Institutional infrastructural preconditions and current perioperative anaesthesia practice in patients undergoing transfemoral transcatheter aortic valve implantation: a cross-sectional study in German heart centres

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ABSTRACT

Objectives Transfemoral transcatheter aortic valve implantation (TF-TAVI) is an established therapy for patients with symptomatic aortic stenosis, which requires periprocedural anaesthesia care. In 2015, the German Federal Joint Committee released a directive on minimally invasive heart valve interventions which defines institutional infrastructural requirements in German heart centres. But still generally accepted expert consensus recommendations or national or international guidelines regarding periprocedural anaesthesia management for TF-TAVI are lacking. This nationwide cross-sectional study had two major objectives: first to assess the concordance with existing national regulations regarding infrastructural requirements and second to evaluate the status quo of periprocedural anaesthesia management for patients undergoing TF-TAVI in German heart centres.

Design Multicentre cross-sectional online study to evaluate the periprocedural anaesthesia management.

Setting In this nationwide cross-sectional study electronic questionnaires were sent out to anaesthesia departments at TF-TAVI-performing centres in Germany in March 2019.

Participants 78 anaesthesia departments of German heart centres.

Results 54 (69.2%) centres returned the questionnaire of which 94.4% stated to hold regular Heart Team meetings, 75.9% to have ready-to-use heart-lung machines available on-site, 77.8% to have cardiac surgeons and 66.7% to have perfusionists routinely attending throughout TF-TAVI procedures. Regarding periprocedural anaesthesia management, 41 (75.9%) of the participating centres reported to predominantly use ‘monitored anaesthesia care’ and 13 (24.1%) to favour general anaesthesia. 49 (90.7%) centres stated to use institutional standard operating procedures for anaesthesia. Five-lead ECG, central venous lines, capnometry and intraprocedural echocardiography were reported to be routine measures in 85.2%, 83.3%, 77.8% and 51.9% of the surveyed heart centres.

Strengths and limitations of this study

► This is the first cross-sectional study which gives specific insights in anaesthesia practices and periprocedural measures during transfemoral transcatheter aortic valve implantation (TF-TAVI) in Germany.
► Our data demonstrate substantial variability among anaesthesia in-house standards for TF-TAVI in German heart centres.
► This study intended to enhance the awareness and to promote the debate about a standardised anaesthesia management for TF-TAVI, but more clinical studies are required to finally answer open questions.
► Our survey revealed potential infrastructural strengths and weaknesses in the participating centres, which could be addressed by an officially designated international guideline committee or a multidisciplinary clinical-scientific expert panel.
► Expert consensus recommendations and/or guidelines for anaesthesia and periprocedural management for TF-TAVI might be helpful to push forward innovative concepts such as Enhanced Recovery After Surgery for TF-TAVI.

Conclusions The concordance with national regulations, anaesthesia management and in-house standards for TF-TAVI vary broadly among German heart centres. According to the opinion of the authors, international expert consensus recommendations and/or guidelines would be helpful to standardise peri interventional anaesthesia care.

INTRODUCTION

Aortic valve stenosis (AS) is one of the most frequent valve diseases with an increasing prevalence in the ageing population in industrialised countries.1 2 With an incidence of
4%–5% in patients over 65 years, AS is the most common reason for valvular surgery and catheter intervention for structural heart disease.1–3

Transfemoral transcatheter aortic valve implantation (TF-TAVI) is an established standard therapy for patients with symptomatic AS, especially in the elderly with high or intermediate surgical risk.3 Nowadays, case numbers for TAVI extend far beyond those of surgical aortic valve replacements (AVR) in Germany.4 The Institute for Quality Assurance and Transparency in Health Care analysed data (20 974 TAVI procedures, 8420 AVRs) of 2018 and revealed an in-hospital mortality of 3.1% for AVR and 2.7% for TAVI.4

In 2015, the German Federal Joint Committee (G-BA) released a directive for minimum quality standards for the implementation of minimally invasive heart valve interventions.5 This directive defined structural and process quality requirements as well as staff, institutional and logistic resources for German heart centres that provide TF-TAVI. As international studies suggested possible associations between TAVI case numbers and outcome,6–8 G-BA launched a consultation procedure in June 2020 to consider mandatory minimum thresholds for both: centres and individual operators.

TF-TAVI is performed either in general anaesthesia (GA) or with monitored anaesthesia care (MAC).9–13 European guidelines recommend that TAVI should only be performed in heart valve centres with implemented Heart Teams.3 As mandatory members of the Heart Team, anaesthetists are involved in individual risk evaluation, multidisciplinary decision making, choice between TAVI and AVR and perioperative care of these patients.3,14

Although the G-BA directive predetermines that a specialist for anaesthesia with expertise in cardiac anaesthesia should be involved in TF-TAVI procedures in German heart centres,5 only few specific recommendations on the targeted use of perioperative equipment such as 5-lead ECG or defibrillators, and the availability of transesophageal echocardiography (TOE) on-site for patients undergoing cardiac surgery or interventional cardiology exist.15

Generally accepted national/international guidelines or expert consensus recommendations on periprocedural anaesthesia management for TF-TAVI are still lacking, and the specific preassessment, anaesthesia techniques, vascular access, choice of drugs and perioperative care for these patients are unknown.

Thus, this nationwide cross-sectional study comprises two major objectives. First, this study aimed to assess the concordance with existing national regulations regarding infrastructural requirements for TF-TAVI in the German healthcare system. Second, this study aimed to evaluate the status quo of periprocedural anaesthesia management for TF-TAVI in German heart centres.

METHODS

TF-TAVI-performing centres were identified using the webpage of the German Cardiac Society. We used an internet-based questionnaire, hosted by SurveyMonkey (SurveyMonkey Europe UC, Dublin, Ireland; www.surveymonkey.de). Invitations were sent to the departments of anaesthesiology of all eligible centres in March 2019 via email and a reminder email or call was initiated within 2 weeks after the start of the survey.

Survey instrument

An electronic questionnaire was created to outline anaesthesia and perioperative management of patients undergoing TF-TAVI and to obtain specific insights in the infrastructure and processes of each participating centre. The electronic questionnaire included 25 questions that focused on:

1. anaesthesia preassessment, preparation and premedication (eg, preprocedural diagnostics and drugs for premedication);
2. standard monitoring (eg, pulse oximetry, noninvasive blood pressure, ECG, capnometry, diuresis (urinary catheter));
3. advanced haemodynamic monitoring and neuro-monitoring (eg, cardiac output, bispectral index (BIS), near-infrared spectroscopy (NIRS));
4. periprocedural measures (eg, echocardiography, defibrillator electrodes);
5. vascular access and devices (eg, arterial, central veins and peripheral lines, pacemaker);
6. standard approach/type of anaesthesia (MAC (local anaesthesia, procedural sedation), GA);
7. drugs (eg, hypnotics, sedatives, opioids, catecholamines, vasoactive drugs);
8. level of postprocedural care (eg, intensive care unit (ICU), intermediate care unit (IMC), normal ward, time of extubation);
9. centre characteristics (eg, approximated case numbers for TF-TAVI, changeover times);
10. infrastructural prerequisites (eg, Heart Team meetings, anaesthesia standard operating procedures (SOPs), ready-to-use heart-lung machines (HLM) available, attending staff during TF-TAVI).

Statistical analysis

SPSS V.26 (SPSS, Chicago, Illinois, USA) was used for statistical analysis. This study has an explorative character. Sample size was predetermined by the number of available participating centres. We used a complete case analysis. Absolute and relative (%) frequencies were used to describe categorical variables.

Binary logistic regression analysis

Regression analysis was applied to evaluate the effects of characteristics and practices of the surveyed centres regarding periprocedural management of TF-TAVI. To identify factors characterising the considered outcomes ‘high-volume centre (HVC)’ (vs ‘low-volume centre’) and ‘MAC’ (vs ‘GA’), we fitted a regression model for each of them.
Outcome measure (dependent variable)
- HVC for TAVI (yes/no): defined as centre that reports >300 TAVI cases per year. The annual number of TAVI cases was dichotomised.
- MAC (yes/no): defined as either procedural sedation or local anaesthesia with anaesthesia stand-by as opposed to GA.

Covariates (independent variables)
We chose a two-step approach for variable selection. Data were clustered based on clinical consideration and descriptive analysis to give potentially eligible covariates. Candidate variables were preselected based on literature search, clinical considerations and a simple regression approach considering single predictors. Redundant covariates (which do not contribute to explain the outcome and inherit the risk of multicollinearity) were excluded to avoid imprecise estimations of effect sizes of single predictors in the multiple regression approach. Eight categorised covariates that rely on the reports of the participating centres were included in the multivariable regression models.

The results of multiple regression are reported as adjusted odds ratios (ORs) with their respective p values and the 95% confidence intervals (CIs). A p value <0.05 was considered to be statistically significant.

Patient and public involvement statement
Patients or the public were not involved in the design, or conduct, or reporting, or dissemination plans of our research.

RESULTS
Seventy-eight departments of anaesthesiology of German heart centres were contacted; 54 centres returned the questionnaire (response rate 69.2%). The electronic questionnaires were either completed by the head of the department, attending or senior anaesthesiologist.

Centre characteristics
Self-reported characteristics of the surveyed centres are given in table 1.
Based on these self-assessments, centres were clustered into ‘low-volume centres’ (55.6% (30/54); ≤300 TAVIs per year) and HVCs (44.4% (24/54); >300 TAVIs per year), centres that predominantly performed MAC (75.9% (41/54)) and those that preferred GA (24.1% (13/54)). Of note, most centres provided both: MAC and GA; only three centres stated to exclusively perform MAC and three centres to exclusively perform GA.

Preassessment
Preprocedural standard diagnostics prior to TF-TAVI are shown in table 1; 94.4% (51/54) of the responders reported that coronary angiography was routinely performed, 77.8% (42/54) reported that a chest X-ray was part of standard preparation for TF-TAVI and 42.6%...
Table 1 Continued

| Characteristics of the participating centres | %   | n    |
|---------------------------------------------|-----|------|
| Ready-to-use heart-lung machine available on-site | 75.9 | 41/54 |
| Preferred anaesthesia drugs                 |     |      |
| Premedication with benzodiazepines           | 16.7 | 9/54 |
| Procedural sedation                         |     |      |
| Remifentanil                                | 56.9 | 29/51 |
| No opioid                                   | 5.9  | 3/51 |
| Propofol                                     | 51.0 | 26/51 |
| No hypnotic                                  | 25.5 | 13/51 |
| General anaesthesia                         |     |      |
| Remifentanil                                | 68.6 | 35/51 |
| Other opioid                                | 27.5 | 14/51 |
| No opioid                                   | 3.9  | 2/51 |
| Propofol                                     | 68.6 | 35/51 |
| Inhalational anaesthetic                    | 31.4 | 16/51 |
| Catecholamines/Vasopressors†                |     |      |
| Epinephrine                                  | 29.6 | 16/54 |
| Norepinephrine                              | 81.5 | 44/54 |
| Dobutamine or dopamine                      | 13.0 | 7/54 |
| Cafedrine/Theodrenaline                     | 9.3  | 5/54 |
| Typical postprocedural care                 |     |      |
| Postprocedural care after GA                |     |      |
| Extubation after transmission on ICU        | 5.9  | 3/51 |
| Extubation on-site and subsequent           |     |      |
| Transmission to ICU                         | 60.4 | 29/48 |
| Transmission to IMC                         | 35.4 | 17/48 |
| Transmission to normal ward (after postanaesthetic recovery room stay) | 4.2  | 2/48 |
| Postprocedural care after MAC‡              |     |      |
| ICU                                          | 52.9 | 27/51 |
| IMC                                          | 41.2 | 21/51 |
| Normal ward (after postanaesthetic recovery room stay) | 3.9  | 2/51 |

*One centre stated to apply urinary catheters only in women but not in men. †Catecholamines were used as bolus application and/or continuously. ‡One centre stated that patients are transferred to ICU or IMC dependent on bed availability. CVC, central venous catheter; GA, general anaesthesia; ICU, intensive care unit; IMC, intermediate care unit; MAC, monitored anaesthesia care; SOP, standard operating procedure; TF-AVI, transfemoral transcatheter aortic valve implantation; TOE, transesophageal echocardiography; TTE, transthoracic echocardiography.

respectively. Only one centre reported to not use invasive blood pressure measurement routinely. Neither non-invasive continuous blood pressure measurement nor cardiac output monitoring was routinely used for TF-AVI in any centre. Moreover, cerebral monitoring such as BIS or NIRS was rarely used; 90.7% (49/54) of centres reported to routinely attach defibrillator electrodes to the patient prior to TF-AVI.

**Infrastructure and staff resources**

It was found that 90.7% (49/54) of centres reported to have implemented an anaesthesia SOP for TF-AVI, 94.4% (51/54) of centres stated to hold regular Heart Team meetings. All participating centres reported that anaesthetists were always in attendance and further stated that cardiac surgeons and perfusionists were also routinely in attendance throughout TF-AVI procedures in 77.8% (42/54) and 66.7% (36/54), respectively; 75.9% (13/54) of heart centres reported to have routinely available ready-to-use HLMs on-site during TF-AVI (table 1).

**Anaesthesia drugs**

- **MAC**: most centres reported to favour combinations of opioids and hypnotics for procedural sedation, with remifentanil and propofol being the first choice (56.9% (29/51) and 51% (26/51), respectively). Opioid mono-sedation was reported as standard for procedural sedation in 23.5% (12/51) of centres; 13.7% (7/51) of centres reported to prefer dexmedetomidine for procedural sedation.
- **GA**: remifentanil was the first-choice opioid (68.6% (35/51)) most frequently reported and propofol the first-choice hypnotic drug (68.6% (35/51)). Most centres reported to favour combinations of opioids and hypnotics (96.1% (49/51)).

**Catecholamines**

Centres stated to prefer norepinephrine (81.5% (44/54)) or epinephrine (29.6% (16/54)), if catecholamines were required. Few centres reported to favour cafedrine/theodrenaline (five centres), dobutamine (six centres) or dopamine (one centre) during TF-AVI.

**Vascular access**

It was noted that 83.3% (45/54) of centres acknowledged to routinely insert central venous lines (either central venous catheters (CVCs) or introducer sheaths) during TF-AVI (table 2).

In patients undergoing GA, participating centres further reported to routinely insert introducer sheaths (35.3% (18/51) via the jugular vein and 13.7% (7/51) via the femoral vein), CVCs (60.8% (31/51)) and/or large bore peripheral venous catheters (31.4% (16/51)). The reported strategy during procedural sedation was similar (table 2).

Pacemakers were reported to be routinely inserted prior to the TF-AVI procedure in 94.4% (51/54) of centres (preferentially by anaesthetists in 43.1% (22/51), by cardiologists in 56.9% (29/51)) (table 1).

(23/54) that spirometry was a routine preprocedural measure.

**Monitoring and instrumentation**

Apart from periprocedural standard monitoring (pulse oximetry, 3-lead or 5-lead ECG and blood pressure measurement (any method)) that was performed in all centres, reported routine monitoring differed between centres (table 1). Centres stated that the following measures were periprocedural standard of care: 5-lead ECG in 85.2% (46/54), capnometry in 77.8% (42/54) and urinary catheters in 64.8% (35/54) of centres,
Most participants reported that patients undergoing GA postprocedural care frequently performed by cardiologists. The second multiple regression analysis explains HVCs by faster changeover times (p=0.036) and indicates more frequent reports of ‘ready-to-use HLM available on-site’ (adjusted OR 5.09 (95% CI 0.80 to 32.53); p=0.086) and ‘SOP implemented and regular Heart Team meetings’ (adjusted OR 11.16 (95% CI 0.76 to 163.31); p=0.078) in HVCs while none of the other considered factors predicts an HVC.

### Potential infrastructural weaknesses and open questions

Table 5 gives an overview of identified potential infrastructural weaknesses and open questions regarding anaesthesia management during TF-TAVI which could be addressed by an expert panel or guideline committee.

**DISCUSSION**

TAVI is an emerging innovation that developed rapidly, redefined treatment strategies for AS and has become clinical routine in the last two decades. Still, expert consensus recommendations or guidelines regarding anaesthesia management are lacking.

The intention of this survey was to gather a cross-sectional overview of the daily anaesthesia practice for TF-TAVI in Germany, to expose open questions regarding periprocedural management and to reveal infrastructural strengths and weaknesses in the participating centres (table 5).

This survey revealed that the majority of German heart centres have anaesthesia SOPs for TF-TAVI, hold regular Heart Team meetings and have ready-to-use HLMs available on-site. All participating centres stated that anaesthetists were always present (100%) during TF-TAVI procedures as it has been recommended by national directives and international guidelines. Even though the required provision of staff resources is very costly and time consuming, many centres reported that Heart Team members, such as cardiac surgeons, anaesthetists and perfusionists were routinely attending throughout TF-TAVI procedures.

We found a broad variability regarding in-house standards for anaesthesia management among German heart centres: chest X-ray and spirometry were not regarded as preprocedural standard measures in many centres prior to TF-TAVI. Whereas capnometry, 5-lead ECG and attached defibrillator electrodes were reported to be applied in the majority of the centres, CVCs, introducer sheaths, large bore peripheral accesses and echocardiography are not routinely used during TF-TAVI procedures in many centres. Even though transcardiopulmonary thermodilution and calibrated arterial pulse contour analysis reliably measure cardiac output in patients with severe AS undergoing TAVI, our data demonstrate that advanced

### Intraprocedural echocardiography

It was reported that 51.9% (28/54) of centres routinely used intraprocedural echocardiography (table 1). They further reported that TOE was more frequently used during GA as opposed to MAC. TOE was often performed by anaesthetists (table 3).

In contrast, transthoracic echocardiography was more frequently used during MAC and in this instance more frequently performed by cardiologists.

### Postprocedural care

Most participants reported that patients undergoing GA were routinely extubated after TF-TAVI in the operating room and transferred to either an IMC or ICU thereafter. The second multiple regression analysis reveals those that predominantly use GA compared with those that predominantly use GA (adjusted OR 0.13 (95% CI 0.02 to 0.83); p=0.031, table 4).

The second multiple regression analysis explains HVCs by faster changeover times (p=0.036) and indicates more frequent reports of ‘ready-to-use HLM available on-site’ (adjusted OR 5.09 (95% CI 0.80 to 32.53); p=0.086) and ‘SOP implemented and regular Heart Team meetings’ (adjusted OR 11.16 (95% CI 0.76 to 163.31); p=0.078) in HVCs while none of the other considered factors predicts an HVC.

### Intravascular access

Table 2 Routinely used venous accesses in patients undergoing general anaesthesia and procedural sedation for TF-TAVI

| Routinely used venous access | General anaesthesia | Procedural sedation |
|-----------------------------|---------------------|---------------------|
| Central venous catheter     | 60.8                | 64.7                |
| Introducer sheath via       | 31/51               | 33/51               |
| Jugular vein                | 35.3                | 43.1                |
| Femoral vein                | 13.7                | 23.5                |
| Large bore peripheral access| 31.4                | 37.3                |

TF-TAVI, transfemoral transcatheter aortic valve implantation.

**Binary logistic regression analysis**

Multiple regression analysis revealed a significantly lower odds of using echocardiography in centres that prefer MAC compared with those that predominantly use GA (adjusted OR 0.13 (95% CI 0.02 to 0.83); p=0.031, table 4).

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haemodynamic monitoring is not routinely implemented during TF-TAVI. Although cerebral oxygen saturation (rScO₂) reflects cerebral and systemic oxygen balance during TAVI,20 NIRS is rarely used during TF-TAVI. There is growing evidence that MAC is feasible and potentially beneficial in many patients undergoing TF-TAVI.9–13 21 This goes in-line with our finding that the majority of German heart centres favour MAC over GA for TF-TAVI. The role of periprocedural echocardiography remains unclear, although TOE guidance might help to reduce the incidence of postprocedural aortic regurgitation22 and overall/late mortality,23 only half of the surveyed centres reported to routinely perform intraprocedural echocardiography. After almost two decades of TF-TAVI, international guidelines or widely accepted evidence-based recommendations for the periprocedural and anaesthesia management are lacking. However, these are essential prerequisites to advance the idea of Enhanced Recovery After Surgery (ERAS) protocols for TF-TAVI that aim to optimise perioperative outcome.24 ERAS protocols for cardiac surgery favour early extubation and mobilisation as prolonged mechanical ventilation is associated with an increased risk of ventilator-associated pneumonia, dysphagia, longer hospitalisation, higher morbidity, mortality and higher costs.25 Studies to demonstrate or disprove these effects in TAVI patients are needed as the development of specific ERAS protocols could potentially improve patients’ care.

**Limitations**

Since experience, standards and infrastructural prerequisites differ among countries, our findings cannot be generalised or extrapolated to other healthcare systems

| Table 4  | Binary logistic regression analysis |
|---|---|
| Covariates | Simple approaches OR (95% CI) | Multiple regression analyses Adjusted OR (95% CI) |
| --- | --- | --- |
| MAC (y/n) as opposed to GA | NA | NA |
| High-volume centre for TAVI (y/n) | 3.50 (0.84 to 14.60) 0.086 | 2.13 (0.31 to 14.79) 0.443 |
| Echocardiography during TAVI (y/n) | 0.29 (0.07 to 1.19) 0.086 | 0.46 (0.07 to 2.98) 0.415 |
| Changeover time (<45, 45–60, >60 min) | NA | NA |
| 45–60 min vs >60 min | 4.08 (0.87 to 19.23) 0.075 | 2.72 (0.38 to 19.11) 0.315 |
| <45 min vs >60 min | 11.40 (1.74 to 74.65) 0.011 | 5.01 (0.55 to 45.33) 0.152 |
| Ready-to-use HLM available on-site (y/n) | 11.25 (1.86 to 68.13) 0.008 | 8.85 (0.92 to 85.47) 0.060 |
| SOP implemented and regular Heart Team meetings (y/n) | 2.58 (0.66 to 10.03) 0.172 | 1.25 (0.17 to 9.15) 0.830 |
| Norepinephrine as one of the preferred catecholamines (y/n) | 3.50 (0.84 to 14.60) 0.086 | 5.09 (0.80 to 32.53) 0.086 |
| CVC routinely used (y/n) | 2.78 (0.53 to 14.47) 0.226 | 1.80 (0.20 to 16.33) 0.600 |
| Complete team* attending throughout the TAVI procedure (y/n) | 5.75 (0.64 to 51.53) 0.118 | 11.16 (0.76 to 163.31) 0.078 |

Binary logistic regression analysis: two multiple regression models were fitted (right side of the table), each with a different dependent variable; in the first model (white background) ‘MAC’ (as compared with ‘GA’) was used as dependent variable, while in the second model (shaded in grey lines) ‘high-volume centres’ (y/n) defined as >300 and ≤300 cases per year was used as dependent variable. Each regression model includes eight categorised covariates that rely on the reports of the participating centres, with the latter category denoting the reference. Bold values denote significant values (p<0.05).

*Complete team was defined as: cardiologist, cardiac surgeons, anaesthetist and perfusionists, MAC was defined as either local anaesthesia or procedural sedation.

CI, confidence interval; CVC, central venous catheter; GA, general anaesthesia; HLM, heart-lung machine; MAC, monitored anaesthesia care; NA, not available; OR, odds ratio; SOP, standard operating procedure; TAVI, transcatheter aortic valve implantation; y/n, yes/no.
without critical appraisal. Survey questions were not developed in a Delphi procedure. Since survey participants are influenced by their personal opinions and experiences, a recall bias must be considered. As the survey was anonymised, a non-responder analysis is unfeasible.

As cross-sectional studies do not provide data on patients’ outcome, superiority of any specific medical regimen cannot be derived from our data. Our data do not include conversion rates from MAC to GA.

**CONCLUSION**

In conclusion, we found that the concordance with national regulations, periprocedural anaesthesia...
management and anaesthesia in-house standards for TF-TAVI vary broadly among German heart centres. Still, expert consensus recommendations or guidelines for anaesthesia and periprocedural management for TF-TAVI are lacking. In our opinion, the findings might be useful to push forward the idea of standardisation, international expert consensus recommendations or guidelines regarding periprocedural anaesthesia management for TF-TAVI and enhanced recovery after TF-TAVI. Further studies investigating the possible impact on patients’ outcome are needed.

Contributors BL: conceived and designed the study, was responsible for data analysis and interpretation and drafted the manuscript. AT: conceived and designed the study and drafted the manuscript. AZ: responsible for data analysis and interpretation, and drafted the manuscript. AD: responsible for data interpretation and drafted the manuscript. ST: responsible for data interpretation and critically revised the manuscript for important intellectual content. DAF: responsible for data interpretation and critically reviewed the manuscript for important intellectual content. SH: responsible for data interpretation and critically revised the manuscript. MP: responsible for data analysis and interpretation, drafted the manuscript and supervised the study.

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Patient consent for publication Not required.

Ethics approval This anonymized nationwide survey was approved by the Ethics Committee of the Medical Board of the University of Rostock (A 2019-0009, 16 January 2019, chairperson Professor A. Bünther).

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article.

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