

# THE EFFECT OF PREHABILITATION ON PREOPERATIVE FUNCTIONAL CAPACITY, SYMPTOM BURDEN, AND POSTOPERATIVE COMPLICATIONS IN ESOPHAGEAL CANCER SURGERY



**2018**

28-30 JUNE  
VIENNA, AUSTRIA

SUPPORTIVE CARE  
MAKES EXCELLENT  
CANCER CARE POSSIBLE

Daisuke Makiura<sup>1</sup>, J. Inoue<sup>1</sup>, R. Ono<sup>2</sup>, Y. Sakai<sup>1</sup>

<sup>1</sup>Division of Rehabilitation, Kobe University Hospital, Japan

<sup>2</sup>Department of Community Health Sciences, Kobe University  
Graduate School of Health Sciences



# Faculty Disclosure

<input checked="" type="checkbox"/>	No, nothing to disclose
<input type="checkbox"/>	Yes, please specify:

All presenters declare that they have no conflict of interest.



**2018**

**28-30 JUNE**  
**VIENNA, AUSTRIA**

**SUPPORTIVE CARE  
MAKES EXCELLENT  
CANCER CARE POSSIBLE**



# Introduction & Objectives

**Poor physical fitness increases morbidities.**

Preoperative rehabilitation (“Prehabilitation”)

	Abdominal cancer	Esophageal cancer
Functional capacity	↑	?
Symptom burden	↓	?
Complications	↓	?



**2018**

28-30 JUNE  
VIENNA, AUSTRIA

SUPPORTIVE CARE  
MAKES EXCELLENT  
CANCER CARE POSSIBLE



# Flow diagram

188 patients with esophageal cancer

33 excluded by

- Inoperability
- Nonradical surgery
- Refusal of consent

155 patients enrolled

Grouping according to prehabilitaion

For  $\geq 10$  days

Prehabilitation group  
(PR, n=73)

For  $< 10$  days or none at all

Nonprehabilitation group  
(NPR, n=82)



**2018**

28-30 JUNE  
VIENNA, AUSTRIA

SUPPORTIVE CARE  
MAKES EXCELLENT  
CANCER CARE POSSIBLE



# Hospital-based prehabilitation for 40-60 minutes daily on weekdays



2018

10 JUNE  
VIENNA, AUSTRIA

PROACTIVE CARE  
EXCELLENT  
CARE POSSIBLE



# More high-risk patients were in the PR group.

**2018**  
**8-30 JUNE**  
**VENNA, AUSTRIA**  
**SUPPORTIVE CARE**  
**MAKES EXCELLENT**  
**CANCER CARE POSSIBLE**

	PR (n=73)	NPR (n=82)	P-value
<b>Age</b>	68.4 ± 7.2	65.7 ± 8.2	0.03
Sex, male/female	62/11	73/9	0.48
<b>Performance status</b>			
0/1/2	54/17/2	75/7/0	< 0.01
Comorbidity (CCI)			
0/1/≥2	44/13/16	47/17/18	0.90
<b>Clinical stage</b>			
1/2a/2b/3/4	0/12/22/37/2	42/7/7/22/4	< 0.01
<b>Neoadjuvant chemotherapy</b>	73 (100%)	34 (41.5%)	< 0.01
<b>Partial esophageal obstruction</b>	15 (20.5%)	4 (4.9%)	< 0.01





# Prehabilitation improved functional capacity and decreased symptom burden.



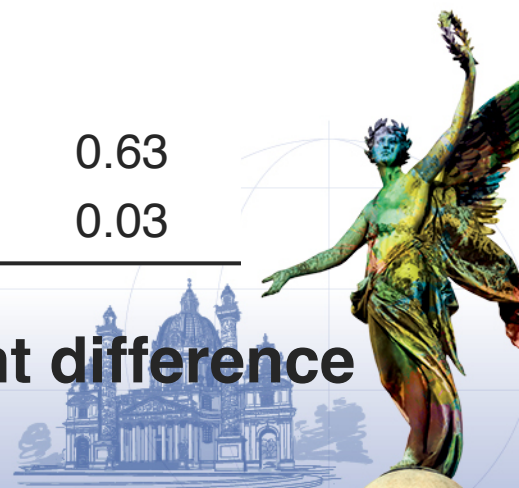
**2018**

**28-30 JUNE**  
VIENNA, AUSTRIA

**SUPPORTIVE CARE  
MAKES EXCELLENT  
CANCER CARE POSSIBLE**

	Baseline	After PR	P-value
Functional capacity			
<b>6MWT [m] *</b>	421 ± 100.5	439.1 ± 98.8	0.01
MD Anderson Symptom Inventory			
Severity	2.45 ± 2.02	2.11 ± 2.05	0.63
<b>Interference *</b>	2.60 ± 2.88	1.62 ± 2.28	0.03

**\* Mean difference > minimal clinical important difference**



# Prehabilitation was effective in prevention of pulmonary complications.

PR; **17.8%** vs NPR; **31.7%**

	Odds ratio	95% CI
Age	3.27	1.46 - 7.33
Sex	2.64	0.56 - 12.4
Comorbidity	1.04	0.40 - 2.66
Performance status	0.75	0.23 - 2.50
Clinical stage	0.94	0.41 - 2.13
<b>Prehabilitation</b>	<b>0.38</b>	0.17 - 0.89

The incidence of other complications was comparable.



**2018**

28-30 JUNE  
VIENNA, AUSTRIA

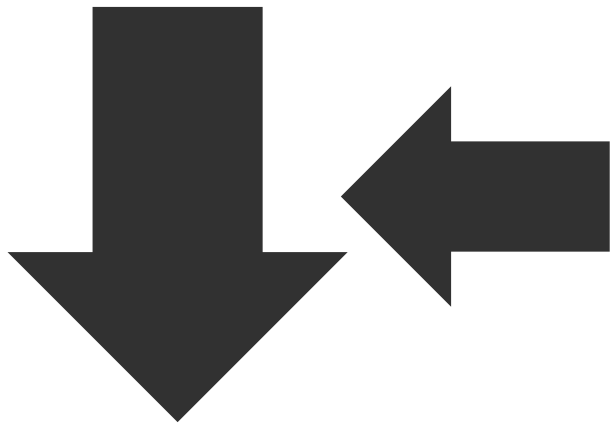
SUPPORTIVE CARE  
MAKES EXCELLENT  
CANCER CARE POSSIBLE





# Limitations

The results **based on high-risk patients**



## Confounding factors

- Performance status (**poor**)
- Clinical stage (**advanced**)
- NAC (**received**)
- Nutritional status (**poor**)

Multivariate analysis

The effects of prehabilitation **may be unreliable**



**2018**

28-30 JUNE  
VIENNA, AUSTRIA

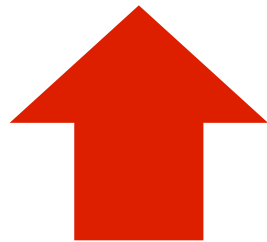
SUPPORTIVE CARE  
MAKES EXCELLENT  
CANCER CARE POSSIBLE



# Conclusions

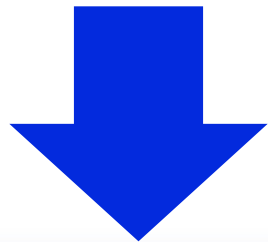
## Prehabilitation for esophageal cancer

Functional capacity



Symptom burden

Pulmonary complications



**2018**

28-30 JUNE  
VIENNA, AUSTRIA

SUPPORTIVE CARE  
MAKES EXCELLENT  
CANCER CARE POSSIBLE

