

# MRI for personalised treatment in oesophageal cancer

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# APPENDICES

## Valorisation

In this chapter, the thesis will be analysed in the perspective of the valorisation focusing on its relevance for society and clinics. Also, the novelty and future realisation will be outlined. The following five aspects will be discussed:

1. Socio-economic relevance
2. Target audience
3. Products
4. Innovative value
5. Realisation

#### Socio-economic relevance

Cancer has a major impact on society across the world and oesophageal cancer is in the top ten of most common cancer types worldwide. Especially the incidence of adenocarcinomas in men is growing rapidly. One of the major risk factors for oesophageal adenocarcinomas is gastro-oesophageal reflux disease (GORD) causing metaplasia of the distal oesophagus. Obese or overweight individuals are significantly more at risk of suffering from GORD. In 2016, 39% men and 39% women aged 18+ were overweight (BMI >25 kg/m<sup>2</sup>) and 11% of men and 15% of women were obese (BMI>30kg/m<sup>2</sup>).

Patients diagnosed with locally advanced oesophageal cancer are currently treated by neoadjuvant chemoradiotherapy followed by surgery in the Netherlands. A personalised treatment approach is increasingly explored in many cancer types and could also be interesting for oesophageal cancer patients. Previous analyses showed that in almost 30% of the patients no residual cancer cells were found in the surgical specimen, a phenomenon which is called a “pathological complete response”. These patients might benefit from an organ saving treatment approach after ‘neoadjuvant’ chemoradiotherapy. This thesis outlines the role for MRI in a multimodal diagnostic approach after chemoradiotherapy to open the door to organ preservation for clinical complete responders. Also, the feasibility for MRI was investigated at the start of treatment for the delineation of the target volume.

#### Target population

Following national guidelines, patients with oesophageal cancer are currently treated by chemoradiotherapy followed by surgery. This thesis investigates a multimodal diagnostic approach to select patients for organ preserving treatment after chemoradiotherapy. Therefore, the results of this thesis may primarily impact the treatment plan of oesophageal cancer patients. Omitting surgery may likely impact their lives because oesophageal surgery is reported to have a major impact on patients’ quality of life. Interestingly, a study in rectal cancer reported promising improvement of the quality of life after chemoradiotherapy in the watch-and-wait group compared with the surgery group. If surgery is to be omitted in oesophageal cancer patients with a clinical complete response after chemoradiotherapy, future studies should explore the quality of life as well

as the cost efficiency of this new treatment.

The results in this thesis may also impact the work of the multidisciplinary team of oesophageal cancer patients. The assessment of MRI by the radiologist will probably play a prominent role in the response assessment after chemoradiotherapy. Furthermore, implementing an organ preserving treatment approach may impact the numbers of performed operations, while this number is currently an important requirement for quality assessment in the Netherlands.

#### Products

There are no new products that have been developed with the results of this thesis.

#### Innovative value

An organ-preserving treatment approach is upcoming in other cancer sites and the promising response rates to chemoradiotherapy opens the debate for oesophageal cancer patients. To select the right patients for organ preservation, accurate response assessment is essential. The high rates of false negative biopsies taken by endoscopy stresses the need for an accurate additional imaging tool. MRI is increasingly explored for this purpose because of the good visualisation of soft tissues combined with functional diffusion-weighted imaging. This thesis reports new and relevant studies on the clinical assessment on MRI in oesophageal cancer and thereby contributes to the development of a personalised treatment approach for oesophageal cancer patients.

#### Realisation

Currently, the multicentre PRIDE trial is exploring the combination of MRI, FDG-PET/CT, endoscopy/EUS and circulating tumour DNA for predicting and assessing the response to chemoradiotherapy in oesophageal cancer. At the same time, two trials are exploring a watch-and-wait approach for patients with oesophageal cancer: the SANO trial in the Netherlands and the ESOSTRATE trial in France. The combination of the aforementioned studies will undoubtedly lead to a more personalised treatment approach for patients with locally advanced oesophageal cancer.

