Letter to the Editor

Heterologous umbilical cord serum∗

Suero heterólogo de cordón umbilical

Dear Sir,

The lachrymal film fulfills a vital function in maintaining the integrity of the ocular surface, providing the necessary molecules to enhance the proliferation and migration of corneal epithelial cells.

The majority of patients who develop dry eye can benefit from the range of conventional treatments for this disorder. These include artificial tears, corticoids, cyclosporine, lachrymal point occlusion and tarsorrphy. However, many patients suffer the severe form of dry eye which requires a different type of treatment because those mentioned above are not sufficient. Treatments for severe dry eye include amniotic membrane transplant, autologous serum and umbilical cord blood heterologous serum which base their efficiency on the provision of essential molecules which are present in natural tears. In this manner, in addition to humidifying the ocular surface epithelium, they perform a trophic effect.

Umbilical cord blood has been used for several years for therapeutic purposes although for a long time only its forming elements were considered useful as a source of hematopoietic progenitor cells for treating hematological diseases.

In 2003, Vajpayee et al.1 were the first to obtain excellent results in the treatment of persistent epithelial defects with 20% umbilical serum eyedrops. Since then, a number of articles have confirmed the safety, efficacy and stability of this treatment in various ocular surface diseases such as graft against host disease, epithelial defects and severe dry eye, among others.2–4

Umbilical cord serum is successful because it comprises growth factors and other substances which are usually found in the normal lachrymal film and are essential to promote corneal epithelium cicatrization and restoration.

Umbilical cord serum contains higher concentrations of epidermic growth factors, beta transforming growth factors, nerve growth factors and P-substance than those found in tears or in peripheral blood.2,3

One advantage of the umbilical cord eyedrops over autologous blood eyedrops is that in a single blood extraction a sample can be obtained for an entire month. An additional clear advantage is that umbilical cord serum can be utilized in patients in poor general condition. One of the main drawbacks of umbilical cord serum is the transmission of infectious diseases, although this potential risk can be minimized with a strict donor selection and adequate sample processing.1–4

Blood is obtained from vaginal or Cesarean births from mothers with negative serology. About 200–250 ml of blood are extracted from the umbilical cord and allowed to coagulate at room temperature for 2 h. After centrifugation at 3000 rpm during 5 min the serum is extracted, isolated, diluted at 20% with saline and placed in 5 ml sterile flasks in a laminar flow chamber. Cultures must be made to identify bacteria and fungi.

Umbilical cord serum eyedrops constitute an effective and safe therapeutic option to be considered in patients exhibiting ocular surface alterations who do not respond to conventional treatments.

REFERENCES


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Available online 15 March 2013

2173-5794/$ – see front matter
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