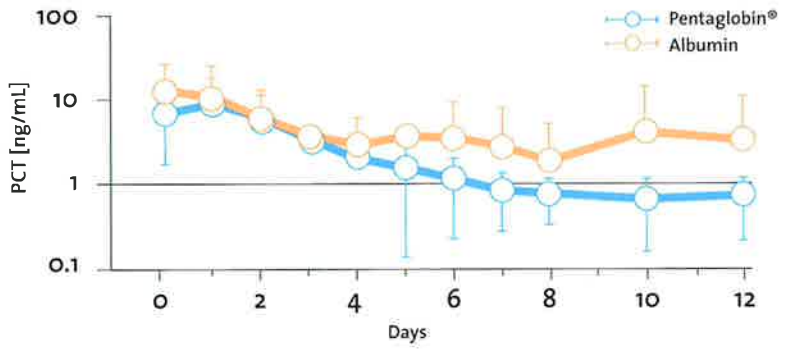
The therapy of diffuse peritonitis is based first and foremost on **surgical treatment.** One of the main pillars of this therapy is the **early appropriate antibiotic therapy,** which is crucial for reducing the risk of mortality.

Beside the standard intensive therapy, in recent years adjunctive sepsis therapies have been used successfully, such as the therapy with the endotoxin-neutralising, **IgM-enriched immunoglobulins** (ivIgGMA).

Pentaglobin® – positively influencing the PCT serum level

Procalcitonin (PCT) is a new diagnostic marker for the identification of systemic bacterial infections. PCT is not detectable in non-bacterial or localised infections. The PCT serum level correlates with the severity of infection (Brunkhorst et al., 2000).

The influence of IgM-enriched immunoglobulin preparation (Pentaglobin®) on the PCT serum level in patients with postoperative, intra-abdominal infection has been investigated in a prospective, randomised, controlled study (Reith et al., 2004). It has been found that the PCT serum level under therapy with Pentaglobin® during the first six days declined significantly, while it stayed above the normal level in the albumin treated group.

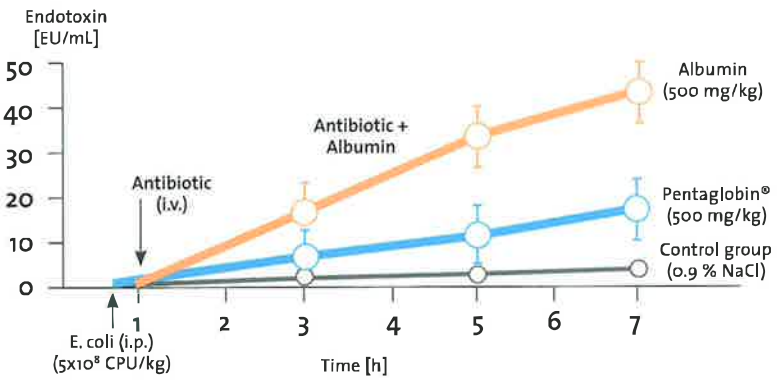


The changing of PCT serum level is clearly visible

Pentaglobin® – for measurable endotoxin neutralisation

The endotoxin neutralising effect of Pentaglobin® after E. coli infection and subsequent to antibiotics application has been successfully investigated (Oesser et al., 1999).

The antibiotically induced increase of circulating endotoxin level could be reduced significantly by prophylactic application of Pentaglobin® ($p < 0.01$).



Visible success: neutralisation of antibiotically liberated endotoxin with Pentaglobin®

Pentaglobin® – the result of the clinical study tells its own tail

The efficacy of Pentaglobin® has been proven in a prospective, placebo-controlled, randomised, double-blind and multi-centre clinical study of intensive care patients with a diffuse secondary peritonitis after an abdominal surgical operation (Rodriguez et al., 2005).

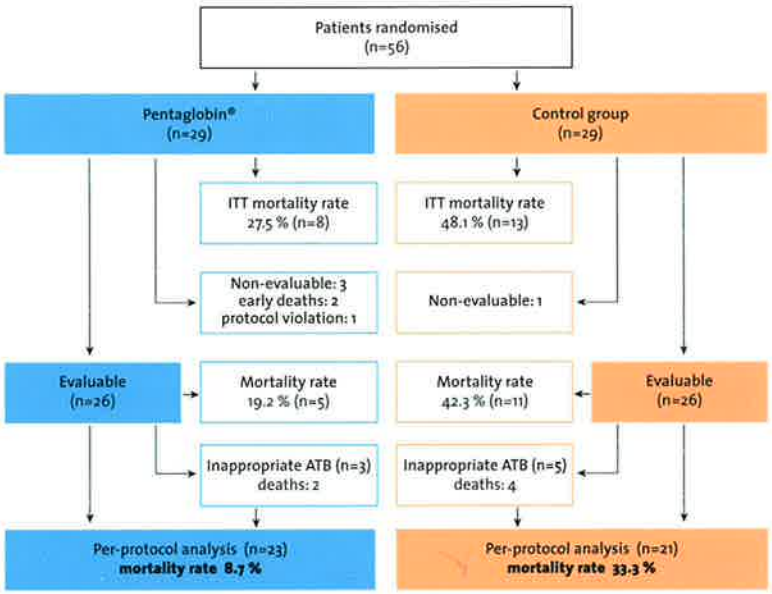
The dosage of Pentaglobin® was higher then the commonly recommended standard dosage and amounted to 7 mL/kg body weight each day for 5 consecutive days.

Appropriate initial therapy with antibiotics reduced the absolute mortality rate strikingly by 67.1 %.

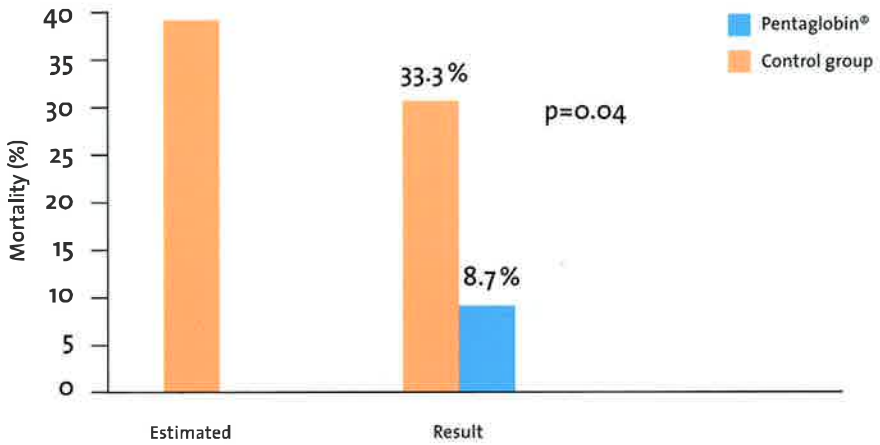
Pentaglobin® reduces mortality rate

The adjunctive therapy with Pentaglobin® reduced the mortality rate in the "intention-to-treat" analysis by 20 %.

In the per-protocol analysis (excluding the patients not complying with the protocol and without appropriate antibiotic therapy), the mortality rate was reduced by 25 % (control group = 33.3 % and Pentaglobin® group = 8.7 %; p = 0.04)



The course of the study points out the positive effect of Pentaglobin® on the mortality rate (ITT=intention-to-treat; ATB=Antibiotic therapy)



Successful combination for the therapy of secondary diffuse peritonitis: appropriate antibiotics plus Pentaglobin®

Pentaglobin®

The adjunctive therapy for patients with secondary diffuse peritonitis.

With this therapy you can increase their survival chances.

References:

Engel C et al. Intensive Care Med. (2007); 33: 606–618
Brunkhorst FM et al. Intensive Care Med. (2001); 26: 148–152
Martin G Crit. Care Med. (2006); 34: 15–21
Oesser S et al. Res. Exp. Med. (1999); 198: 325–339
Reith H et al. Eur. J. Med. Res. (2004); 9: 1–6
Rodriguez A et al. Shock (2005); 23: 298–304

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Pentaglobin®

The IgM-enriched antibody preparation

Pentaglobin® combines the active principles for the treatment of bacterial/toxic inflammatory reactions:

- Bactericidal effect due to natural antibacterial antibodies
- Enhancement of the phagocytosis of pathogens
- Neutralisation of bacterial toxins
- Modulation of the systemic cytokine network
- Scavenging of activated complement factors

Composition Active ingredients: 1 mL solution contains: Human plasma protein 50 mg of which immunoglobulin at least 95 %, IgM 6 mg, IgA 6 mg, IgG 38 mg **Other constituents:** Glucose monohydrate (27.5 mg/mL), sodium chloride (78 µmol/mL), water for injections (ad 1 mL) **Therapeutic indications:** Adjuvant therapy of severe bacterial infections additional to antibiotic therapy. Immunoglobulin substitution in immunocompromised patients **Contraindications:** Intolerance to homologous immunoglobulins, especially in very rare cases of IgA deficiency, when the patient has antibodies against IgA **Undesirable effects:** Adverse reactions such as chills, headache, fever, vomiting, allergic reactions, nausea, arthralgia and mild back pain may occur occasionally. Rarely immunoglobulins may cause a fall in blood pressure and, in isolated cases, anaphylactic shock, even when the patient has shown no sensitivity to previous administration. Reversible aseptic meningitis and nephrotoxicity have occurred rarely. In case of adverse reactions either the rate of administration must be reduced or the infusion stopped until symptoms disappear. If severity of reactions persists after discontinuation of the infusion, appropriate treatment is recommended. In case of anaphylactic reaction or shock, treatment should follow the guidelines for shock therapy. Overdosage is possible in overweight and elderly subjects and in those who have impaired renal function (including diabetics at risk for renal failure). In patients with signs of cerebral or cardiac ischemia, the increase in viscosity caused by an immunoglobulin infusion may be a risk. In these patient groups, 5–6 % solutions should be used and no more than 0.4 g/kg infused daily. Creatinine levels should be measured for 3 days after IvIg infusion. When medicinal products prepared from human blood or plasma are administered, infectious diseases due to transmission of infective agents cannot be totally excluded. This also applies to pathogens of hitherto unknown nature. To reduce the risk of transmission of infective agents, selection of donors and donations by suitable measures is performed, plasma pools are tested, and virus removal/inactivation procedures are included in the production process. For the manufacture of Pentaglobin® only plasma is used which is obtained from healthy donors tested and found negative for HBsAg, for HCV antibodies, for HIV-1/2 antibodies, and showing no pathologically raised ALT-activity. Furthermore, only plasma pools tested and found negative for HBsAg, for HCV antibodies and for HIV-1/2 antibodies are processed. Pentaglobin® is manufactured by cold-ethanol-fractionation. For inactivation of viruses octanoic acid precipitation and treatment with ß-propiolactone are carried out **Interaction with other medicaments and other forms of interactions:** Pentaglobin® should not be administered concomitantly with calcium gluconate as the suspicion exists that adverse reactions may occur in infants after simultaneous administration. Immunoglobulin administration may impair for a period of at least 6 weeks and up to 3 months the efficacy of live attenuated virus vaccines such as measles, rubella, mumps and varicella. In some cases where large doses are given this impairment period may be as long as 1 year. Passive transmission of antibodies may interfere with some serological tests – e.g. Coombs test, CMV serology, etc. **Package sizes:** 10 mL ampoule, 50 mL and 100 mL vial

Biotest Pharma GmbH
Landsteinerstr. 5
63303 Dreieich
Germany

therapie-ipgm@biotest.de
www.biotest.com

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