

Impact of an oral nutrition protocol in patients treated with elective radical cystectomy: a long term follow-up

Declercq Peter¹, Van der Aa Frank², De Pourcq Lutgart¹ and Spriet Isabel¹

¹Hospital Pharmacy University Hospitals Leuven & Department of Pharmaceutical and Pharmacological Sciences, University of Leuven

²Department of Urology, University Hospitals Leuven & Department Development and Regeneration, Faculty of Medicine, KU Leuven

peter.declercq@uzleuven.be

BACKGROUND & IMPORTANCE

Before we implemented an oral nutrition protocol, parenteral nutrition (PN) was standard of care after elective radical cystectomy (RC) patients in our hospital. PN is expensive, with often metabolic and infectious complications.

AIM & OBJECTIVES

The main objective of this study was to explore **the impact of the introduction of an oral nutrition protocol on catheter-related bloodstream infection (CRBSI) incidence**. Besides, **length of stay** and **parenteral nutrition (PN) associated costs** were compared.

MATERIALS & METHODS

In this large retrospective case-control study, before (PN group) and after the implementation of the oral nutrition protocol (since March 2010), patients who underwent an elective RC were included. A central venous catheter was present in every patient, which is standard of care. The incidence of a CRBSI, the proportion of patients needing PN, the number of administered PN infusion bags per patient, the length of stay and PN associated costs were compared.

RESULTS

In both the control (June 2000 – March 9th 2010) and the case (March 10th 2010 – December 2017) group, an equal number of 549 patients were included. In 465 (85%) from the 549 control patients, PN was initiated with a total of 5173 PN infusion bags. A median of 8 [6-11] PN infusion bags were administered per patient in the control group. In 76 (14%) out of the 549 case patients, PN was initiated with a total of 873 PN infusion bags. A median of 0 [0-0] PN infusion bags were administered per patient. The median number of PN infusion bags per patient between both groups differed significantly ($p < 0.001$).

CRBSI was reduced from 22 (4%) to 10 (1.8%) ($p = 0.031$).

The median length of stay between both groups, 20 [17 – 25] days before vs. 17 [14 – 21] days after the implementation of the oral nutrition protocol, also differed significantly ($p < 0.001$).

Implementing the oral nutrition protocol resulted in a parenteral nutrition associated cost saving of €470 per patient.

Table 1: Outcome measures and direct PN cost comparison

	Control group (n=549)	ONP implementation group (n=549)	p-value
Primary endpoint			
CRBSI incidence, n (%)	22 (4.0%)	10 (1.8 %)	0.031
Secondary endpoints			
Number of catheterdays per patient, median [IQR]	10 [7-13]	7 [7-7]	<0.001
Number of patients in whom PN was initiated (%)	465 (85%)	76 (14%)	<0.001
Number of administered PN infusion bags per patient, median [IQR]	8 [6-11]	0 [0-0]	<0.001
LOS, median [IQR] days	20 [17 – 25]	17 [14 – 21]	<0.001
Direct PN cost per patient			
	€565	€95	n.a.

n, number; ONP, oral nutrition protocol; PN, parenteral nutrition; IQR, interquartile range; CRBSI, catheter-related bloodstream infection; LOS, length of stay; n.a., not applicable

CONCLUSION & RELEVANCE

This large follow-up study showed that an oral nutrition protocol is associated with a reduction in CRBSI. Besides, postponing PN in favour of oral nutrition enhances recovery. In conclusion, we believe that the clinically relevant results of our study are confirming that oral nutrition should be standard of care in elective regular RC patients.

This study has been accepted for publication in the International Journal of Clinical Pharmacy as DOI:10.1007/s11096-019-00800-y.

1. Declercq P, De Win G, Van der Aa F, Beels E, Van der Linden L, Van Poppel H, et al. Reduced length of stay in radical cystectomy patients with oral versus parenteral post-operative nutrition protocol. *Int J Clin Pharm.* 2015;37(2):379-86.
2. Mermel LA, Allon M, Bouza E, Craven DE, Flynn P, O'Grady NP, et al. Clinical practice guidelines for the diagnosis and management of intravascular catheter-related infection: 2009 Update by the Infectious Diseases Society of America. *Clin Infect Dis.* 2009;49(1):1-45.

