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Do patients need advice and information to prevent infections — results of a single centre structured survey

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SUMMARY

Background: Healthcare-associated infections are a major burden for hospitals, leading to morbidity and mortality and unnecessary medical costs. They can probably be reduced through what is known as patient empowerment. This study aims to address the question of whether patients are interested in receiving infection prevention and control information.

Methods: Patients were asked in structured interviews whether they would like more information on infection prevention and control. Inclusion criteria comprised 2 groups of patients. Group 1 were patients undergoing elective total endoprosthesis (TEP) and Group 2 were patients tested positive for meticillin-resistant *Staphylococcus aureus* (MRSA).

Results: The response rate was 38.4 % (163/425 patients). Approximately 75 % of the patients were interested in information on infection prevention and control. The topics of interest differed between the two patient groups: MRSA patients had a higher need for infection prevention and control information. TEP patients showed a high acceptance of antiseptic body wash and a willingness to pay for it themselves. Information given to patients should be group-specific and timely.

Conclusion: Our data suggest a lack of information on infection prevention and control among patients and underline the importance of patient empowerment. The willingness of patients to pay personally for antiseptic wash should be assessed further.

Introduction

Healthcare-associated infections (HAIs) are a major burden for hospitals, leading to morbidity and mortality and unnecessary medical costs. An estimated 16,000 deaths per year in Germany can be attributed to HAIs [1]. Infections caused by multi-resistant bacteria are of particular importance [2,3]. Infection prevention and control measures aim to reduce

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HAIs and thereby save lives and avoid unnecessary treatment costs [4—6].

Opinions differ on how inpatients should be involved in infection prevention and control measures. Most authors emphasise the importance of patient empowerment and see a link between care and infection prevention and control [7—9]. Others point out that patient empowerment can lead to patients being overwhelmed. Moreover, some question the value of placing an additional burden on critically ill patients and expecting them to participate actively in infection prevention and control [10]. On the other hand, several studies suggest that patient education on infection prevention and control is low and in need of improvement [11]. Thus, numerous national and international evidence-based recommendations on infection prevention and control also include approaches to involve patients in the infection prevention and control process. Nevertheless, specific and standardised protocols are often lacking to make clear statements on the importance of patient empowerment [12,13]. Hand hygiene of medical staff improved significantly due to several interventions [14]. Such effects can probably also be achieved in patients.

The present study investigates the question of whether patients are interested in information and advice on infection prevention and control.

Methods

Structured and standardised personal interviews were performed in University Hospital Göttingen (UMG) in Germany which is tertiary care (teaching) centre. UMG provides 1,450 beds and has an annual patient volume of 65,000 in-patients and 225,000 out-patients. The study took place between September 2019—March 2021. However, the enrolment period was extended due to breaks in clinical studies caused by the COVID-19 pandemic. Between March and June 2020, the survey had to be suspended due to the nationwide lockdown during the COVID-19 pandemic. The study inclusion criteria comprised two groups of patients. Group 1 was patients undergoing elective total endoprosthesis (TEP) and Group 2 was patients who had tested positive for meticillin-resistant *Staphylococcus aureus* (MRSA). Exclusion criteria were as follows: patients <18 years; patients in intensive or palliative care; patients who were receiving end of life care or who required full time carers. Following statistical advice at least 50 patients (ideally 100 patients) were required for each of the 2 groups. All patients meeting the inclusion criteria were enrolled consecutively. Exceptions to this were patients who had a very short stay in hospital (e.g. weekend) or during lockdown due to the COVID-19 pandemic.

A mixed mode questionnaire was used including multiple response options and written consent was obtained before starting the survey. The study was carried out within the MRE-Netzwerk "Gesundheitsregion Göttingen/Südniedersachsen". Ethical approval was given before the start of the study (33/8/19). There was no funding.

Results

The points of interest included in the survey and the structure of the questionnaire are shown in an info box in Figure 1. 425 patients were enrolled and the overall response rate was 163/425 patient (38.4%) with a higher response in the TEP group (98/183 patient, 53.6%) compared to the MRSA group (65/242 patient, 26.9%). 73% of enrolled MRSA patients were not included and interviewed. The reasons for non-participation were: illness affecting inability to communicate or abnormal mental status: 76 patients (43%); discharge: 60 patients (34%); language barrier: 15 patients (8.5%), no interest in infection prevention and control information: 11 patients (6%) and others: 15 patient (8.5%). Reasons for TEP patient non-participation were concurrent medical examinations and no interest in infection prevention and control information 85/183 patient (46%).

The main topics of interest mentioned by the patients differed in both patient groups. The results are illustrated in Table I. The data show a high level of acceptance and interest for antiseptic washing by the TEP patient group. The majority of TEP respondents reported willingness to pay for antiseptic body wash themselves if the antiseptic body wash would not be supplied by the hospital (58 patients, 59%). Questions about the previous sources of information used by patients obtained the following results: patients with TEP and with MRSA did use information before admission at about the same level with 51/98 (52%) patients for the TEP group and 35/65 (54%) patients for the MRSA group. The most common sources for previous information before admission were as follows: the internet with 22/51 (43%) for TEP and 19/35 (54%) for MRSA; a medical specialist 18/51 (35%) for TEP and 15/35 (43%) for MRSA; the family doctor 14/51 (27%) for TEP and 12/35 (34%) for MRSA and newspaper/magazine 11/51 (22%) for TEP and 11/35 (31%) for MRSA.

The desired information and advice for both groups are illustrated in Table II. The requested time frames for consultations were similar in the two patient groups with 24 hours being most appropriate TEP 71/98 (72.5%) and MRSA 43/65 (66.1%); followed by a time frame within a week for TEP 16/98 (16.3%) and 12/65, (18.5%) for MRSA; and lastly within a month,TEP 2/98 (2.0%) and MRSA 3/65 (4.6%). About 10% in both groups did not know what the best time frame would be.

Discussion

Patient empowerment is a cornerstone in modern medicine, especially in recent healthcare reforms [15]. However, the level of previous information and advice remains controversial in the scientific community. Moreover, there are several challenges to increase patient knowledge and to give advice appropriately to patients [16]. Our data aimed to define the burden of the subjective need for information and advice on infection prevention and control. The data suggest that the majority of patients had a substantial need for both advice and information. This is particularly important since we enrolled two completely different groups of patients leading to the same results.

For patients colonised with MRSA, there was already time to have been informed about MRSA and potential problems or solutions. In addition, MRSA patients tended to be older and more severely ill compared with others [17]. On the other hand, the other group of patients was a group of patients coming for elective surgery, in this case TEP, which means they had time to get information on the procedure of surgery and

Info Box

Questions to record the current state of information on infection prevention and control

- Open issues
- Previous source of information
  - I. Family doctor
  - II. Medical specialist
  - III. Internet
  - IV. Newspaper/Magazine
- Quality of information (especially in context of decolonisation treatments)

Questions on how to implement information and advice on infection control and control

- Areas of interest
  - I. Hospital stay
  - II. Decolonisation treatment
  - III. Influence of MRSA on health
  - IV. Domestic environment
  - V. Prevention (especially antiseptic body wash)
- Timing of information and advice
  - I. 24h
  - II. 1 week
  - III. 1 month
- Kind of information, by
  - I. Telephone hotline
  - II. Brochure
  - III. Internet / email
  - IV. Other

MRSA: Meticillin-Resistant *S. aureus*

Figure 1. Points of interest in the survey and the structure of the questionnaire.

the potential risks as well as potential preventive measures. There was a tendency that MRSA patients had increased need for advice compared to TEP patients as measured by open questions regarding infection prevention and control and hygiene. Perhaps this reflects the situation that the MRSA patient group already has problems with MRSA, whereas the other group (TEP patient) is only at risk for one infective problem, surgical site infection.

There are some infection prevention and control measures that are considered effective but their efficacy depends on implementation. One of these measures is pre-surgical antiseptic washing in patients undergoing surgery such as arthroplasty [18]. It is particularly important that our data show a very high level of acceptance and interest for antiseptic washing and that the majority of the interviewed TEP patients were willing to pay for it themselves. It has to be noted that these data reflect self-reported answers. However, it may be worth incorporating this willingness to pay themselves into further strategies for that specific patient group. In general, the implementation of a consultation should be group specific and timely.

An important limitation of this study is that it started before the COVID-19 pandemic and was then conducted during the COVID-19 pandemic. The COVID-19 pandemic has been shown to be of significant impact on medical health systems leading to a worldwide decline in inpatient care. Often, only very urgent treatments could be provided [19]. In addition, a large study in 84 departments of 10 hospitals in the United States reported that handwashing compliance was 46% before the COVID-19 pandemic and 56% during the COVID-19 pandemic [20]. The impact of the COVID-19 pandemic was also felt in our study. During the COVID-19 pandemic, significantly fewer patients

Table I

Main topics of interest for the two investigated group of patients: Group 1) Patients undergoing elective total arthroplasty (TEP); Group 2) Patients tested positive for meticillin-resistant *S. aureus* (MRSA)

Patients (n=163)	Topics of interest Number (%)			
	Antiseptic washing and/or decolonisation	Hospital stay	Influence of MRSA on health	Home environment
TEP (n=98)	77 (79%)	56 (57%)	NR	NR
MRSA (n=65)	45 (69%)	30 (46%)	41 (63%)	36 (55%)

NR = not reported.

Table II
Desired method information and advice for the two investigated group of patients: Group 1) Patients undergoing elective total arthroplasty (TEP); Group 2) Patients tested positive for meticillin-resistant S. *aureus* (MRSA).

Patients (n=163)	Desired method of information/advice Number (%)			
	Personal advice	Telephone hotline	Via email/internet	Via brochure
TEP (n=98)	49 (50%)	38 (39%)	46 (47%)	51 (52%)
MRSA (n=65)	37 (57%)	21 (32%)	22 (34%)	31 (47%)

were admitted to our hospital than before the pandemic. Moreover, during the COVID-19 pandemic, often only urgent treatments were performed. Based on calculations of the previous year, it can be assumed that about 40 TEP operations were omitted during this period. However, it is difficult to quantify the number of MRSA patients who were not admitted during this time, so no information can be provided on this. Thus, it is difficult to compare the situation before and during the pandemic. In this respect, no clear statement can be made on the impact of the COVID-19 pandemic on our study as well as on specific changes, such as compliance with hand washing and hand hygiene.

Conclusion

Both TEP and MRSA patients have a substantial need for information about infection prevention and control issues. The results potentially underline the idea of patient empowerment and the basic need to give patients more appropriate advice and information. However, the willingness of patients to pay personally for antiseptic wash should be further clarified in real day life situations.

Authors' contributions

All authors have reviewed and approved the manuscript. All authors have contributed significantly to the work. The manuscript has not been previously published nor has or is it being considered for publication elsewhere.

Ethics approval

Ethics approval was given before the start of the study (local ethic committee, head: Prof Dr. Brockmöller; 33/8/19).

Conflict of interest statement

None.

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