Supplement to: Predictors and prognostic implications of cardiac arrhythmias in patients hospitalized for COVID-19

Short Title: Prognostic implications of arrhythmias in COVID-19

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Supplemental methods

Imputation of LVEF

In the majority of patients, information on left ventricular ejection fraction (LVEF) was not provided in the source documents. Left ventricular ejection fraction was documented in 47.1% of patients with incident arrhythmia and only 21.1% of cases without arrhythmia during hospitalization. To account for a potential influence of LVEF on the incidence of cardiac arrhythmia, we performed attempts to impute the missing data. Two methods were applied to impute the variable LVEF: mean imputation and multiple imputation applying Bayesian linear regression with 10 iterations using all variables as predictors. Replacing missing values by the LVEF mean leads to the situation that each patient irrespective of the group receives the same value and thereby, no additional information is added. LVEF between the groups is still significant, when no additional information is added. Furthermore, the difference remains significant after conducting multiple imputation (Table S1).

Supplemental Table S1   Patient recruitment according to participating centers

|	Type of center	Number of patients contributed
University Hospital Heidelberg (Departments of Gastroenterology, Cardiology, Anaesthesiology, Nephrology/Nierenzentrum)	Tertiary-level university hospital	99
GRN Klinikum Weinheim	Regional, secondary-level hospital	30
Thoraxklinik, University Hospital Heidelberg	Tertiary (specialized on thoracic and pulmonary disease, associated with the University Hospital Heidelberg)	17
SRH Klinikum Karlsbad-Langensteinbach	Regional, secondary-level hospital	11
Heidelberg University Orthopedic Hospital	Tertiary (specialized on orthopedic care, associated with the University Hospital Heidelberg)	9

Supplemental Table S2   Descriptive analyses after imputation of LVEF

	Total (n=166)	Arrhythmia (n=34	No arrhythmia (n=132)	P value*
Mean imputed LVEF				
Mean ± SD	53.0±6.3	49.6±10.7	53.9±4.1	<0.001
Multiply imputed LVEF				
Mean ± SD	54.9±7.6	46.3±11.2	57.1±4.2	<0.001

*= t-test

Supplemental Figure
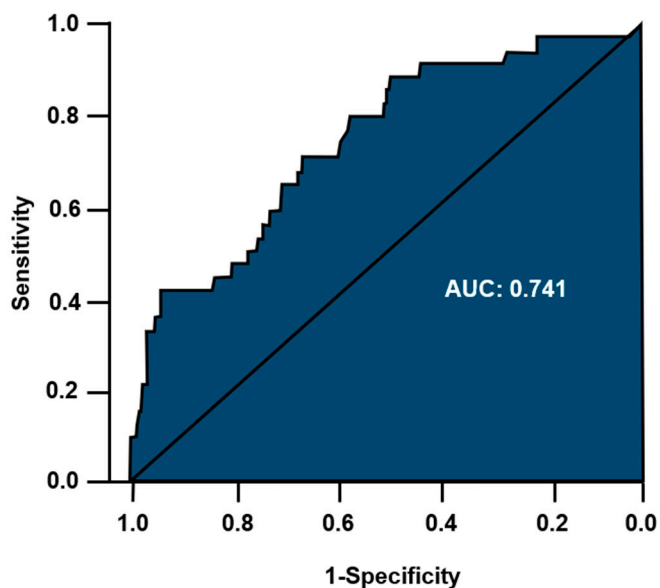
Supplemental Figure   **ROC curve for predicting arrhythmia**

The ROC curve and the corresponding area under the curve (AUC) value was calculated for the logistic regression model including the selected variables age, hypertension and cardiovascular disease with respect to predict incident arrhythmia.