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Preferences for active surveillance or standard oesophagectomy: discrete-choice experiment

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Introduction

Neoadjuvant chemoradiotherapy (nCRT) is the standard treatment for locally advanced oesophageal cancer^{1–4} and the benefit of oesophagectomy after nCRT has been questioned because a high pathological complete response rate is anticipated⁵. Active surveillance with frequent clinical, endoscopic, and imaging evaluation has been proposed as an alternative. The SANO trial^{6,7} is testing whether overall survival after active surveillance is non-inferior to that after standard oesophagectomy.

Active surveillance should preserve quality of life by avoiding surgical morbidity and the consequences of anatomicophysiological disruption^{8–10}. However, regular diagnostic tests used for response evaluations are a physical and psychological burden¹¹. A previous discrete-choice experiment¹² in patients after nCRT (but before surgery) showed that overall survival, the likelihood of undergoing postponed surgery, and quality of life were factors influencing treatment preferences.

However, these attitudes may change after surgery, so these insights may help to better inform patients about the impact of the operation. The present study assessed patient preferences for active surveillance or standard surgery after patients had undergone oesophagectomy themselves.

Methods

A cohort study was undertaken in three high-volume centres. Patients were invited to participate in the present study if they presented at the outpatient clinic during follow-up of oesophageal or oesophagogastric junctional cancer. Patients were eligible if they had undergone nCRT according to the CROSS regimen followed by standard oesophagectomy at least 1 year previously. Treatment preferences were assessed and quantified by asking patients to state their preference over hypothetical alternatives in a questionnaire. An example of such a questionnaire is shown in Fig. S1. Treatment alternatives were described in terms of five attributes: 5-year survival, short-term and long-term health-

related quality of life (HRQoL), annual number of diagnostic tests required, and the risk that postponed oesophagectomy would still be necessary. The importance of attributes and willingness to trade off survival for another attribute were assessed using a panel latent class model. A detailed description of the methods and more information on the discrete-choice experimental design are reported in [Appendices S1 and S2](#).

Results

Patients

Between August 2018 and October 2020, 100 of 107 included patients (93.5 per cent) completed the questionnaire at a median of 16.4 (i.q.r. 12.4–24.5) months after surgery. Patient and tumour characteristics are shown in [Tables S1 and S2](#), and HRQoL scores are summarized in [Table S3](#).

Willingness of patients to consider treatment options

Some 28 of 100 patients chose active surveillance in all 18 choice sets. On the contrary, 28 of 100 patients chose standard oesophagectomy in all 18 choice sets. [Table S4](#) shows the short- and long-term HRQoL of these groups. More patients in the group that chose active surveillance reported short-term pain or discomfort and worse long-term HRQoL than the group that chose oesophagectomy. Thirty-one patients also participated in an earlier discrete-choice experiment before oesophagectomy¹² and the preferences are summarized in [Table 1](#). The number of patients who preferred active surveillance remained stable before and after oesophagectomy.

Discrete-choice experiment

The three attributes that significantly influenced patients' treatment preferences were 5-year survival, long-term HRQoL, and the risk of delayed oesophagectomy. The positive coefficients for 5-year survival indicated that patients (in all 3 classes) preferred

Table 1 Willingness of 31 patients to consider treatment options before oesophagectomy compared with with at least 1 year after oesophagectomy

Before oesophagectomy	After oesophagectomy		
	Active surveillance (n = 11)	Standard oesophagectomy (n = 8)	Both treatment options (n = 12)
Active surveillance (n = 11)	6	2	3
Standard oesophagectomy (n = 1)	0	0	1
Both treatment options (n = 19)	5	6	8

Patients participated in a discrete-choice experiment before and after oesophagectomy.

Table 2 Patients' preferences for active surveillance or standard oesophagectomy after neoadjuvant chemoradiotherapy and oesophagectomy

	Treatment preference					
	Latent class 1	Importance score	Latent class 2	Importance score	Latent class 3	Importance score
	Active surveillance		Standard oesophagectomy		No clear preference	
Class probability	0.320		0.358		0.322	
Attribute levels, β value						
Alternative specific constant (standard oesophagectomy treatment)	-2.48 (-3.39, -1.58)†		15.49 (n.a.)		1.78 (0.43, 3.13)†	
5-year overall survival (%)		1		1		1
45 (reference)						
60	1.15 (0.90, 1.41)†		-27.37 (-97.63, 42.89)		1.45 (0.77, 2.12)†	
75	1.98 (1.60, 2.35)†		36.10 (n.a.)†		4.57 (3.83, 5.31)†	
Short-term HRQoL*		3		3		2
A little bit better (reference)						
Much better	-0.04 (-0.28, 0.21)		3.21 (-195.07, 201.50)		0.33 (-0.11, 0.78)	
A whole lot better	0.18 (-0.20, 0.56)		-6.18 (-164.82, 152.47)		-0.09 (-0.66, 0.49)	
Long-term HRQoL		2		2		3
Current HRQoL (reference)						
A little bit better than current HRQoL	0.09 (-0.16, 0.33)		-1.28 (-199.57, 197.01)		-0.09 (-0.57, 0.38)	
Much better than current HRQoL	0.71 (0.36, 1.06)†		14.85 (-104.13, 133.94)		0.20 (-0.31, 0.71)	
Risk that postponed surgery is necessary	-0.01 (-0.01, 0.00)	5	-0.38 (-8.31, 7.55)	5	-0.02 (-0.04, -0.01)†	5
Annual no. of diagnostic tests (per no.)	-0.06 (-0.23, 0.11)	4	-6.39 (-46.06, 33.28)	4	-0.26 (-0.56, -0.04)	4

Values in parentheses are 95 per cent confidence intervals. *Compared with situation recalled 3 months after oesophagectomy. β , Class coefficient; n.a., not applicable; HRQoL, health-related quality of life.

a treatment that generates a positive effect on 5-year survival. A positive effect on long-term HRQoL also influenced preferences of patients belonging to the active surveillance class ($\beta=0.71$, 95 per cent c.i. 0.36 to 1.06). A lower risk of delayed oesophagectomy significantly influenced treatment preferences of patients belonging to the 'no clear preference' class ($\beta=-0.02$, -0.04 to -0.01) (Table 2).

Willingness to trade off survival

Patients who had a preference for active surveillance were willing to trade off 5.4 (95 per cent c.i. 3.0 to 7.8) per cent 5-year survival to obtain long-term HRQoL that was much better than their current HRQoL.

Discussion

Patients tend to prefer the treatment they have undergone, even when randomized to a treatment (passive rather than active choice)^{13,14}. After oesophagectomy, just over one in four patients would opt for active surveillance if they faced the choice again.

Patients in the present study focused on long- rather than short-term outcomes in line with other studies^{12,15}; this finding will facilitate interpretation of the SANO trial as long-term HRQoL is one of the study endpoints. These results should be awaited before active surveillance can be recommended as a standard of care.

Patients who preferred active surveillance in the present study were willing to trade off 5.4 per cent 5-year overall survival in order to obtain much better HRQoL. This seems modest compared with a previous discrete-choice experiment¹² in which patients were willing to trade off 16 per cent 5-year survival when asked before surgery. If patients were asked to pick either active surveillance or standard oesophagectomy shortly before surgery, 1 of 31 patients would opt for standard oesophagectomy irrespective of the attribute levels. If the same question was asked of the same group of patients 1 year after oesophagectomy, 8 of 31 patients would opt for surgery. Perhaps the impact of oesophagectomy on HRQoL was not as negative as they expected. It may also reflect the selected group of study patients, who were disease-free at least 1 year after oesophagectomy. It is important to realize that preferences of patients and doctors do not always match¹⁵⁻¹⁷. All

treatment options should be discussed with patients, even if this involves a treatment that does not offer the highest chance of cure.

One of the limitations of the present study is that the choice of a surgical or non-surgical treatment is more complex than the five attributes considered in this study. In addition, patients were asked to recall their HRQoL 3 months after surgery, which introduced a potential recall bias. Finally, no patients who underwent active surveillance were included and this information is relevant for optimizing shared decision-making.

Disclosure. The authors declare no conflict of interest.

Supplementary material

Supplementary material is available at BJS online.

References

- van Hagen P, Hulshof MC, van Lanschot JJ, Steyerberg EW, van Berge Henegouwen MI, Wijnhoven BP et al. Preoperative chemoradiotherapy for esophageal or junctional cancer. *N Engl J Med* 2012;**366**:2074–2084.
- Yang H, Liu H, Chen Y, Zhu C, Fang W, Yu Z et al.; AME Thoracic Surgery Collaborative Group. Neoadjuvant chemoradiotherapy followed by surgery versus surgery alone for locally advanced squamous cell carcinoma of the esophagus (NEOCRTEC5010): a phase III multicenter, randomized, open-label clinical trial. *J Clin Oncol* 2018;**36**:2796–2803.
- Shapiro J, van Lanschot JJB, Hulshof M, van Hagen P, van Berge Henegouwen MI, Wijnhoven BPL et al.; CROSS study group. Neoadjuvant chemoradiotherapy plus surgery versus surgery alone for oesophageal or junctional cancer (CROSS): long-term results of a randomised controlled trial. *Lancet Oncol* 2015;**16**:1090–1098.
- Eyck BM, van Lanschot JJB, Hulshof M, van der Wilk BJ, Shapiro J, van Hagen P et al. Ten-year outcome of neoadjuvant chemoradiotherapy plus surgery for esophageal cancer: the randomized controlled CROSS trial. *J Clin Oncol* 2021;**39**:1995–2004; JCO2003614.
- van der Wilk BJ, Eyck BM, Spaander MCW, Valkema R, Lagarde SM, Wijnhoven BPL et al. Towards an organ-sparing approach for locally advanced esophageal cancer. *Dig Surg* 2019;**36**:462–468.
- Noordman BJ, Wijnhoven BPL, Lagarde SM, Boonstra JJ, Coene P, Dekker JWT et al.; SANO-study group. Neoadjuvant chemoradiotherapy plus surgery versus active surveillance for oesophageal cancer: a stepped-wedge cluster randomised trial. *BMC Cancer* 2018;**18**:142.
- ClinicalTrials.gov. Comparison of Systematic Surgery versus Surveillance and Rescue Surgery in Operable Oesophageal Cancer with a Complete Clinical Response to Radiochemotherapy (Esostrate). <https://ClinicalTrials.gov/show/NCT02551458> (accessed 23 June 2021).
- Noordman BJ, Verdam MGE, Lagarde SM, Shapiro J, Hulshof M, van Berge Henegouwen MI et al.; CROSS Study Group. Impact of neoadjuvant chemoradiotherapy on health-related quality of life in long-term survivors of esophageal or junctional cancer: results from the randomized CROSS trial. *Ann Oncol* 2018;**29**:445–451.
- Noordman BJ, Verdam MGE, Lagarde SM, Hulshof M, van Hagen P, van Berge Henegouwen MI et al. Effect of neoadjuvant chemoradiotherapy on health-related quality of life in esophageal or junctional cancer: results from the randomized CROSS trial. *J Clin Oncol* 2018;**36**:268–275.
- Markar SR, Zaninotto G, Castoro C, Johar A, Lagergren P, Elliott JA et al. Lasting Symptoms after Esophageal Resection (LASER): European multicenter cross-sectional study. *Ann Surg* 2020; DOI: 10.1097/SLA.0000000000003917 [Epub ahead of print].
- van den Bergh RC, Essink-Bot ML, Roobol MJ, Wolters T, Schroder FH, Bangma CH et al. Anxiety and distress during active surveillance for early prostate cancer. *Cancer* 2009;**115**:3868–3878.
- Noordman BJ, de Bekker-Grob EW, Coene P, van der Harst E, Lagarde SM, Shapiro J et al. Patients' preferences for treatment after neoadjuvant chemoradiotherapy for oesophageal cancer. *Br J Surg* 2018;**105**:1630–1638.
- Keulemans Y, Eshuis J, de Haes H, de Wit LT, Gouma DJ. Laparoscopic cholecystectomy: day-care versus clinical observation. *Ann Surg* 1998;**228**:734–740.
- Nieuwkerk PT, Hajenius PJ, Van der Veen F, Ankum WM, Wijker W, Bossuyt PM. Systemic methotrexate therapy versus laparoscopic salpingostomy in tubal pregnancy. Part II. Patient preferences for systemic methotrexate. *Fertil Steril* 1998;**70**:518–522.
- Thrumurthy SG, Morris JJ, Mughal MM, Ward JB. Discrete-choice preference comparison between patients and doctors for the surgical management of oesophagogastric cancer. *Br J Surg* 2011;**98**:1124–1131.
- de Bekker-Grob EW, Essink-Bot ML, Meerding WJ, Koes BW, Steyerberg EW. Preferences of GPs and patients for preventive osteoporosis drug treatment: a discrete-choice experiment. *Pharmacoeconomics* 2009;**27**:211–219.
- Mantovani LG, Monzini MS, Mannucci PM, Scalone L, Villa M, Gringeri A; Conan Study Group. Differences between patients', physicians' and pharmacists' preferences for treatment products in haemophilia: a discrete choice experiment. *Haemophilia* 2005;**11**:589–597.