

Improved diagnosis and treatment of anastomotic leakage after colorectal surgery

M. den Dulk^{a,b}, S.L. Noter^{a,1}, E.R. Hendriks^{a,2}, M.A.M. Brouwers^a, C.H. van der Vlies^c,
R.J. Oostenbroek^c, A.G. Menon^{a,3}, W.H. Steup^{a,*}, C.J.H. van de Velde^b

^a Department of Surgery, Haga Hospital, The Hague, The Netherlands

^b Department of Surgery, Leiden University Medical Center, Leiden, The Netherlands

^c Department of Surgery, Albert Schweitzer Hospital, Dordrecht, The Netherlands

Accepted 28 April 2008

Available online 27 June 2008

Abstract

Aim: This study aimed at testing feasibility of a standardised postoperative surveillance protocol to reduce delay in the diagnosis of anastomotic leakage (AL) and, subsequently, mortality.

Material and methods: Patient files of patients operated between 1996 and 1999 were reviewed and used as historical controls ($n = 1066$). As a result, a protocol for standardised post-operative surveillance was designed using easily accessible, clinical parameters. Between August 2004 and August 2006, all operated patients with a colorectal anastomosis ($n = 223$) were prospectively subjected to this standardised surveillance.

Results: AL was diagnosed in 7.0% of patients in the historical control group and 9.4% of patients in the standardised surveillance group. AL mortality decreased from 39% to 24% with standardised surveillance (n.s.). The delay in AL diagnosis was significantly reduced during standardised surveillance (4 versus 1.5 days, $p = 0.01$), which was confirmed in the multivariate analysis.

Conclusion: With non-standardised postoperative monitoring, AL was associated with a high mortality rate. Patients were subjected to several additional tests, which were not primarily useful to diagnose AL. Standardised postoperative surveillance for AL was introduced successfully and resulted in a shorter delay between the first signs and symptoms to the confirmation of AL.

© 2008 Elsevier Ltd. All rights reserved.

Keywords: Colorectal surgery; Anastomotic leakage; Decision model; Diagnostic technique and procedures; Postoperative complications

Introduction

Anastomotic leakage (AL) is a feared complication after colorectal surgery causing morbidity and mortality.¹ Different percentages are published for the incidence of AL, varying between 1 and 25%, partly depending on the method of evaluation and the level of the anastomosis.^{2–5} AL does not

only result in increased and serious morbidity and mortality,^{6–9} but has also been associated with a higher local recurrence rate after curative treatment of colorectal malignancies.^{10,11}

In literature, different mortality rates after AL are reported.^{8,12,13} In the evaluation of surgery, slowly, more attention is focussed on adverse events such as postoperative morbidity and mortality.¹⁴ AL can never be reduced to zero and therefore it is of relevant importance to control the negative and sometimes fatal sequelae in case an AL occurs. Consequently, not only the occurrence but also the clinical outcome after AL might be considered as a performance indicator of surgical care. Firstly, this study aimed at investigating the occurrence of AL and associated mortality in several training hospitals in the Netherlands. Secondly, we hypothesised that the interval between first signs or symptoms and action on AL can influence the clinical outcome. As a result, a standardised postoperative surveillance protocol was

Abbreviations: AL, anastomotic leakage; n.s., non-significant.

* Corresponding author. HagaHospital, Department of Surgery, PO Box 40551, 2504 LN The Hague, The Netherlands. Tel.: +31 70 210 4969; fax: +31 70 210 2477.

E-mail address: w.steup@hagaziekenhuis.nl (W.H. Steup).

¹ Present address: Department of Anaesthesiology, Leiden University Medical Center, Leiden, The Netherlands.

² Present address: Department of Surgery, Tergooi Hospitals, Hilversum, The Netherlands.

³ Present address: Department of Surgery, Haven Hospital, Rotterdam, The Netherlands.