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Correlation of Adherence to the 2012 Infectious Diseases Society of America Practice Guidelines with Patient Outcomes in the Treatment of Diabetic Foot Infections in an Outpatient Parenteral Antimicrobial Programme

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Abstract

Aim

To evaluate adherence to the 2012 Infectious Diseases Society of America practice guidelines for the management of patients with diabetic foot infections and to determine an association between adherence and clinical outcome.

Methods

A retrospective chart review was performed to evaluate the management and clinical outcomes of patients with diabetic foot infections treated with outpatient parenteral antimicrobial therapy between 1 January 2011 and 30 June 2012 at Wishard Health Services/Eskenazi Health. Adherence to individual Infectious Diseases Society of America diabetic foot infection treatment guideline recommendations was measured, and then assessed in relation to clinical outcome.

Results

A total of 57 patients (61% male, mean age 54 years) with moderate to severe diabetic foot infection met the inclusion criteria. None of the treatment courses of these patients adhered to all the Infectious Diseases Society of America guideline recommendations. The recommendations most frequently adhered to were consultation of appropriate multidisciplinary teams (*n*=54, 94.7%) and performance of diagnostic imaging (*n*=52, 89.5%). The recommendations least frequently adhered to were diabetic foot wound classification scoring on admission (*n*=0, 0%), appropriate culture acquisition (*n*=12, 21.2%), surgical intervention when indicated (*n*=32, 46.2%) and appropriate empiric antibiotic selection (*n*=34, 59.7%). Of 56 patients, 52 (92.9%) experienced clinical cure at the end of outpatient parenteral antimicrobial therapy compared with 34 of 53 patients (64%) at 6 months after the completion of therapy. Adherence to individual guidelines was not associated with clinical outcome. Patients who experienced treatment failure were more likely to have severe diabetic foot infection or peripheral neuropathy.

Conclusions

Adherence to the Infectious Diseases Society of America diabetic foot infection guideline recommendations was found to be suboptimal in the present study. The effect of adhering to individual Infectious Diseases Society of America diabetic foot infection recommendations on clinical outcome needs to be investigated.

Introduction

The multiple complications associated with diabetes mellitus are a continuing challenge for clinicians and lead to frequent hospitalizations, reduced quality of life and healthcare costs of $500 million annually [1]. Of these complications, diabetic foot infection is the most common reason for diabetes-related hospitalization and lower extremity amputation in patients with diabetes [2, 3]. Diabetic foot infections are notoriously difficult to treat, with reported failure rates of 30–40% [3-7] and up to 15% of patients requiring amputation [8]. To address these management issues, the Infectious Diseases Society of America (IDSA) released updated clinical practice guidelines in 2012 for the diagnosis and treatment of diabetic foot infections [2, 9].

Some patients with diabetic foot infection require treatment with parenteral antimicrobial therapy, which may be administered through the use of outpatient parenteral antimicrobial therapy (OPAT). The increased use of OPAT in recent years is attributable to the accumulating literature highlighting its safety and efficacy in patients with certain infection types, and the lower costs associated with this form of care [10, 11]. To date, there have been limited published data on the use of OPAT for the treatment of patients with diabetic foot infection. Studies have either evaluated OPAT in cohorts where diabetic foot infection comprised a subset of patients or have evaluated the use of a specific antibiotic regimen in the treatment of diabetic foot infection [11-13]. In addition, few studies have identified risk factors associated with treatment failure in diabetic foot infection [3, 5].

The aim of the present study was to evaluate clinician adherence to the individual recommendations within the updated 2012 IDSA diabetic foot infection clinical practice guidelines and to determine whether there was an association between guideline adherence and clinical outcome. In addition, we investigated the risk factors associated with diabetic foot infection treatment failure and the use of OPAT for the management of diabetic foot infection.

Patients and methods

Study design

The present study was a retrospective, observational chart review performed at Wishard Health Services/Eskenazi Health, a 339-bed, university-affiliated, county teaching hospital in Indianapolis, Indiana. Wishard Health Services/Eskenazi Health has a formal OPAT programme, whereby, according to a hospital quality mandate, the inpatient Infectious Diseases consultation service must review and approve the use of OPAT before the patient is discharged from the hospital. The electronic medical records and OPAT clinic charts of adult patients admitted with diabetic foot infection with or without osteomyelitis and subsequently discharged to the Wishard Health Services/Eskenazi Health OPAT programme between 1 January 2011 and 30 June 2012 were retrospectively reviewed by study personnel. Children, pregnant women and prisoners were excluded from the analysis, as were patients with orthopaedic hardware-related infection or stump infection.

The data collected for each patient, when available, included: (1) demographic/patient information: age, gender, ethnicity, BMI, smoking status, recent HbA_{1c} level, previous diabetic foot

infection/amputation and comorbidities including peripheral arterial disease, chronic kidney disease or peripheral neuropathy; (2) diabetic foot infection and treatment information: duration of ulcer prior to admission, diabetic foot wound classification on admission, antibiotics used, recommendations for surgery as determined by medical/surgical services, site of OPAT, duration of therapy, compliance with prescribed OPAT regimen, compliance with OPAT clinic appointments; (3) compliance with IDSA guideline recommendations, which were condensed into 11 specific and measurable recommendations summarized in Table 1 [2, 9, 14, 15]; and (4) clinical outcome at completion of OPAT and 6 months after completion of OPAT. The clinical outcome data at each time point was categorized as either treatment success, which was defined as resolution of all signs and symptoms of infection without re-infection of the original ulcer, or treatment failure, which was defined as lack of resolution of one of the original signs and symptoms of infection or re-infection of the original ulcer leading to re-hospitalization, amputation or surgery during OPAT or < 6 months after OPAT completion. For patients without diabetic foot wound classification scoring on admission, a PEDIS grade [15] was calculated retrospectively to classify the severity of the diabetic foot infection. For patients who received multiple OPAT courses for diabetic foot infection during the study period, only the first diabetic foot infection episode was included.

The primary outcome measure was the number of patients with diabetic foot infection managed in accordance with each of the individual recommendations of the 2012 IDSA diabetic foot infection treatment guidelines. In addition, patient compliance to the recommended OPAT course was assessed and defined as documentation of patient willingness to comply with 90% of OPAT doses (which was confirmed during each OPAT clinic visit) as well as documented attendance at all OPAT clinic appointments. Secondary outcome measures were treatment success or failure at the end of OPAT therapy and at 6 months after OPAT completion, changes in glucose control at 6 months, and risk factors associated with treatment failure.

Using descriptive statistics, the data during the patient's inpatient stay, OPAT treatment, and for up to 6 months after the completion of OPAT were analysed. Chi-squared and unpaired *t*-tests were performed, as appropriate, to compare the treatment success and treatment failure groups at the completion of OPAT therapy and at 6 months after the completion of OPAT, as well as to determine the risk factors associated with treatment failure. A P value of ≤ 0.05 was considered statistically significant.

The study was approved by the Indiana University institutional review board.

Results

During the study period, 326 patients received OPAT for the treatment of infection, with 73 of these patients (22.4%) receiving OPAT for the treatment of diabetic foot infection, with or without osteomyelitis. Of the 73 patients who received OPAT for diabetic foot infection, 57 (78.1%) met the inclusion criteria. Sixteen patients (21.9%) were excluded from the analysis due to incarceration (n = 7), receipt of the entire antimicrobial course as an inpatient (n = 5), or the presence of stump or orthopaedic hardware-related infections (n=4).

Table 1. Summary of Infectious Diseases Society of America diabetic foot infection guidelne recommendations [2]

Recommendation	Description
Diabetic foot wound classification scoring performed at baseline	Wound classified using one recommended diabetic foot wound classification method (PEDIS Grade [15], IDSA wound classification [9], University of Texas [14]) to classify wound as mild, moderate or severe
Appropriate imaging techniques performed	Plain radiograph +/- MRI or white blood cell scan performed if osteomyelitis suspected OR MRI only
Assessment of arterial ischaemia performed	Ankle brachial index performed and documented in patient chart
Consultation of appropriate multidisciplinary teamsa	Two or more of the following specialty teams consulted: Infectious Diseases, Orthopaedics, Vascular Surgery, Wound Care/Physical Therapy
Appropriate surgical procedures performed, when indicated	Incision and drainage performed +/- amputation or resection as indicated in patients with vascular insufficiency, extensive damage, etc.
Cultures obtained appropriately	Tissue obtained for culture via either curettage or incision and drainage (not superficial swabs), or bone biopsy for patients with suspected osteomyelitis; cultures obtained before initiating antibiotics
Appropriate empiric antibiotic regimen selected based on initial diabetic foot wound classification and risk factor assessment	Empiric antibiotic regimen appropriate based on severity of infection and only provides coverage against *Pseudomonas aeruginosa*b or MRSAc in patients at risk of infection due to these organisms.
Appropriate targeted antibiotic regimen selected based on culture results	Antibiotic therapy appropriately de-escalated based on culture results. If no cultures were obtained, continued therapy should provide coverage against *Pseudomonas aeruginosa*b and MRSAc only in patients at risk of infection due to these organisms.
Wound care recommendations provided to patient	Wound care recommendations should be clearly explained to patient and documented in patient chart.
Offloading recommendations provided to patient	Offloading recommendations should be clearly explained to patient and documented in patient chart
Appropriate duration of antibiotic therapy received based on infection type	Patient received the recommended duration of antibiotic therapy based on diagnosis and treatment course: 1–2 weeks for mild infection, 1–3 weeks for moderate infection, 2–4 weeks for severe infection, 6 weeks for osteomyelitis, 2–5 days for amputation/resection of osteomyelitis with clean margins

IDSA, Infectious Diseases Society of America; MRI, magnetic resonance imaging, MRSA, methicillin-resistant *Staphylococcus aureus*

[a]Excluding podiatry since inpatient podiatric services are not available at our institution.

[b]Only in patients with a history of soaking wound or in patients with severe infection upon presentation.

[c]Only in patients with a history of MRSA within the preceding year or in patients with severe infection upon presentation.

The baseline characteristics of evaluable study patients are summarized in Table 2. The majority of patients were male (*n* = 35, 61%) with a mean (range) age of 54 (29–84) years. The mean (range) weight of study patients was 95 (54.6–212) kg and mean (range) BMI was 31.7 (19–63.4) kg/m^2. Forty-four percent of patients (*n* = 25) had pre-existing peripheral neuropathy, and the mean (range) HbA_{1c} concentration on admission was 77 (37–160) mmol/mol or 9.2 (5.5–16.8)%. In all, 63% of patients had a history of previous diabetic foot infection (*n* = 36), with 37% (*n* = 21) having previously undergone amputation as a result of diabetic foot infection.

Table 2. Baseline patient/demographic characteristics (*N* =57)

Male gender, *n* (%)	35 (61.4)
Ethnicity, *n* (%)	
White	24 (42.1)
Black	28 (49.1)
Hispanic	5 (8.7)
Cigarette smoker, *n* (%)	16 (28.1)
Comorbidities, *n* (%)	
Peripheral arterial disease	13 (22.8)
Neuropathy	25 (43.8)
Chronic kidney disease	15 (26.3)
Age, years	
Mean ± sd	54 ± 12
Range	29–84
BMI, kg/m^2	
Mean ± sd	31.7 ± 7.9
Range	19–63.4
HbA_{1c}, mmol/mol	
Mean ± sd	77± 27
Range	37–160
HbA_{1c},%	
Mean ± sd	9.2 ± 2.5
Range	5.5–16.8

None of the patients underwent diabetic foot wound classification on admission, so this was performed retrospectively during chart review. All diabetic foot infections were classified as moderate (*n* = 39, 68.4%) or severe (*n* = 18, 31.5%) on admission (PEDIS Grade 3 or 4), as shown in Table 3 [2, 15]. The majority of patients received OPAT at home (*n* = 31, 54%), while 44% (*n* = 25) received OPAT at a rehabilitation or long-term care facility and 2% (*n* = 1) received OPAT during haemodialysis.

Adherence to guidelines

Overall, none of the diagnostic and treatment regimens of the 57 patients with diabetic foot infection incorporated all 11 recommendations from the IDSA diabetic foot infection guidelines. Table 4 shows the adherence to the individual diabetic foot infection guideline recommendations, including adherence to the guidelines based on clinical outcome. The recommendations most commonly adhered to were: consultation of appropriate multidisciplinary teams (infectious diseases, orthopedics, vascular surgery, and/or wound care; *n* = 54, 94.7%); performance of proper diagnostic imaging (*n* = 52, 89.5%); appropriate duration of antibiotic therapy (*n* = 51, 89.5%); and documentation of wound care recommendations (*n* = 48, 84.5%). The recommendations least frequently adhered to were: diabetic foot wound classification scoring on admission (*n* = 0, 0%); appropriate culture technique (*n* = 12, 21%); incision and drainage and/or amputation performed when indicated (*n* = 32, 56%); and appropriate empiric antibiotic selection (*n* = 34, 59.7%). Of the 45 patients (79%) whose cultures were not obtained appropriately, superficial wound cultures were performed in 21 patients (46.7%), cultures were obtained after the initiation of antibiotic therapy in five patients (11.1%), and cultures were not obtained in 19 patients (42.2%). Diagnostic bone biopsy was performed in only six of 49 (12%) patients with osteomyelitis in this study. Overall, there were 12 different antibiotic regimens used during empiric therapy, with a combination of vancomycin and piperacillin/tazobactam being used most frequently (*n* = 43, 75.4%). A total of 23 patients (40.4%) received inappropriate empiric antibiotic therapy on admission. All of these patients were classified as having moderate diabetic foot infection on admission, with 16 patients (28.1%) receiving inappropriate empiric therapy that provided coverage against methicillin-resistant *Staphylococcus aureus* and seven patients (12.3%) receiving inappropriate empiric therapy that provided antipseudomonal coverage in the absence of risk factors for these organisms. All empiric and targeted antibiotic regimens provided coverage against the bacteria that were isolated by culture, regardless of the appropriateness of the culture acquisition technique. For the 12 patients with adequate culture specimens, broad spectrum empiric antibiotic regimens were appropriately de-escalated in only seven patients (58%).

Treatment outcome

The majority of patients (*n*= 52/56, 92.9%) experienced treatment success upon completion of OPAT. One patient did not return for OPAT clinic follow-up after hospital discharge, and three additional patients were lost to follow-up at 6 months after completion of OPAT. Of the 53 patients with follow-up at 6 months, 34 patients (64%) experienced resolution of infection, while 19 patients (36%) experienced treatment failure requiring hospitalization/retreatment (*n* = 11) or amputation (*n* = 8). Patients with treatment failure were more likely to have received appropriate empiric (74 vs 47%, respectively) and targeted (84 vs 68%, respectively) antibiotic therapy than

patients with treatment success. The mean HbA_{1c} level decreased from 77 mmol/mol or 9.2% on admission to a mean (range) of 65 (32–124) mmol/mol or 8.1 (5.1–13.5)% 6 months after the completion of OPAT.

Risk factors for treatment failure

The presence of severe diabetic foot infection on admission and peripheral neuropathy were significantly associated with treatment failure (Table 4). Nine of 19 patients (47.3%) with treatment failure had severe diabetic foot infection classification at baseline compared with seven of 34 patients (20.6%) with treatment success (P=0.04). Nine of 19 patients (47.3%) with treatment failure had peripheral neuropathy at baseline compared with six of 34 patients (17.6%) with treatment success (P=0.02). Non-adherence to any specific individual IDSA guideline recommendation was not found to be a significant risk factor for treatment failure. Multivariate analysis did not demonstrate any combination of variables that were significantly associated with clinical outcome.

Discussion

Diabetic foot infections are notoriously difficult to treat and contribute to significant morbidity in patients with diabetes. This is often attributable to the presence of neuropathy, vascular disease and impaired immunity, which all increase the risk of infection and contribute to the severity of infection, especially in patients with uncontrolled diabetes [2, 16, 17]; therefore, successful treatment of diabetic foot infection requires a multidisciplinary approach to optimize clinical outcomes, as outlined and emphasized in the recent 2012 IDSA diabetic foot infection clinical practice guidelines. This rigorous and comprehensive approach to diabetic foot infection must extend throughout the course of a patient's treatment to achieve successful clinical outcomes.

In the present study, none of the treatment courses of the 57 patients with diabetic foot infection complied with all 11 IDSA diabetic foot infection guideline recommendations. The lack of adherence to specific diabetic foot infection guideline recommendations may have had a direct impact on the treatment and subsequent clinical outcomes of these patients. For example, many patients were started on empiric antibiotic therapy that was too broad, based on diabetic foot wound classification and risk factors for methicillin-resistant *S. aureus* or *Pseudomonas aeruginosa*. The inappropriate use of empiric antibiotic therapy was primarily attributed to lack of diabetic foot wound classification on admission, which is the main parameter used to guide empiric antibiotic therapy. In all patients, empiric antibiotic therapy provided coverage against bacteria that were eventually isolated in culture (whether or not the culture was obtained appropriately); however, the initial antibiotic choice was often too broad, which may contribute to antibiotic resistance and unwanted toxicities. There is a vital need for improvement in using diabetic foot wound classification scoring techniques to classify diabetic foot infection at baseline. The present study did not clarify why diabetic foot wound classification scoring was not performed, but one hypothesis is that the new clinical practice guidelines were released during the study period so that clinicians were not yet familiar with the importance of diabetic foot wound classification and assessment of risk factors for *Pseudomonas aeruginosa* and methicillin-resistant *S. aureus* on empiric therapy selection. It is also possible that clinicians who started empiric antibiotic therapy

were waiting for the wound care team to fully assess and classify the wound, and were unaware that their baseline diabetic foot wound classification should influence the choice of antibiotic therapy.

In the present study, the appropriate acquisition of cultures was performed in only 12 patients (21%). It is somewhat discouraging that antibiotic therapy was not appropriately de-escalated in 42% of these patients, and is an area of improvement currently being targeted by our inpatient infectious disease consultation team. In the 45 patients (79%) whose cultures were not obtained appropriately, 21 (47%) patients had surface swabs of their wound submitted for culture that probably led to directed antibiotic therapy with too broad a coverage because regimens were chosen to provide activity against colonizing bacteria not directly causing the diabetic foot infection; 19 patients (45%) did not have any cultures submitted, prompting clinicians to use empiric antibiotic regimens without definitive culture data that may lead to therapy that is too broad or provides inadequate coverage; and five patients (11%) had cultures performed after the initiation of antibiotic therapy. After analysing the data, however, all empiric and targeted antibiotic regimens provided coverage against the organisms that were isolated in culture.

Only 60.8% of patients underwent assessment for arterial ischaemia using the ankle brachial index measurement, which may have contributed to suboptimal treatment response in some patients who received only antibiotic therapy when revascularization or amputation was also needed because of underlying vascular insufficiency. Lastly, source control procedures (incision and drainage, amputation/resection as indicated) were not performed in 43.8% of patients, including 13 patients in whom amputation was recommended but not performed because of patient refusal (n = 11) or poor candidacy for surgery (n = 2). These low rates of surgical intervention probably contributed to treatment failure in some patients.

The clinical outcomes in the present study are consistent with those reported in other diabetic foot infection treatment studies [3-7, 13]. It is interesting to note that patients with treatment failure received more appropriate empiric and directed antibiotic therapy when compared with patients with treatment success. When analysing the details of these 19 patients, 14 (74%) presented with diabetic foot infection and associated osteomyelitis, and three did not receive recommended surgical intervention because of patient refusal (n = 2) and comorbidities (n = 1). It is unlikely that antibiotic therapy alone would have eradicated infection in the patients with treatment failure, and the poor clinical outcome observed in these patients is probably attributable to the severity of infection on presentation and lack of surgical intervention/source control.

The risk factors significantly associated with treatment failure in the present study were severe wound classification on admission and the presence of peripheral neuropathy. The risk factors associated with treatment failure in other diabetic foot infection studies include severe diabetic foot wound classification at baseline and leukocytosis [3]; and fever on admission, elevated serum creatinine levels, previous hospitalization for diabetic foot infection, the presence of gangrene or peripheral vascular disease, and severe diabetic foot wound classification [5]. The presence of peripheral neuropathy as a predictor of treatment failure in the present study differs slightly from existing literature [3, 5]. Neuropathy is probably an indicator for treatment failure as persistent

hyperglycaemia and uncontrolled diabetes foster the development of neuropathy, which can also lead to immunopathy and defects in leukocyte function [16-18].

The present study was unique in that it was conducted in a patient population receiving OPAT. After discharge, patients were closely managed with weekly laboratory tests and periodic follow-up clinic visits to assess infection status and antimicrobial treatment. The close monitoring and frequent visits required by the OPAT programme were important for this study, as patients were assessed throughout their entire treatment course for clinical outcome. Institution of an OPAT programme in hospital systems that do not currently have this service would provide close patient evaluation throughout the treatment process, and could quickly link patients to appropriate care if treatment was not progressing appropriately. This could potentially improve patient outcome and decrease the overall healthcare costs associated with the management of diabetic foot infection, although this study did not specifically assess this outcome.

The present study has several limitations. Firstly, it was a retrospective chart review. Because none of the patients underwent diabetic foot wound classification on admission, all wounds were retrospectively classified using data in the patient's medical chart to determine the appropriateness of empiric antimicrobial therapy. This retrospective diabetic foot wound classification may have led to misclassification as it was based on documentation of variables used for scoring (e.g. vital signs, size of surrounding erythema, etc.). Secondly, the sample size was relatively small, which probably led to an inability to detect significant differences between treatment success and failure groups with regard to adherence to specific guideline recommendations and risk factors for treatment failure. Thirdly, the 2012 IDSA clinical practice guidelines for the diagnosis and treatment of diabetic foot infection were published during the study period. While the general management recommendations in the 2004 IDSA diabetic foot infection guidelines were similar to those in the newer guidelines, the 2012 guidelines provided more specific information on diabetic foot wound classification, wound care techniques and offloading, and more thorough analysis of appropriate antibiotic regimens. The introduction of the 2012 IDSA diabetic foot infection guidelines may therefore have led to a heightened awareness of the need for specific treatment methods in this patient population. Lastly, since this study was performed at a single, county teaching hospital, the results may not be applicable to all patients with diabetic foot infection.

The present study re-emphasizes the overall complexity of diabetic foot infection management, which often involves many healthcare disciplines for optimal patient outcomes. More studies are needed to assess the appropriateness of diabetic foot infection management, with inclusion of a broader scope of hospital systems, to identify specific risk factors and management recommendations that contribute to improved clinical outcomes in this patient population. Since treatment outcomes in this patient population are notoriously poor, greater attention to the individual recommendations in the IDSA diabetic foot infection clinical practice guidelines for each patient may lead to better patient outcomes and, therefore, warrants further study. The results of our study have prompted an institution-wide initiative to provide more comprehensive and consistent diagnostic and treatment approaches to patients with diabetic foot infection.

Table 3. Diabetic foot infection an teatment information (*N* = 57)

Diabetic foot wound classification EDIS grade, *n* (%)	
Moderate	39 (68.4)
Severe	18 (31.5)
Diagnosisa, *n* (%)	
Osteomyelitis	49 (85.9)
Cellulitis	24 (42.1)
Abscess	10 (17.5)
Septic Arthritis	8 (14)
Gangrene	6 (10.5)
Otherb	4 (7)
Empiric antibiotic therapy regimens, *n* (%)	
Vancomycin + piperacillin/tazobactam	43 (75.4)
Vancomycin + cefepime	2 (3.5)
Vancomycin + meropenem	3 (5.2)
Otherc	9 (15.7)
OPAT site, *n* (%)	
Home	31 (54.3)
Rehabilitation/long-term care facility	25 (43.8)
Dialysis clinic	1 (1.7)
Clinical outcome after completion of OPAT (*N* = 56), *n* (%)	
Resolution of infection	52 (92.9)
Continued signs of infection	4 (7.1)
Clinical outcome 6 months after completion of OPAT (*N* = 53), *n* (%)	
Success	34 (64.2)
Failure	19 (35.8)
Duration of ulcer prior to admission, days	
Mean ± sd	35 ± 62
Range	1–365
Duration of antimicrobial therapy, days	
Mean	51 ± 21
Range	14–116

OPAT, outpatient parenteral antimicrobial therapy; LTCF, long-term care facility.
a Some patients had more than one diagnosis on presentation.
b Includes tenosynovitis (n = 2), Charcot arthropathy (n = 1), and myositis (n = 1).
c Includes vancomycin+clindamycin+cefepime, vancomycin+imipenem, ciprofloxacin+clindamycin, meropenem, vancomycin+meropenem+clindamycin, vancomycin+clindamycin, daptomycin+meropenem, vancomycin+piperacillin/tazobactam+clindamycin, and vancomycin+ciprofloxacin

Table 4. Adherence to Infectious Diseases Society of America diabetic foot infection guidelines, recommended outpatient parenteral antimicrobial therapy course and risk factors for treatment success or failure

	Overall adherence (*n* = 57)	**Success[a] (*n*=34)**	**Failure[a] (*n*=19)**	***P***
Recommendation				
Diabetic foot wound classification performed, *n* (%)	0 (0)	0 (0)	0 (0)	—
Proper diagnostic imaging performed, *n* (%)	53 (91,2)	32 (92.4)	16 (84.2)	0.24
Assessment of arterial ischaemia performed, *n* (%)	35 (60.8)	20 (58.8)	11 (57.8)	0.95
Consultation of appropriate multidisciplinary teams, *n* (%)	54 (94.7)	31 (91.2)	19 (100)	0.18
Appropriate surgical procedures performed, when indicated, *n* (%)	32 (56.2)	21 (61.8)	11 (57.9)	0.78
Cultures obtained appropriately, *n* (%)	12 (21.1)	7 (20.6)	5 (26.4)	0.63
Appropriate empiric antibiotic regimen selected, *n* (%)	34 (59.7)	16 (47.1)	14 (73.7)	0.06
Appropriate targeted antibiotic regimen selected, *n* (%)	42 (73.7)	23 (67.6)	16 (84.2)	0.19
Wound care recommendations provided to patient, *n* (%)	48 (84.9)	28 (82.4)	17 (89.5)	0.49
Offloading recommendations provided to patient, *n* (%)	36 (62.5)	24 (70.6)	10 (52.9)	0.19
Appropriate duration of antibiotic therapy received based on infection	51 (89.5)	33 (97.1)	18 (94.7)	0.67
Patient compliance with OPAT course, *n* (%)	41 (71.5)	28 (82.3)	13 (68.5)	0.25
Risk factor				
Mean age, years	—	54	51	0.31
Mean BMI, kg/m2	—	32	31.8	0.51
Mean baseline HbA_{1c}	—			
mmol/mol		74	79	0.96
%		8.9	9.4	
Cigarette smoker, *n* (%)	—	10 (29.4)	5 (26.3)	0.81
Previous diabetic foot infection, *n* (%)	—	18 (52.9)	14 (73.6)	0.14
Previous amputation, *n* (%)	—	10 (29.4)	8 (42.1)	0.35
Peripheral arterial disease, *n* (%)	—	14 (41.1)	4 (21)	0.14
Peripheral neuropathy, *n* (%)	—	6 (17.6)	9 (47.3)	0.02
Chronic kidney disease, *n* (%)	—	8 (23.5)	6 (31.5)	0.52
Moderate diabetic foot infection on admission, *n* (%)	—	27 (79.4)	10 (52.6)	0.04
Severe diabetic foot infection on admission, *n* (%)	—	7 (20.6%)	9 (47.3%)	0.04

OPAT, outpatient parenteral antimicrobial therapy.

aAssessed 6 months after the completion of OPAT.

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