

Leukapheresis for inflammatory bowel disease

1 Guidance

- 1.1 Current evidence suggests that there are no major safety concerns for the use of leukapheresis for inflammatory bowel disease.
- 1.2 Leukapheresis may be beneficial in carefully selected patients with ulcerative colitis, but the evidence on efficacy is not yet adequate to support its use in these patients without special arrangements for consent and for audit or research as set out in 1.4 (below).
- 1.3 There is inadequate evidence to draw any conclusions about the efficacy of leukapheresis in patients with Crohn's disease and it should only be used in accordance with special arrangements for consent and audit as set out in 1.4 (below).
- 1.4 Clinicians wishing to undertake leukapheresis for inflammatory bowel disease should take the following actions.
 - Inform the clinical governance leads in their Trusts.
 - Ensure that patients understand the uncertainty about the procedure's efficacy and provide them with clear written information. Use of the Institute's *Information for the public* is recommended.
 - Audit and review clinical outcomes of all patients having leukapheresis.
- 1.5 Publication of current and future research studies will be useful. The Institute may review the procedure upon publication of further evidence.

2 The procedure

2.1 Indications

- 2.1.1 Ulcerative colitis and Crohn's disease are the most common forms of inflammatory bowel disease. Ulcerative colitis causes inflammation and

ulceration of the rectum and colon. Symptoms include bloody diarrhoea and rectal bleeding. Crohn's disease usually causes inflammation and ulceration of the small intestine, but it can affect any part of the digestive tract. The main symptoms are abdominal pain, diarrhoea and weight loss. Both ulcerative colitis and Crohn's disease are chronic conditions characterised by periods of clinical relapse and remission.

- 2.1.2 Conservative treatments include dietary measures and medication to control inflammation, which may include immunosuppressants. Patients with ulcerative colitis that does not respond to medical therapy may be treated with surgery to remove the colon. Although surgery may also be used for patients with Crohn's disease, it may not be curative and the disease often recurs in a different part of the digestive tract.

2.2 Outline of the procedure

- 2.2.1 Leukapheresis involves extracorporeal removal of leukocytes from the blood, either by centrifugation or through an adsorptive system. In each system, venous blood is removed in a continuous flow, anticoagulated, processed to deplete the leukocytes and returned to the circulation.
- 2.2.2 Different apheresis systems remove different populations of white blood cells. Leukapheresis using centrifugation removes a proportion of neutrophils and lymphocytes. Filter columns, which may contain cellulose acetate beads or a polyester fibre filter, remove a large proportion of granulocytes and monocytes and some also remove lymphocytes. The exact mode of action of these procedures is unknown.

Interventional Procedure Guidance 126

This guidance is written in the following context:

This guidance represents the view of the Institute which was arrived at after careful consideration of the available evidence. Health professionals are expected to take it fully into account when exercising their clinical judgement. This guidance does not, however, override the individual responsibility of health professionals to make appropriate decisions in the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Interventional procedures guidance is for health professionals and people using the NHS in England, Wales and Scotland.

This guidance is endorsed by NHS QIS for implementation by NHSScotland

2.3 Efficacy

- 2.3.1 In one randomised controlled trial of patients with ulcerative colitis, 74% (29/39) of patients treated with leukapheresis had an 'excellent' or 'moderate' improvement in symptoms, compared with 38% (14/37) of patients treated with high-dose steroids ($p = 0.005$).
- 2.3.2 In four case series, 54% (24/44) to 82% (32/39) of patients with ulcerative colitis had an initial remission of disease after treatment. In one study, the proportion of patients in clinical remission dropped from 82% (32/39) at 12 weeks to 67% (26/39) at 12 months after the final treatment. In two further studies, 30% (10/33) and 39% (13/33) of patients relapsed during maintenance therapy after initial complete remission.
- 2.3.3 In a small randomised controlled trial of patients with Crohn's disease, 100% (12/12) of patients treated with leukapheresis were successfully withdrawn from steroid therapy, compared with 67% (10/15) of patients who were not treated with leukapheresis ($p = 0.074$). There was no significant difference between the two groups in disease recurrence at 18-month follow-up. For more details, refer to the Sources of evidence (see below).
- 2.3.4 The Specialist Advisors stated that some uncertainty remained about the efficacy of leukapheresis for inflammatory bowel disease because data from randomised controlled trials were insufficient.

2.4 Safety

- 2.4.1 Most studies reported only mild adverse events such as dizziness, light headedness, headache and flushing. In three case series, the proportion of patients experiencing at least one non-severe adverse event ranged from 9% (5/53) to 18% (7/39).
- 2.4.2 In a randomised controlled trial, the incidence of adverse events was significantly lower in the group treated with leukapheresis than in the group treated with high-dose steroids (24% versus 47%, $p < 0.001$). In the same trial, adverse events were described as moderate or severe in

12% (5/42) of patients treated with leukapheresis: one patient had toxic shock, one patient had chest pain, one patient had anaemia and two patients had a headache. For more details, refer to the Sources of evidence.

- 2.4.3 The Specialist Advisors stated that potential adverse events included infection, headache, palpitations, nausea, vomiting, fever, chills, respiratory distress and chest discomfort.

2.5 Other comments

- 2.5.1 It was noted that leukapheresis is an established technique for other conditions.
- 2.5.2 It was also noted that there are different techniques for leukapheresis, and these may have different risk and benefit profiles.

Andrew Dillon
Chief Executive
June 2005

Information for the public

NICE has produced information describing its guidance on this procedure for patients, carers and those with a wider interest in healthcare. It explains the nature of the procedure and the decision made, and has been written with patient consent in mind. This information is available from www.nice.org.uk/IPG126publicinfo

Sources of evidence

The evidence considered by the Interventional Procedures Advisory Committee is described in the following document.

Interventional procedure overview of leukapheresis for inflammatory bowel disease, August 2004

Available from www.nice.org.uk/ip250overview

Ordering information

Copies of this guidance can be obtained from the NHS Response Line by telephoning 0870 1555 455 and quoting reference number N0874. *Information for the public* can be obtained by quoting reference number N0875.

The distribution list for this guidance is available at www.nice.org.uk/IPG126distributionlist

Published by the National Institute for Health and Clinical Excellence, June 2005; ISBN 1-84629-036-8

© National Institute for Health and Clinical Excellence, June 2005. All rights reserved. This material may be freely reproduced for educational and not-for-profit purposes within the NHS. No reproduction by or for commercial organisations is permitted without the express written permission of the Institute.