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Original Article

Periodic Infectious Disease Consultation with a Visiting Specialist in an Urban General Hospital in Japan

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Abstract

The importance of infectious disease (ID) consultation in a hospital setting has been increasing. However, little information has been reported regarding visiting ID consultation in hospitals without ID physicians. We aimed to summarize our experience of weekly visiting ID consultations by ID specialists. A visiting ID consultation was implemented every Friday in an urban general hospital with 369-beds in Fukuoka, Japan. The diagnosis, treatment, and prognosis of patients treated from June 2017 to May 2018 were analyzed. There were a total of 110 ID consultation cases during the study period. Hospital-acquired diseases accounted for approximately 40% (40/110), of which consulting cases from surgical physicians were more common than those from internal medicine physicians (25/44 vs. 15/66, $P = 0.0005$). Blood cultures were performed before consultation in 61.8% (68/110) cases, and the collection rate in the pulmonary cases (20/46, 43.5%) was significantly lower than in the non-pulmonary cases (48/64, 75.0%) ($P = 0.0008$).

Targeted/de-escalating antimicrobial therapy was conducted at a significantly lower frequency in the patients with no or unconfirmed bacteremic diseases (11/60, 18.3%), compared to patients with bacteremic diseases (30/34, 88.2%) ($P < 0.0001$). Of the 110 cases, 21 (19.1%) continued to worsen (2/21) or died (19/21) within 30 days after consultation. Our experience with visiting ID consultation underscores the importance of microbiological examinations, especially blood cultures, for pathogen identification and subsequent suitable therapy. Continued data collection in this field is warranted.

Keywords : infectious disease consultation, periodic visiting consultation, infectious disease physician, blood culture collection

Introduction

The need for infectious diseases (ID) specialists and their importance in the hospital setting has been increasing. Their role has been long discussed, especially when it comes to the implementation of antimicrobial stewardship. The intervention in which ID physicians supervise appropriate antimicrobial use has been generalized as antimicrobial stewardship programs (ASP)[1)]. ASP implementation has been indicated in the hospital setting for reducing inappropriate antimicrobial usage and antimicrobial resistance rates[2)]. The ID management through ID consulta-

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tion is also likely to be valuable in the hospital setting as it provides the patients with recommendations for the appropriate treatment of various infectious diseases[3]. In addition, the contribution of ID physicians to the health care systems as a whole has been discussed[4].

However, ID physicians seem to be still lacking in many hospitals. In Japan, ASP and/or ID consultations are mainly implemented in university hospitals, but full-time ID physicians are often absent in other hospital settings, even in urban general hospitals. In 2017, we were requested by an urban general hospital to implement visiting ID consultation. There is little information on periodic visiting ID consultation, although lots of studies on inpatient ID consultation intervened by full-time ID physicians have been reported. We aimed to overview our experience of weekly visiting ID consultations.

Methods

Infectious disease consultation

This study was conducted in the Fukuoka Wajiro Hospital, a private general hospital with 369-beds, located near the Kyushu University Hospital in Fukuoka, Japan. The internal medicine department of the Fukuoka Wajiro Hospital consisted of general internal medicine, cardiology, nephrology, and medical oncology, and the department of surgery consisted of general surgery, cardiovascular surgery, thoracic surgery, orthopaedic surgery, neurosurgery, urology, gynecology, ophthalmology, and dermatology. The number of full-time physicians was 18 in the department of internal medicine and 36 in the department of surgery. The hospital did not have any full-time ID specialist on its staff. The first author (Y.Chong), belonging to the department of infectious diseases in Kyushu University Hospital, was requested by the Fukuoka Wajiro Hospital to implement a program for ID consultation by a weekly visiting of an infectious disease specialist, resulting in an initiation at the beginning of June in 2017. The ID consultation was performed on every Friday afternoon. After receiving a request for ID consultation through electronic records and/or a face-to-face visit, a recommendation, which was based on patient information and physical examination, was made through electronic records and/or directly for responsible physicians. The follow-up of ID intervention was continued until the condition of diseases undergoing ID consultation resolved, and the intervention was followed until at least next week. Patients seen in the period of one year from June 2017 to May 2018 were included in this study. The institutional review board (the Fukuoka Wajiro Hospital) approved this study and exempted the need for obtaining informed consent from each patient. This study was designed as a retrospective, observational study.

Definition

Consultation cases were classified as community-acquired (CA), when developed before or within 48 hours after admission, and hospital-acquired (HA), when developed more than 48 hours after admission[5]. The definition of ventilator-associated pneumonia (VAP) relied on the guideline[5]. Targeted and de-escalating antimicrobial therapies were defined based on the Infectious Disease Society of America (IDSA) guideline[6]. 'Targeted/de-escalating therapy' shown in this manuscript means only targeted therapy or targeted and de-escalating therapy. The failure of ID intervention was applicable to the cases that continued to worsen or died within 30 days after consultation.

Microbiology

An automated blood culture system (bioMerieux Japan Ltd., Tokyo, Japan) with BacT/Alert FA FAN bottles (bioMerieux) was used to detect bloodstream infections. Other samples were cultured, chiefly using blood agar medium (BD). The species were identified using selection medium and the Vitek system (bioMerieux). The confirmation of causative pathogens in respiratory samples was based on the quantitative culture thresholds (sputum of $\geq 10^6$ CFU/mL and

an endotracheal aspiration of $\geq 10^4$ CFU/mL) along with the identification of a phagocytic or neutrophilic finding. Antibiotic susceptibilities of bacterial isolates, including Methicillin-resistant *Staphylococcus aureus* (MRSA), were determined by the breakpoints standardized by the Clinical and Laboratory Standards Institute (CLSI)[7]. The screening and confirmation tests for extended-spectrum β-lactamase (ESBL) were conducted according to the recommendation of the CLSI[7].

Statistical analysis

Categorical variables between groups were tested using the Fisher's exact test. $P < 0.05$ was considered to be statistically significant. All statistical analyses were performed using the JMP Pro software, version 13 (SAS Institute, Inc., Cary, NC, USA).

Results

There were a total of 110 ID consultation cases during the study period, including 66 referred by internal medicine physicians and 44 referred by surgical physicians (Table 1). The consultation numbers from internal medicine and surgical physicians were 3.7 (66/18) and 1.2 (44/36) per person doctor per year, respectively, resulting in an apparently lower number in surgical physicians. Among the latter, approximately 70% were referred by cardiac and orthopedic surgical physicians. However, The proportion of HA diseases were significantly higher in the cases referred by surgical physicians than in those referred by internal medicine physicians (25/44 cases vs. 15/66 cases, $P=0.0005$). The mean follow-up period was 3.9 weeks. The cases

Table 1 Characteristcs of patients in infectious disease consultation.

Characteristic	All patients (N = 110)
Age, mean years ± SD (range)	73.9 ± 17.1 (15-98)
Male / Female	68 / 42
Consultation source / Disease origin	
Internal medicine physician	66
Community-acquired	51
Hospital-acquired	15
Surgical physician	44
Community-acquired	19
Hospital-acquired	25
Follow-up period, mean weeks ± SD (range)	3.9 ± 4.6 (1-37)
Disease list	
Pulmonary disease	46
Non-infectious disease	7
Infectious disease	39
With bacteremia	6
Without bacteremia	33
Pneumonia	28
Lung abscess	2
Bacterial pleuritis	3
Non-pulmonary disease	64
Non-infectious disease	9
Infectious disease	55
With bacteremia	28
Without bacteremia	27

Table 2 List of non-pulmonary infectious diseases in consultation.

System	All disease (N = 55)
Cardiovascular, total	7
Infective Endocarditis	4
Infectious aortic aneurysm	1
Aortic graft infection	1
Chronic pericarditis	1
Renal and urinary, total	13
Acute pyelonephritis	11
Renal abscess	1
Prostatic abscess	1
Hepatobiliary, total	5
Liver abscess	3
Acute cholecystitis	1
Acute cholangitis	1
Gastrointestinal, total	5
Acute peritonitis	4
Chronic enteritis	1
Musculoskeletal, total	7
Pyogenic spondylitis	5
Acute sacroiliac arthritis	1
Piriformis myositis	1
Skin and soft tissue, total	9
Surgical site infection	4
Subcutaneous abscess	2
Acute cellulitis	2
Acute lymphadenitis	1
Other	9

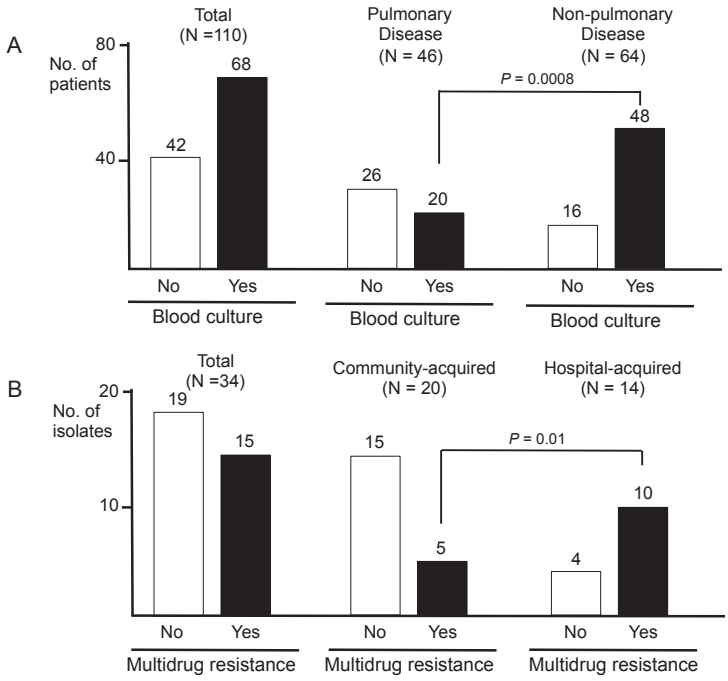

Fig. 1 (**A**) Collection rates of blood cultures before infectious disease consultation. The collection rates of blood cultures before consultation were compared between pulmonary and non-pulmonary cases. (**B**) Frequency of multidrug-resistance in bacteremic isolates from infectious disease consultation cases. The frequencies of bacteremic multidrug-resistance were compared between community-acquired and hospital-acquired cases. One *Candida albicans* isolate is not included.

undergoing ID consultation consisted of 46 pulmonary and 64 non-pulmonary diseases. A list of 55 non-pulmonary infectious diseases is shown in Table 2, which included various organ systems.

The collection rates of blood cultures before consultation were examined. It is desirable for the physician in charge to obtain blood culture samples from all patients undergoing ID consultation. Blood cultures were obtained from 68/110 (61.8%) cases (Fig. 1A), with two or more sample sets being collected in most cases (66/68, 97.1%). Of note, the collection rate in the pulmonary cases (20/46, 43.5%) was significantly lower than in the non-pulmonary cases (48/64, 75.0%) ($P = 0.0008$). In addition, the collection rate in the 33 pulmonary infectious cases with no or unconfirmed bacteremia was much lower (11/33, 33.3%). The etiology of bacteremic isolates in the 34 cases undergoing ID consultation is shown in Table 3. Of the 34 isolates, 15 (44.1%) were occupied by multidrug-resistant bacteria, in which the isolates from HA diseases were dominant (10/14, 71.4% for HA vs. 5/20, 25.0% for CA, $P = 0.01$) (Fig. 1B). Multidrug-resistant bacteria isolated from patients with HA diseases included MRSA (n = 5), coagulase-negative staphylococci (CNS) (n = 2), *Corynebacterium striatum* (n = 1), ESBL-producing *Escherichia coli* (n = 1), and *Stenotrophomonas maltophilia* (n = 1). Those isolated from patients with CA diseases included MRSA (n = 1) and ESBL-producing *E. coli* (n = 3), and ESBL-producing *Klebsiella pneumoniae* (n = 1).

Whether or not targeted/de-escalating antimicrobial therapy was performed after ID intervention was examined in the 94 infectious diseases (Fig. 2). In the cases with bacteremia, most patients underwent targeted/de-escalating therapy (30/34 cases, 88.2%). In contrast, the implementation of targeted/de-escalating therapy was at a low frequency (~20%) in the cases

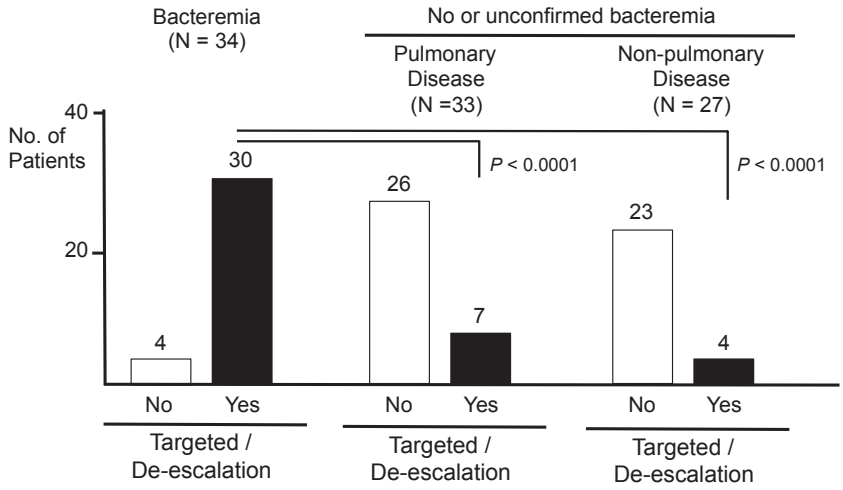

Fig. 2 Implementation of targeted/de-escalating antimicrobial therapy after infectious disease consultation. The implementation rates of targeted/de-escalating therapy after consultation were compared between bacteremic cases and cases with no or unconfirmed bacteremia. Targeted and de-escalating antimicrobial therapies were defined based on the Infectious Disease Society of America (IDSA) guideline[6].

Table 3 Etiology of bacteremic isolates in consultation

Organism	No. of isolates	Rate (%)
Gram-positive		
Staphylococcus species, total	14	40.0
Staphylococcus aureus (MSSA)	6	17.1
MRSA	6	17.1
Coagulase negative staphylococci	2	5.7
Streptococcus species, total	3	8.6
Streptococcus pneumoniae	2	5.7
Streptococcus anginosus	1	2.9
Enterococcus species, total	2	5.7
Enterococcus faecalis	2	5.7
Other[a)]	1	2.9
Gram-positive, total	20	57.1
Gram-negative		
Escherichia coli, total	6	17.1
Non-ESBL producing	2	5.7
ESBL-producing	4	11.4
Klebsiella pneumoniae, total	3	8.6
Non-ESBL producing	2	5.7
ESBL-producing	1	2.9
Enterobacter cloacae	3	8.6
Other[b)]	2	5.7
Gram-negative, total	14	40.0
Other[c)]	1	2.9
Isolates, total	35	100.0

a) The other included *Corynebacterium striatum*.

b) The other included *Stenotrophomonas maltophilia* and *Bacteroides fragilis*.

c) The other included *Candida albicans*.

The *Candida albicans* and *Streptococcus pneumoniae* were separately detected in the same patient.

MSSA, Methicillin-susceptible *Staphylococcus aureus* ; MRSA, Methicillin-resistant *Staphylococcus aureus* ESBL, extended-spectrum β-lactamase

Table 4 Initial antimicrobial treatment of infectious pulmonary diseases before consultation.

Antimicrobial	All diseases (N = 33)
Community-acquired	20
No anti-PA/anti-MRSA activity	13
ABPC/SBT	8
CTRX	5
Anti-PA/anti-MRSA activity	7
PIPC	1
PIPC/TAZ	4
MEPM	2
Hospital-acquired (VAP)	13 (7)
No anti-PA/anti-MRSA activity (for VAP)	6 (2)
ABPC/SBT	2 (1)
CTRX	1
CEZ	2 (1)
CMZ	1
Anti-PA/anti-MRSA activity (for VAP)	7 (5)
MEPM	5 (4)
VCM	1 (1)
MEPM + VCM	1

PA, *Pseudomonas aeruginosa* ; MRSA, Methicillin-resistant *Staphylococcus aureus* ; ABPC/SBT, ampicillin-sulbactam ; CTRX, ceftriaxone ; PIPC, piperacillin ; PIPC/TAZ, piperacillin-tazobactam ; MEPM, meropenem ; CEZ, cefazolin ; CMZ, cefmetazole ; VCM, vancomycin

with no or unconfirmed bacteremic diseases, when compared to bacteremic cases ($P < 0.0001$). Among the 33 pulmonary cases with no or unconfirmed bacteremia, sputum culture samples were obtained in the 21 cases (63.6%), of which their causative pathogens were identified in the eight cases (8/33, 24.2%), including Methicillin-susceptible *Staphylococcus aureus* (n = 1), MRSA (n = 2), *Enterobacter cloacae* (n = 1), *K. pneumonia* (n = 1), and *Pseudomonas aeruginosa* (n = 3). This finding suggested that an empirical antimicrobial therapy was continued in the most pulmonary cases. The initial antimicrobial treatment of the 33 pulmonary diseases before ID consultation was then examined (Table 4). Among the cases with CA diseases, antimicrobial agents with no anti-*Pseudomonas aeruginosa* (PA) /anti-MRSA activity were used in approximately two-thirds of the cases (13/20, 65.0%). The initial use of carbapenems was limited to two cases with lung abscess or empyema (2/20, 10.0%). In contrast, carbapenems were initially used in approximately half of the HA cases, exclusively for VAP (6/13, 46.2%).

Drug-related adverse events were found in 12 (10.9%) of the 110 consultation cases, of which seven cases (7/12, 58.3%) presented drug fever induced by antimicrobial agents. The remaining adverse events included methotrexate-induced pneumonitis, antimicrobial agent-induced liver injury, and antimicrobial agent-related *Clostridium difficile* colitis. Of the 110 ID consultation cases, 21 (2 worsened and 19 death cases) had the failure of intervention (21/110 cases, 19.1%) (Table 5). Thus, the success rate of the ID interventions, which was based on the number of patients who recovered from diseases within 30 days after consultation, was approximately 80%. The frequency of the abovementioned factors, including HA-relation, blood culture collection, causative pathogen identification, and targeted therapy, was compared between the 21 failure

Table 5 List of intervention failures in infectious disease consultation.

No.	Worsened/Death	Age	M/F	Disease origin	Disease category	Disease in ID consultation	Blood cuture	Sputum culture	pathogen identification	Targeted therapy	Consultation-related disease control	Related underlying cause of death
1	Worsened	75	M	HA	Pulmonary/Infectious	Pneumonia	No	No	No	No	No	NA
2	Worsened	75	F	HA	Non-pulmonary/non-infectious	Fever of unknown origin	No	NA	NA	NA	No (Possible central hyperthermia)	NA
3	Death	76	M	CA	Pulmonary/Infectious/bacteremia	Empyema with bacteremia	No	Yes	Yes (ESBL-KP)	Yes	No	Infected aortic aneurysm rapture, empyema, septic shock
4	Death	82	M	HA	Pulmonary/Infectious/bacteremia	Pneumonia with bacteremia	Yes	No	Yes (MRSA)	Yes	Yes	Massive gastrointestinal bleeding, hemorrhagic shock
5	Death	86	F	CA	Pulmonary/Infectious/bacteremia	Pneumonia/empyema with bacteremia	Yes	Yes	Yes (PSSP)	Yes	Yes	Following *Candida albicans* bacteremia, septic shock
6	Death	67	M	HA	Pulmonary/Infectious	Pneumonia (VAP)	No	No	No	No	No	Pneumonia, stage IV esophageal cancer
7	Death	78	M	HA	Pulmonary/Infectious	Pneumonia	Yes	Yes	No	No	No	Pneumonia, acute respiratory distress syndrome
8	Death	86	M	CA	Pulmonary/Infectious	Pneumonia	Yes	Yes	Yes (KP)	Yes	No	Pneumonia
9	Death	92	F	CA	Pulmonary/Infectious	Pneumonia	Yes	Yes	Yes (MRSA)	No	No	Pneumonia
10	Death	66	M	CA	Pulmonary/Infectious	Pneumonia	No	No	No	No	No	Pneumonia
11	Death	84	M	HA	Pulmonary/Infectious	Pneumonia (VAP)	No	Yes	No	No	No	Pneumonia, acute respiratory distress syndrome
12	Death	87	M	CA	Pulmonary/Infectious	Pneumonia	No	No	No	No	Yes	Following MRSA pneumonia
13	Death	44	M	CA	Non-pulmonary/non-infectious	Fever of unknown origin	No	NA	NA	NA	No (Possible central hyperthermia)	Acute myocardial infarction with cardiopulmonary arrest
14	Death	86	M	CA	Non-pulmonary/non-infectious	Unknown cause of pericardial and pleural effusion	No	NA	NA	NA	No	suspected malignant neoplasm
15	Death	93	F	HA	Non-pulmonary/Infectious/bacteremia	Bacteremia	Yes	NA	Yes (KP)	No	No	Bacteremia, septic shock
16	Death	84	F	HA	Non-pulmonary/Infectious/bacteremia	Acute pyelonephritis with bacteremia	Yes	NA	Yes (MRSA)	Yes	Yes	Progressive heart failure
17	Death	67	M	CA	Non-pulmonary/Infectious/bacteremia	Acute peritonitis with bacteremia	Yes	NA	Yes (EC)	No	No	Sigmoid colon perforation, diffuse suppurative peritonitis, septic shock
18	Death	61	M	CA	Non-pulmonary/infectious	Acute cholangitis	Yes	NA	No	No	No	Obstructive cholangitis, colon cancer with liver metastasis
19	Death	71	M	HA	Non-pulmonary/infectious	Aortic graft infection	Yes	NA	No	No	No	Intestinal perforation, septic shock, multiple organ failure
20	Death	82	F	CA	Non-pulmonary/infectious	Acute pyelonephritis	Yes	NA	No	No	Yes	Progressive renal and heart failure
21	Death	80	F	CA	Non-pulmonary/infectious	Septic shock	Yes	NA	No	No	No	Septic shock

Definition

ID, Infectious disease ; HA, hospital-acquired ; CA, Community-acquired ; VAP, Ventilator-associated pneumonia ; ESBL, Extended-spectrum β-lactamase ; KP, *Klebsiella pneumoniae* ; MRSA, Methicillin-resistant *Staphylococcus aureus* ; PSSP, Penicillin-susceptible *Streptococcus pneumoniae* ; EC, *Escherichia coli* ; NA, Not available

and 89 success cases. The intervention failure was not associated with any factors (HA, 9/21 for the failure vs. 31/89 for the success, $P = 0.61$; blood collection, 12/21 for the failure vs. 56/89 for the success, $P = 0.63$; pathogen identification, 8/18 for the failure vs. 38/76 for the success, $P = 0.79$; targeted therapy, 5/18 for the failure vs. 36/76 for the success, $P = 0.19$)

Discussion

The consultation numbers were much lower in surgical physicians than in internal medicine ones. A similar trend was found in another report[8]. However, HA diseases were significantly more prevalent in patients referred by surgical physicians (Table 1). HA infections, which have not been still referred by surgical physicians, seem to be left. For example, surgical site infections are a common issue in the hospital setting and appropriate interventions after ID consultation can contribute with the patient's recovery.

The frequency of patients from whom blood cultures were not obtained was approximately 40%. Particularly, this collection rate was lower in the pulmonary cases, in which only one-third (11/33 cases) received blood culture collection in the pulmonary infectious diseases. In these 33 cases, the collection rate of sputum cultures was over 60% ; however, only one-fourth of these cases reached into the identification of their causative pathogens. Various pathogens, including both gram positive and negative bacteria, have been detected in bacteremic pneumonia[9], suggesting that pulmonary cases are likely to be accompanied by bacteremia, irrespective of the source of infection. As sputum cultures have limitations, simultaneous blood culture collection can increase the odds of identifying the causative pathogen and improve the currently low performance of targeted/de-escalating antimicrobial therapies.

In this study, multidrug-resistant bacteria accounted for nearly half of the bacteremic isolates, with MRSA and ESBL-producing bacteria being exclusively dominant (11/15, 73.3%). The patient with MRSA bacteremia, which was defined as 'community-acquired' in this study, was on hemodialysis. The patient who died of MRSA pneumonia (Table 5, No. 9) was also defined as CA in this study, and was hospitalized from a healthcare facility. The MRSA infection of these patients is capable of being defined as 'hospital-acquired' if the commonly used definition of CA/HA-MRSA is applicable[10]. A current increase in the detection of CA-MRSA in Japan has been indicated as well as overseas[11)12)]; however, selecting a therapeutic strategy as HA-MRSA seems to be desirable for an initial empirical treatment, even for newly admitted patients. In contrast, it is intriguing that most infections with ESBL-producing bacteria were community-acquired. The worldwide spread of ESBL-producing bacteria, including in Japan, is now a critical concern for the development of therapies against multidrug-resistant bacteria[13)14)]. One of the ESBL characteristics is its successful dissemination in the community. Carbapenems are used as the first-line therapy against ESBL infections ; therefore, the demand for carbapenems is expected to be maintained at a certain level, not only for empirical therapies but also for targeted therapies.

In this study, the selection of initial antimicrobial agents for the pulmonary infectious diseases seemed to be appropriate for most cases (Table 4). Thus, these ID consultations were performed due to their worsening status after the initial treatment. Regarding all infectious diseases in this study, the use of carbapenems after consultation could not be avoided in around one-third cases, probably because the causative pathogens were not identified in most cases. One of the risk factors for the spread of multidrug-resistant bacteria, representatively *P. aeruginosa*, may be the high consumption of carbapenems[15]. Efforts to collect an adequate number of culture samples, including blood, seem to be important to spare carbapenem usage for long-term empirical treatments.

Culture collection, pathogen identification, and targeted/de-escalating therapy are within the range of antimicrobial stewardship. The implementation of ASP reduces inappropriate antimicrobial usage and antimicrobial resistance rates[2]. However, the implementation of ASP is not associated with a reduction in mortality[2]. Our results are consistent with that of the ASP meta-analysis.

The success rate of ID intervention in this study (around 80%) is difficult to evaluate, due to the lack of control cases without ID intervention. Whether patient's outcomes can be improved through ID intervention for unselected diseases cannot be fully concluded, because the nearly perfect matching of patient background is difficult[16)17)]. In this scenario, the positive effect of the intervention performed by ID physicians on the prognosis of patients with bacteremia (particularly those caused by *S. aureus*), has been discussed[18)]. Recently, a contribution of such intervention for survival improvement has been reported[19)]. In addition, it has been also reported that multiple ID interventions, rather than a single intervention, helped improve the patient's outcomes, although a problem still remains regarding the method of statistical analysis[20)]. The patients addressed in this study underwent continuous interventions.

We have shown our experience with a periodic visiting ID consultation in a Hospital without ID physicians. It should be noted that the ID consultations were less likely to be referred by surgical physicians, and that the hospital-acquired conditions were more likely to develop in the consulting cases from surgical physicians. Therefore, it is important that the referral rate of these patients to ID consultations be increased. Also, the collection of culture samples, especially blood samples, must be intensified in order to improve the identification of causative pathogens and consequently guide the most suitable therapy. The information provided by this study will be brought to the attention of the physicians in the hospital where the visiting ID consultation was performed. The continued collection of information on visiting ID consultation in hospitals without ID physicians would be warranted.

Conflicts of interest :

The authors indicate no potential conflicts of interest. The authors did not receive any funding.

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（和文抄録）

福岡市近郊総合病院において実施された定期訪問による感染症コンサルテーション

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入院患者に対する感染症コンサルテーションの重要性が増しているなか，感染症専門医不在の病院における感染症コンサルテーションについては情報が少ない．我々は定期訪問による感染症コンサルテーションの経験について報告する．福岡市近郊の総合病院（369 床）において，毎週金曜日訪問の感染症コンサルテーションが実施された．2017 年 6 月から 2018 年 5 月までにコンサルテーションを受けた患者の診断，治療，予後について解析された．期間内に 110 例のコンサルテーションを認めた．院内感染症例は約 40%（40/110）を占めたが，外科医師からの症例が内科医師よりも有意に多かった（25/44 vs. 15/66，$P = 0.0005$）．コンサルテーション前の血液培養の実施率は 61.8%（68/110）であった．この内，胸部症例における血液培養の実施率（20/46，43.5%）は非胸部症例（48/64，75.0%）と比べて有意に低かった（$P = 0.0008$）．抗菌薬治療におけるターゲット治療の実施率は，菌血症症例（30/34，88.2%）と比べて，非菌血症もしくは未確定症例（11/60，18.3%）において有意に低かった（$P < 0.0001$）．110 症例の内，21 例（19.1%）でコンサルテーション後 30 日以内の増悪（2/21）もしくは死亡（19/21）を認めた．定期訪問による感染症コンサルテーションの実施により，起炎菌同定及び適切な治療のために，微生物学的検査，とりわけ血液培養の重要性が明らかとなった．引き続きこの分野におけるデータ収集が必要とされる．

キーワード：感染症コンサルテーション，定期訪問コンサルテーション，感染症専門医，血液培養収集