

2.4. Limits for plate counts for operational samples

Many UK suppliers have also established working limits for samples taken for operational reasons, whilst others have no limits, but rely on previous knowledge of the distribution system (basically a local risk assessment approach). For health complaint and similar samples, the 'abnormal change' criteria described above tend to be used. For other samples (e.g. new mains acceptance, repaired mains testing), arbitrary values have been adopted, some in formal procedures, often at a higher level than those applied to regulatory samples (Table 3).

3. Heterotrophic plate count bacteria in UK public water supplies

Counts of heterotrophic bacterial populations in UK water supplies are, thus, used as secondary indicators of general water quality. The counts obtained at 22 °C are taken to be representative of the bacterial dynamics within distribution systems, with increases indicating growth of biofilm or similar events. Sudden changes in the count at 37 °C are initially taken to indicate potential nonspecific intrusion into the distribution system, although rises are also associated with growth in river derived supplies during seasons when the water temperature rises. Typically, counts in UK public water supplies are low and elevated counts at either incubation temperature uncommon. For example, the data from regulatory monitoring for Severn Trent Water (the second largest supplier in the UK, supplying 7.4 million people) for the year 2000 shows that, out of 44174 samples from service reservoirs and customer taps,

95.4% of counts at 37 °C did not exceed 10/ml (the 1980 EU guideline value) and only 0.3% of samples had counts of 100 or more (Table 4). The higher counts were associated with periods of warm water temperature for some surface water derived supplies. Sixty-seven percent of Severn Trent Water's supplies are sourced from surface waters. For counts at 22 °C, 98.1% did not exceed 100/ml (the 1980 EU guideline value) (Table 4), with higher counts being primarily associated with some service reservoirs during periods of higher water temperature and low volume turnover, during which proliferation of biofilms and associated heterotrophic bacteria is enhanced.

Identification of bacteria enumerated in plate counts is not routinely undertaken in the UK and published information is limited. Anecdotal information from suppliers, when identifications have been undertaken, indicates that the same bacteria are encountered as those that have been reported from USA and European supplies (e.g. LeChevalier et al., 1980; Gambassini et al., 1990; Rusin et al., 1997). Typically, species of *Pseudomonas* and related genera (e.g. *Burkholderia* and *Sphingomonas*), *Flavobacterium*, *Acinetobacter*, *Chromobacterium* and *Bacillus* are cited as occurring. A study of a supply sourced from a eutrophic reservoir in the east of England (Gibbs and Hayes, 1989) identified five species from the *Pseudomonas* group, and strains of *Aeromonas*, *Alcaligenes* and *Bacillus*. It is not surprising that these same groups of bacteria are being recorded from distribution systems, as these represent those bacteria that grow well on standard media and are amenable to identification by the commonly used commercial miniaturised identification systems (e.g. the API 20NE or BBL Crystal E/NF systems). In an investigation in 1997 of two

Table 4
Levels of plate counts from regulatory monitoring of water in supply for Severn Trent Water during 2000

		Percent of results			
		= 0	= 1 – 10	= 11 – 100	= > 100
Service reservoirs <i>n</i> = 31,278	37 °C	81.5 %	14.5 %	3.7 %	0.3 %
	22 °C	67.2 %	22.3 %	8.1 %	2.4 %
Customer taps <i>n</i> = 12,896	37 °C	71.9 %	22.0 %	5.8 %	0.3 %
	22 °C	69.1 %	24.3 %	5.9 %	0.7 %
Total <i>n</i> = 44,174	37 °C	78.7 %	16.7 %	4.3 %	0.3 %
	22 °C	67.8 %	22.9 %	7.4 %	1.9 %

Shaded boxes are counts within the 1980 EU Directive guidelines (European Union, 1980).

Table 5
Species of heterotrophic bacteria identified from two surface water derived supplies in the Severn Trent Water region

Treatment works	Service reservoirs	Distribution system
<i>Acinetobacter lwoffii</i>	<i>Acinetobacter lwoffii</i>	<i>Agrobacterium</i> sp.
<i>Aeromonas hydrophila</i>	<i>Bacillus licheniformis</i>	<i>Bacillus brevis</i>
<i>Bacillus brevis</i>	<i>Bacillus subtilis</i>	<i>Bacillus licheniformis</i>
<i>Bacillus licheniformis</i>	<i>Flavimonas oryzae</i>	<i>Burkholderia cepacia</i>
<i>Bacillus subtilis</i>	<i>Flavobacterium odoratum</i> ^a	<i>Corynebacterium</i> sp.
<i>Corynebacterium</i> sp.	<i>Flavobacterium</i> sp. ^a	<i>Flavobacterium indologenes</i>
<i>Flavimonas oryzae</i>	<i>Xanthomonas maltophilia</i>	<i>Flavobacterium</i> sp.
<i>Flavobacterium</i> sp.		<i>Pseudomonas fluorescens</i> ^a
<i>Pseudomonas</i> sp.		<i>Pseudomonas</i> sp. ^a
		<i>Vibrio</i> sp.
		<i>Xanthomonas</i> sp. ^a

^a Identification confirmed by ribotyping.

surface water derived supply areas by Severn Trent Water, isolates were identified by conventional biochemical testing and by ribotyping (Table 5). Again, species of *Bacillus*, *Flavobacterium*, *Pseudomonas* and *Pseudomonas*-related genera are the principal strains identified, with a greater range of identifiable species being recorded from samples taken from the distribution system customer taps compared to those from service reservoirs.

A more recent study conducted for the UK regulators (Drinking Water Inspectorate, 1998; Surman et al., 1998) attempted to characterise over 1000 isolates from 18 drinking water systems in England and Wales. Samples were taken from taps prior to flushing and disinfection of the tap (i.e. representing the standing water in the tap and immediate pipework) and after flushing and disinfection of the tap (i.e. representing water from the distribution network). As would be expected, counts from pre-flush samples were consistently higher than those from post-flush samples. Of 1127 isolates, 902 were Gram-stained, of which 376 (41.6%) were Gram-negative bacilli and 442 (49.0%) were Gram-positive cocci. One hundred and thirty-seven isolates of Gram-negative bacilli were identified using either API 20NE or BBL Crystal E/NF systems (Table 6). The identification of some isolates as *Listonella damsella* or *Shigella* sp. high-

lights the caution that needs to be taken with the identification of environmental bacteria with such systems. A much greater range of species, however, was identified from the pre-flush tap samples (26 species) than from the post-flush samples (17 species), probably reflecting the impact of external contamination and growth of natural and contaminating bacteria

Table 6

Tentative identification of plate count isolates from pre-flush and post-flush tap water samples from 18 supplies in England and Wales (modified from Drinking Water Inspectorate, 1998)

Identification	Frequency of identification		
	Pre-flush	Post-flush	Total
<i>Acinetobacter lwoffii</i>	7	1	8
<i>Aeromonas salmonicida</i>	3	4	7
<i>Agrobacterium tumefaciens</i>	1	0	1
<i>Agrobacterium radiobacter</i>	1	0	1
<i>Chromobacterium violaceum</i>	0	1	1
<i>Chryseomonas luteola</i>	0	1	1
<i>Flavobacterium breve</i>	3	0	3
<i>Flavobacterium gleum</i>	1	0	1
<i>Flavobacterium indologenes</i>	4	3	7
<i>Flavobacterium meningosepticum</i>	2	0	2
<i>Flavobacterium odoratum</i>	1	0	1
<i>Listonella damsella</i> ^a	29	17	46
<i>Listonella</i> sp.	0	1	1
<i>Moraxella phenylpyruvica</i>	1	0	1
<i>Moraxella</i> sp.	1	2	3
<i>Neisseria cinerea</i>	2	0	2
<i>Ochrobactrum anthropi</i>	3	0	3
<i>Pasteurella</i> sp.	1	3	4
<i>Pseudomonas fluorescens</i>	1	0	1
<i>Pseudomonas putida</i>	2	0	2
<i>Pseudomonas stutzeri</i>	3	2	5
<i>Pseudomonas vesicularis</i>	6	1	7
<i>Shewanella putrefaciens</i>	1	0	1
<i>Shigella</i> sp. ^b	0	1	1
<i>Shingobacterium multivorum</i>	6	1	7
<i>Sphingomonas paucimobilis</i>	1	1	2
<i>Vibrio metschnikovii</i>	0	1	1
<i>Vibrio parahaemolyticus</i> ^c	1	0	1
<i>Weeksella virosa</i>	4	4	8
<i>Weeksella zoohelcum</i>	3	2	5
<i>Xanthomonas maltophilia</i>	3	0	3
Total isolates identified	91	46	137

^a As *Listonella damsella* is a marine bacterium, this identification is probably incorrect.

^b Considering the nature of the supplies, this identification is suspect. The isolate died before the identity could be confirmed.

^c *Vibrio parahaemolyticus* is a pathogenic marine bacterium associated with seafoods. If the identity is correct, the most likely source is contamination of the tap during food preparation.

in the standing water. In this study, isolates were also tested for potential virulence (cytotoxins and enterotoxins, adhesive and invasive factors, and haemolysins). Of 585 isolates tested for at least one virulence marker, 127 (21.7%) showed some toxin or haemolytic activity (Drinking Water Inspectorate, 1998). Ninety-five (16%) isolates exhibited a haemolysin, 21 (4.5% of 469 tested) were verotoxic and 4 (2.5% of 151 tested) were cytotoxic. Twelve isolates (2.6% of 469 tested) were invasive into Hep-2 cells. Very few isolates demonstrated more than one virulence factor. These results are in accordance with those of Edberg et al. (1997) who also reported a low incidence of cytotoxicity and virulence characteristics for HPC bacteria isolated on blood agar. These virulence markers were not associated with any particular species or phenotypic group of bacteria or recognised enteropathogenic species. It was concluded that if any of these bacteria could produce disease they would need to be present in drinking water in high numbers and that the frequency of isolation of heterotrophic species with the capability to cause gastroenteritis symptoms is too low to be of significant concern to health authorities or water companies (Drinking Water Inspectorate, 1998; Surman et al., 1998), concurring with the conclusions of Edberg et al. (1997).

4. Heterotrophic plate counts: a useful operational tool

From the preceding discussion, it can be seen that in the UK the use of plate counts for assessing water quality has a long history. From an operational perspective, these counts are useful for assessing trends

in changes of water quality and some distribution management issues (e.g. biofilm development, stagnation and reduced chlorine levels). Populations of heterotrophic bacteria in treated water supplies are extremely heterogeneous, and population profiles will be dependent upon a number of factors including the nature of the source water, residence time in the system and disinfectant used. General heterotrophic bacteria populations are not considered to be of significant health concern (Drinking Water Inspectorate, 1998; Standing Committee of Analysts, 2002a), even though certain members may be opportunistic or potential pathogens. If it were considered that these bacteria merit investigation or control, then specific attention would be paid to them. The number of heterotrophic bacteria with putative virulence characteristics that have been isolated from treated water is very low, and does not represent a significant risk to public health (Edberg et al., 1997; Surman et al., 1998). The number of heterotrophic bacteria counted from UK drinking water is typically very low (a significant majority being $<10^3$ /ml and very few being $>10^6$ /ml), although occasional counts up to 10^7 /ml can be encountered. These are markedly lower than counts of aerobic bacteria permitted in ready-to-eat foods where aerobic colony counts up to 10^7 cfu/g can be considered to be acceptable (Table 7) (PHLS Advisory Committee for Food and Dairy Products, 2000). In the UK, it is estimated that the average consumption of drinking water is 1.138 l/day (Drinking Water Inspectorate, 1996). The survey indicated that, on average, 81.5% of tap water consumed is drunk as tea, coffee or other hot drink. Assuming that consumption can, on average, be ascribed pro-rata, this gives a mean consumption of unboiled tap water

Table 7
Guidelines for aerobic colony count (30 °C/48 h) for various ready-to-eat foods (PHLS Advisory Committee for Food and Dairy Products, 2000)

Food category	Example foods	Count (cfu/g)		
		Satisfactory	Acceptable	Unsatisfactory
1	Pork pies, sausage roll, raw pickled fish, mousse	$<10^3$	$10^3 - <10^4$	$\geq 10^4$
2	Ice cream, pizza, cakes and pastries (without dairy cream), mayonnaise, cooked vegetables	$<10^4$	$10^4 - <10^5$	$>10^5$
3	Sliced beef and poultry, seafood meals, cakes and pastries (with dairy cream), dried fruit, coleslaw	$<10^5$	$10^5 - <10^6$	$\geq 10^6$
4	Sliced ham, smoked fish, prepared mixed salads, sandwiches and filled rolls	$<10^6$	$10^6 - <10^7$	$\geq 10^7$

of 18.5% or 210 ml. This is similar to the median value of 153 ml reported from the Netherlands (Teunis et al., 1997). Thus the contribution to ingestion of HPC bacteria from drinking water, even with exceptionally high counts (ca. 10^3 /ml), is minimal compared to that potentially contributed from foods and other environmental sources. In this regard, setting of a numerical standard for general heterotrophic bacteria counts in public water supplies would not enhance public health protection.

In conclusion, the use of plate counts in the UK is seen as a useful tool in the management of the treatment and distribution of drinking water, but in themselves are not to be taken as indicators of direct health risk. Should specific members of this group of bacteria become of increased significance, if transmitted via the water supply, then specific standards or codes of practice for their control would be appropriate, rather than a general limitation of total heterotrophic bacteria numbers.

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表3 文献一覧

Methylobacterium radiotolerans

No	著者	タイトル	掲載誌	巻、号	ページ	発行年
1	de Cal M	<i>Methylobacterium radiotolerans</i> bacteremia in hemodialysis patients (血液透析患者の <i>Methylobacterium radiotolerans</i> 菌血症)	Giornale italiano di nefrologia	26(5)	616-620	2009

Acinetobacter calcoaceticus

No	著者	タイトル	掲載誌	巻、号	ページ	発行年
2	Gómez Garcés J L	Clinical importance of bacteremias caused by <i>Acinetobacter calcoaceticus</i> (<i>Acinetobacter calcoaceticus</i> によって引き起こされた菌血症の臨床的重要性)	Enfermedades infecciosas y microbiología clínica	8(10)	622-625	1990
3	Schloesser R L	An outbreak of <i>Acinetobacter calcoaceticus</i> infection in a neonatal care unit (新生児検診治療室における <i>Acinetobacter calcoaceticus</i> 感染の発生)	Infection	18(4)	230-233	1990
4	Alegre J	Non-hospital-acquired pneumonia caused by <i>Acinetobacter calcoaceticus</i> (<i>Acinetobacter calcoaceticus</i> によって引き起こされた、非院内感染の肺炎)	Enfermedades infecciosas y microbiología clínica	8(5)	328-328	1990
5	Zaer F	Nosocomial infections due to <i>Acinetobacter calcoaceticus</i> (<i>Acinetobacter calcoaceticus</i> による院内感染)	Journal of Postgraduate Medicine	35(1)	14-16	1989
6	Rolston K	<i>Acinetobacter calcoaceticus</i> septicemia in patients with cancer (癌患者における <i>Acinetobacter calcoaceticus</i> 敗血症)	Southern medical journal	78(6)	647-651	1985
7	Pal R B	<i>Acinetobacter calcoaceticus</i> -an opportunistic pathogen (<i>Acinetobacter calcoaceticus</i> -日和見病原体)	Journal of Postgraduate Medicine	27(4)	218-221	1981

Brevundimonas vesicularis

No	著者	タイトル	掲載誌	巻、号	ページ	発行年
8	Lee M R	Bacteremia caused by <i>Brevundimonas</i> species at a tertiary care hospital in Taiwan,2000-2010 (2000~2010年の台湾の第三病院における <i>Brevundimonas</i> 属菌によって引き起こされた菌血症)	European journal of clinical microbiology & infectious diseases	30(10)	1185-1191	2011
9	Pelletier , Jesse	<i>Brevundimonas vesicularis</i> keratitis after laser in situ keratomileusis (レーザー原位置角膜屈折矯正後の <i>Brevundimonas vesicularis</i> 角膜炎)	Journal of cataract and refractive surgery	36(2)	340-343	2010
10	Panasiti V	A cutaneous infection caused by <i>Brevundimonas vesicularis</i> :a case report (<i>Brevundimonas vesicularis</i> によって引き起こされた皮膚感染:事例報告)	International journal of immunopathology	21(2)	457-461	2008
11	Yang , Mei-Li	Case report: infective endocarditis caused by <i>Brevundimonas vesicularis</i> (事例報告: <i>Brevundimonas vesicularis</i> によって引き起こされた感染性心内膜炎)	BMC infectious diseases	6	179-179	2006
12	Mondello , Placido	Nosocomial <i>Brevundimonas vesicularis</i> meningitis (病院における <i>Brevundimonas vesicularis</i> 脳膜炎)	Le Infezioni in medicina	14(4)	235-237	2006
13	Gilad J	Hospital-acquired <i>Brevundimonas vesicularis</i> septicaemia following open-heart surgery:case report and literature review (開胸手術後の <i>Brevundimonas vesicularis</i> 敗血症の院内感染:事例報告と文献調査)	Scandinavian journal of infectious diseases	32(1)	90-91	2000

Staphylococcus hominis

No	著者	タイトル	掲載誌	巻、号	ページ	発行年
14	Cunha , Burke	<i>Staphylococcus hominis</i> native mitral valve bacterial endocarditis(SBE) in a patient with hypertrophic obstructive cardiomyopathy (閉塞性肥大型心筋症の患者における <i>Staphylococcus hominis</i> のヒト僧帽弁無菌性心内膜炎(SBE))	Heart & lung	36(5)	380-382	2007
15	Gómez Rodríguez N	Pyomyositis,sacroiliitis and spondylodiscitis caused by <i>Staphylococcus hominis</i> in a immunocompetent woman (免疫能力のある女性における <i>Staphylococcus hominis</i> によって引き起こされた化膿性筋炎、仙腸骨炎および脊椎椎間板炎)	Anales de medicina interna	23(12)	582-584	2006
16	Bowman R A	<i>Staphylococcus hominis</i> septicaemia in patients with cancer (癌患者における <i>Staphylococcus hominis</i> 敗血症)	Medical journal of Australia	140(1)	26-27	1984

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[**Methylobacterium radiotolerans** bacteremia in hemodialysis patients].

[Article in Italian]

de Cal M, Cazzavillan S, Cruz D, Nalesso F, Brendolan A, Rassu M, Ronco C.

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Abstract

Central venous catheters (CVCs) play an important role in replacement therapy for patients with acute and chronic renal failure. Secondary infections due to central venous access are responsible for 48-73% of bacteremia in hemodialysis patients and are an important cause of morbidity and increased health costs for these patients. Episodes of unexplained fever were noted in hemodialysis patients in our center starting in October 2006. An investigation for causative microorganisms was conducted from October 2006 to April 2007. Bacterial DNA was extracted and amplified using universal primers for bacterial 16S. Amplification by multiple PCR was performed on the samples and the subsequent sequencing led to the identification of the microorganism of interest as belonging to **Methylobacterium radiotolerans**. We report the largest cluster of dialysis catheter-related bloodstream infections caused by **M. radiotolerans**, and describe the difficulties in the prompt and correct identification of these bacteria. Thirty-seven patients had positive cultures for **M. radiotolerans** from blood (2.7%) or CVC (29.7%) or both (67.6%). After removal and replacement of CVCs and antibiotic therapy and the strict application of an infection management protocol, there were no more fever episodes or cultures positive for **M. radiotolerans**.

PMID: 19802807 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances

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Enferm Infecc Microbiol Clin. 1990 Dec;8(10):622-5.

[Clinical importance of bacteremias caused by *Acinetobacter calcoaceticus*].

[Article in Spanish]

Gómez Garcés JL, Fernández Guerrero ML.

Servicio de Microbiología Clínica, Fundación Jiménez Díaz, Madrid.

Abstract

Clinical data from patients with ***Acinetobacter calcoaceticus*** bacteremia observed during a period of 10 years were retrospectively reviewed. These bacteremias represent the 0.66% of the total number of positive blood cultures observed during the same period of time. The type *anitratus* was the most common (79.4%) although there were no significant differences in epidemiology, sensitivity, or clinical significance between both types. Only in 55.8% of the cases bacteremia was considered of clinical relevance. Multiple intravenous catheters represented the most important risk factor for bacteremia and site of infection origin (42%). Mortality in this series was about 30% of the cases. Contributions to the high mortality rate were the impossibility to establish an appropriate antimicrobial treatment in most of the cases and the existence of severe underlying diseases. The presence of immunosuppressive therapy or the existence of polymicrobial sepsis did not alter the prognosis. We conclude that once the presence of a blood culture positive to *A. calcoaceticus* is detected, antimicrobial treatment should be immediately established and investigation on the origin sites should be directed to the existing intravascular catheters.

PMID: 2098121 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms

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Infection. 1990 Jul-Aug;18(4):230-3.

An outbreak of *Acinetobacter calcoaceticus* infection in a neonatal care unit.

Schloesser RL, Laufkoetter EA, Lehners T, Mietens C.

Universitätskinderklinik, Ruhr-Universität Bochum, FR Germany.

Abstract

Between January and December 1988, 383 neonates were admitted to our neonatal intensive care unit. 1,991 swabs and blood cultures were tested bacteriologically. Among them 90 specimens obtained from 41 patients were positive for *Acinetobacter calcoaceticus*. During this period we discovered and treated three cases with *A. calcoaceticus* sepsis. Three additional cases had blood cultures positive for this bacterium without demonstrating any clinical signs of infection. There is good evidence that contaminated warm air humidifiers were the source of infection. A review of microbiological data for several months preceding the outbreak showed a definite increase in the presence of *A. calcoaceticus*. The affected neonates required specific antibiotic therapy and intensive care. All of them survived. Conditions favoring the spread of these generally non-pathogenic bacteria and modes of preventive measures are discussed. The necessity of continuous bacteriological surveillance and careful disinfection of intensive care equipment is emphasized.

PMID: 2210855 [PubMed - indexed for MEDLINE]

MeSH Terms

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Enferm Infecc Microbiol Clin. 1990 May;8(5):328.

[Non-hospital-acquired pneumonia caused by *Acinetobacter calcoaceticus*].

[Article in Spanish]

Alegre J, Fernández de Sevilla T, Falcó V, Farré A, Martínez-Vázquez JM.

PMID: 2128612 [PubMed - indexed for MEDLINE]

[Publication Types, MeSH Terms](#)

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5

PubMed



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J Postgrad Med. 1989 Jan;35(1):14-6.

Nosocomial infections due to *Acinetobacter calcoaceticus*.

Zaer F, Deodhar L.

Abstract

Fifty four isolates of *Acinetobacter calcoaceticus* were studied in a period of 6 months. Maximum isolates were from burns cases and environmental sampling from burns ward also grew the same organism, indicating their role as nosocomial pathogen. *Acinetobacter* may initially be mistaken for *Neisseria* species. As the organisms show multidrug resistance to commonly used antibiotics their correct identification is important.

PMID: 2585331 [PubMed - indexed for MEDLINE] [Free full text](#)

[MeSH Terms](#)

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South Med J. 1985 Jun;78(6):647-51.

Acinetobacter calcoaceticus septicemia in patients with cancer.

Rolston K, Guan Z, Bodey GP, Elting L.

Abstract

At our institution, 95 cases of **Acinetobacter** septicemia occurred over a ten-year period (1973 to 1982) in patients being treated for cancer. In 24 patients the infection was polymicrobial, while **Acinetobacter** ssp was the only offending pathogen in 71 patients. In 76 patients (80%), the infection was related to an indwelling central venous catheter (CVC). A sharp increase in the frequency of **Acinetobacter** septicemia was noticed in the years 1981 and 1982 and coincided with a marked increase in the number of indwelling CVCs in use. Acute leukemia and breast cancer were the malignancies most commonly associated with **Acinetobacter** septicemia. The isolates of **Acinetobacter calcoaceticus** from the patients in this study were highly susceptible to the aminoglycosides and moderately susceptible to trimethoprim-sulfamethoxazole (TMP-SMX), carbenicillin, and tetracycline. Seventy-nine patients recovered from their infection with removal of the CVC and antimicrobial chemotherapy. **Acinetobacter** sp was the cause of death in none of the 16 patients who died. A **calcoaceticus** is an important nosocomial pathogen causing infections predominantly in immune compromised patients and frequently associated with indwelling catheters.

PMID: 4001997 [PubMed - indexed for MEDLINE]

[MeSH Terms, Substances](#)

[LinkOut - more resources](#)

7

PubMed

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J Postgrad Med. 1981 Oct;27(4):218-21.

Acinetobacter calcoaceticus-an opportunistic pathogen.

Pal RB, Kale VV.

PMID: 7338827 [PubMed - indexed for MEDLINE] [Free full text](#)

[MeSH Terms, Substances](#)

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Eur J Clin Microbiol Infect Dis. 2011 Oct;30(10):1185-91. doi: 10.1007/s10096-011-1210-5. Epub 2011 Apr 3.

Bacteremia caused by *Brevundimonas* species at a tertiary care hospital in Taiwan, 2000-2010.

Lee MR, Huang YT, Liao CH, Chuang TY, Lin CK, Lee SW, Lai CC, Yu CJ, Hsueh PR.

Department of Internal Medicine, National Taiwan University Hospital, National Taiwan University College of Medicine, Taipei, Taiwan.

Abstract

We investigated clinical and microbiological characteristics of 30 patients with *Brevundimonas* bacteremia treated at a tertiary care hospital in Taiwan during 2000-2010. All the 30 bacteria isolates were confirmed to the species level by 16S rRNA sequencing analysis. Minimum inhibitory concentrations (MICs) of 11 antimicrobial agents against these isolates were determined by the agar dilution method. Seventeen (57%) patients had underlying malignancy, 12 (40%) had undergone central catheter placement, and 13 (43%) had received chemotherapy within the previous three months. Eight (27%) patients had community-acquired bacteremia and the remaining 22 patients (73%) had healthcare-associated bacteremia. The overall 14-day and 30-day mortality rates were 13% and 17%, respectively. Among the 30 isolates, *B. vesicularis* constituted most commonly (n = 22, 63%), followed by *B. nasdae* (n = 5) and *B. diminuta* (n = 3). All isolates were susceptible to piperacillin-tazobactam and amikacin, while all were resistant to ciprofloxacin and colistin. Tigecycline (MICs at which 90% of isolates are inhibited [MIC(90)] was 0.12 mg/L) and doripenem (MIC(90) of 1 mg/L) both possessed good in vitro activities. In conclusions, *Brevundimonas* should be considered a pathogen that can cause bacteremia in immunocompromised hosts. Piperacillin-tazobactam, amikacin, doripenem, and tigecycline exhibit good in vitro activities against these ciprofloxacin- and colistin-resistant *Brevundimonas* species.

PMID: 21461849 [PubMed - indexed for MEDLINE]

[MeSH Terms, Substances](#)

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J Cataract Refract Surg. 2010 Feb;36(2):340-3. doi: 10.1016/j.jcrs.2009.07.050.

Brevundimonas vesicularis keratitis after laser in situ keratomileusis.

Pelletier JS, Ide T, Yoo SH.

Bascom Palmer Eye Institute, Miami, Florida, USA. jessepelletier@yahoo.com

Abstract

A 45-year-old woman developed a corneal infiltrate 14 months after laser in situ keratomileusis (LASIK) enhancement in the left eye. The LASIK flap was lifted, scraped, and irrigated with fortified vancomycin and ceftazidime. Scraped samples were cultured and grew **Brevundimonas vesicularis**. The patient remained on topical ceftazidime until improvement was noted and was then switched to topical levofloxacin. The keratitis resolved on antibiotic agents with strong gram-negative coverage and a steroid. To our knowledge, this is the first report of a **B vesicularis** ocular infection.

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PMID: 20152619 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances

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Int J Immunopathol Pharmacol. 2008 Apr-Jun;21(2):457-61.

A cutaneous infection caused by *Brevundimonas vesicularis*: a case report.

Panasiti V, Devirgiliis V, Mancini M, Curzio M, Rossi M, Fioriti D, Pietropaolo V, Nicosia R, Gallinelli C, Chiarini E, Pecorini G, Calvieri S.

Abstract

Brevundimonas vesicularis is a non-fermenting gram-negative bacillus, aerobic and motile. This microorganism is ubiquitous in the environment and has rarely been implicated in human infections. We present the second case of cutaneous infection caused by *B. vesicularis* in an immunocompetent patient.

PMID: 18547490 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances

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