WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health

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Vol. 42 No. 33 **08th – 14th August 2015**

VER SRI LANKA - 2015

Melioidosis

Key facts

- Melioidosis is an infectious disease caused by a bacterium, Burkholderia pseudomallei.
- Melioidosis infection commonly involves the lungs.
- Melioidosis is diagnosed with the help of blood, urine, sputum, or skin-lesion testing.
- Melioidosis is treated with antibiotics.
- The overall mortality rate is 40%.

Introduction

Melioidosis, also called Whitmore's Disease, is an infectious disease caused by a bacterium called Burkholderia pseudomallei (previously known as Pseudomonas pseudomallei-Gram-negative,oxidase positive bacillus). The bacteria are found in contaminated water and soil and spread to humans and animals through direct contact with the contaminated source. The bacteria are also of some concern as a potential agent for biological warfare and biological terrorism. Melioidosis is similar to glanders disease, which is passed to humans from infected domestic animals.

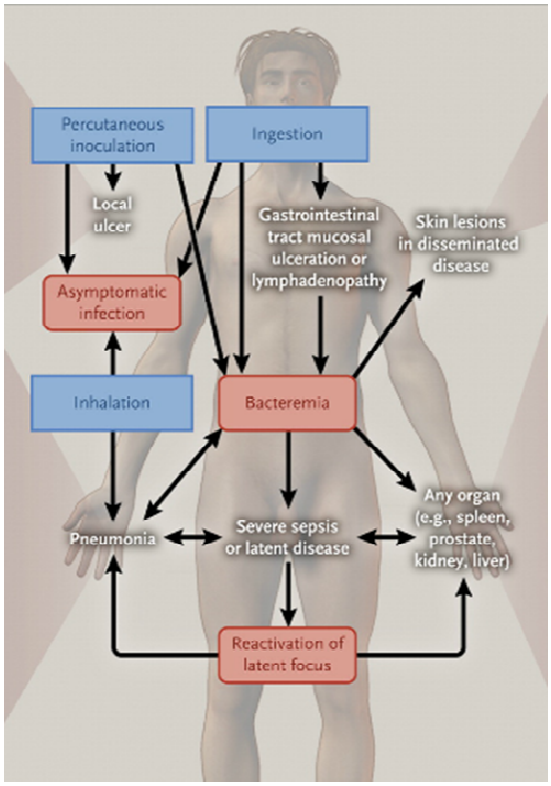
Melioidosis is most frequently reported in Southeast Asia and Northern Australia. It also occurs in South Pacific, Africa, India, and the Middle East. Although Sri Lanka is not considered as a country where melioidosis is endemic, an increasing number of cases have been reported recently. The first published report of melioidosis in Sri Lanka (and the Indian subcontinent) was in 1927 in a European tea broker resident in Sri Lanka, only sixteen years after the disease was initially described by Whitmore.

The bacterium that causes the disease is found in the soil, rice paddies, and stagnant waters of the area. People acquire the disease by inhaling dust contaminated by the bacteria and when the contaminated soil comes in contact with abraded (scraped) area of the skin. Infection most commonly occurs during the rainy season.

Symptoms

Melioidosis symptoms most commonly stem from lung disease where the infection can form a cavity of pus (abscess). The effects can range from mild bronchitis to severe pneumonia. As a result, patients also may experience fever, headache, loss of appetite, cough, chest pain, and general muscle soreness.

The effects can also be localized to infection on the skin (cellulitis) with associated fever and muscle aches. It can spread from the skin



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through the blood to become a chronic form of melioidosis affecting the heart, brain, liver, kidneys, joints, and eyes.

People with Diabetes mellitus, renal disease, liver disease or alcoholism are most likely to get the severe form of the infection. Melioidosis can be spread from person to person as well.

Diagnosis

A diagnosis of B. pseudomallei infection requires both clinical suspicion and supporting laboratory evidence. The variety of clinical manifestations of infection makes melioidosis difficult to diagnose clinically. The definitive diagnosis depends on the isolation and identification of B. pseudomallei from clinical specimens. (blood, urine, sputum, or skin-lesion sample)

A delay in diagnosis can be fatal, since empirical antibiotic regimens used for suspected bacterial sepsis often do not provide adequate coverage for B. pseudomallei. Guidelines for empirical treatment of community-acquired pneumonia in endemic regions recommend the administration of antibiotic agents with activity against B. pseudomallei in patients with risk factors for melioidosis. Laboratory procedures for maximizing the culture and identification of B. pseudomallei have been developed, but a delay in the identification of B. pseudomallei or a misidentification as another species is not uncommon in laboratories that are unfamiliar with this organism. A direct polymerase-chain-reaction assay of a clinical sample may provide a more rapid test result than culture, but the assay is less sensitive, especially when performed on blood. Serologic testing alone is inadequate for confirming the diagnosis, especially in endemic regions where the background seropositivity rate can be more than 50%.

The treatment of melioidosis consists of an intensive phase of at least 10 to 14 days of ceftazidime, meropenem or imipenem administered intravenously, followed by oral eradication therapy, usually with trimethoprim–sulfamethoxazole (TMP-SMX) for 3 to 6 months. Carbapenems, such as meropenem and imipenem, have lower minimum inhibitory concentrations and superior results in in vitro time-kill studies than ceftazidime, but a randomized comparative study in Thailand did not show a survival advantage of imipenem over ceftazidime. The current recommendation for the oral phase of therapy is TMP-SMX, which replaces the previous recommendation to give this medication in conjunction with doxycycline. A careful search for internal-organ abscesses is recommended, such as with the use of computed tomography or ultrasonography of the abdomen and pelvis. Adjunctive therapy for abscesses includes drainage of collections and aspiration and washout of septic joints.

Prevention

Melioidosis is potentially preventable, but there is no evidence base for the development of guidelines for prevention. Although it has been recommended that people with cystic fibrosis be warned about traveling to areas where melioidosis is endemic, no advice is given to tourists in general, despite the steadily increasing number of cases in returning travelers,

Table 1. Treatment of Melioidosis.*

Antimicrobial Drug	Dose
Initial intensive therapy†	
Ceftazidime	50 mg/kg of body weight (up to 2 g), every 6–8 hr
Meropenem	25 mg/kg (up to 1 g), every 8 hr
Imipenem	25 mg/kg (up to 1 g), every 6 hr
Oral eradication therapy‡	
TMP-SMX	
Body weight	
>60 kg	2×160 mg of TMP–800 mg of SMX (960 mg), every 12 hr
40–60 kg	3×80 mg of TMP–400 mg of SMX (480 mg), every 12 hr
<40 kg, adult	1×160 mg of TMP–800 mg of SMX (960 mg) or 2×80 mg of TMP–400 mg of SMX (480 mg), every 12 hr
<40 kg, child	8 mg of TMP/kg–40 mg of SMX/kg, every 12 hr

* Dose information is from Peacock et al.[55] and Chetchotisakd et al.[62]

† Intensive therapy is defined as intravenous administration of one of the listed medications for a period of 10 to 14 days. Four or more weeks of parenteral therapy may be necessary in patients with severe disease (e.g., those with ongoing septic shock, deep-seated or organ abscesses, extensive lung disease, septic arthritis, osteomyelitis, or neurologic melioidosis). The addition of trimethoprim–sulfamethoxazole (TMP-SMX), which is available in a fixed drug ratio of one part TMP to five parts SMX, at a dose of 8 mg of TMP and 40 mg of SMX per kilogram of body weight (up to 320 mg of TMP and 1600 mg of SMX) every 12 hours should be considered for patients with neurologic, prostatic, bone, or joint melioidosis. A switch to meropenem is indicated if the clinical condition worsens with the administration of ceftazidime (e.g., organ failure develops), if a new focus of infection develops during treatment, or if repeated blood cultures at 7 days remain positive.

‡ Oral therapy is typically required for 3 to 6 months. If the organism is resistant to TMP-SMX or the patient has unacceptable adverse events in response to the medication, the second-line choices are amoxicillin–clavulanate and doxycycline. Amoxicillin–clavulanate is recommended at a dose of 20 mg of amoxicillin and 5 mg of clavulanate per kilogram of body weight given orally, three times daily.

Source-The New England Journal of Medicine

many of whom have diabetes. It is recommended that people with risk factors such as diabetes or immunosuppressive therapy stay indoors during periods of heavy wind and rain, when aerosolization of B. pseudomallei is possible. There is no evidence to support direct human-to-human transmission through respiratory spread. A human vaccine is currently not available for melioidosis, but this is an active area of research in animal models involving the use of live attenuated, subunit, plasmid-based DNA and killed whole-cell vaccine candidates. No vaccine candidates have been associated with sterilizing immunity.

Sources

1.Melioidosis, available at http://www.nejm.org/doi/pdf/10.1056/NEJMra1204699

2.Melioidosis in Sri Lanka, Available at http://sljid.sljol.info/articles/abstract/10.4038/sljid.v2i1.3801/

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Compiled by Dr.H.H.W.S.B Herath of the Epidemiology Unit

Table 1: Selected notifiable diseases reported by Medical Officers of Health 01st – 07th Augu 2015 (32nd Week)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	177	5829	2	127	0	7	1	66	2	97	4	185	0	8	0	25	0	3	8	313	1	27	0	0	**88**	**13**
Gampaha	33	2575	2	62	0	5	0	24	0	25	0	251	0	8	2	97	0	0	2	155	1	16	0	2	**73**	**27**
Kalutara	23	942	0	70	0	4	0	29	0	72	2	208	0	3	1	20	0	2	7	198	0	35	0	0	**92**	**8**
Kandy	15	787	3	81	0	6	0	23	6	32	1	80	5	46	3	107	0	0	3	156	1	12	0	10	**96**	**4**
Matale	2	336	1	32	0	0	0	7	0	5	0	47	0	8	0	24	0	0	0	19	0	10	0	13	**92**	**8**
NuwaraEliya	4	115	3	245	0	3	1	15	7	7	0	25	3	46	0	43	0	0	1	92	2	38	0	0	**92**	**8**
Galle	14	477	1	51	0	3	0	6	0	19	4	157	4	47	0	7	0	0	6	178	3	34	0	2	**85**	**15**
Hambantota	16	208	1	23	0	1	0	8	2	24	1	65	2	34	1	26	0	0	0	81	0	10	6	202	**92**	**8**
Matara	10	264	2	48	0	6	0	4	0	44	4	107	0	22	2	21	0	0	4	173	0	16	4	83	**100**	**0**
Jaffna	16	1207	27	537	0	9	2	157	2	60	1	14	2	535	0	10	0	2	2	162	1	14	0	0	**100**	**0**
Kilinochchi	4	50	2	63	0	0	0	10	0	31	0	1	0	21	0	0	0	1	0	15	0	0	0	0	**75**	**25**
Mannar	0	76	0	8	0	1	0	5	0	3	0	8	2	20	0	0	0	0	0	7	0	0	0	1	**80**	**20**
Vavuniya	2	90	0	14	0	6	0	54	0	6	0	17	0	13	0	1	0	2	0	36	0	10	0	4	**75**	**25**
Mullaitivu	2	108	0	22	0	2	1	10	0	1	1	4	0	9	0	3	0	0	0	4	0	3	0	5	**60**	**40**
Batticaloa	7	1308	6	209	0	6	0	21	0	137	1	10	0	2	0	10	0	1	2	38	0	16	0	0	**50**	**50**
Ampara	0	38	2	33	0	1	0	1	1	10	0	10	0	1	0	3	0	0	1	160	0	5	0	3	**57**	**43**
Trincomalee	2	503	2	40	0	0	3	27	0	35	0	14	1	17	0	7	0	1	0	68	1	6	0	2	**83**	**17**
Kurunegala	17	906	2	118	0	2	1	4	0	13	3	195	1	22	0	31	0	6	4	296	0	25	0	83	**81**	**19**
Puttalam	3	533	1	35	0	4	1	6	0	6	0	24	0	16	0	1	0	0	0	34	0	23	0	2	**69**	**31**
Anuradhapura	3	293	2	52	0	1	0	3	0	55	1	173	0	19	1	11	0	1	1	127	1	23	7	216	**63**	**37**
Polonnaruwa	0	132	0	29	0	3	0	7	0	3	0	49	0	1	0	4	0	0	1	92	0	18	0	60	**14**	**86**
Badulla	2	402	4	141	0	5	0	8	0	9	1	50	2	80	3	141	0	2	4	138	1	56	0	6	**71**	**29**
Monaragala	2	140	0	84	0	3	0	14	0	3	0	134	1	54	2	74	0	1	5	70	1	16	0	22	**82**	**18**
Ratnapura	23	699	3	206	0	11	2	37	2	8	9	224	2	48	2	151	0	0	6	89	1	40	0	15	**72**	**28**
Kegalle	8	382	1	49	0	8	2	53	0	9	2	209	3	34	1	67	0	0	2	147	0	35	0	0	**82**	**18**
Kalmunei	4	430	1	91	0	1	0	1	4	42	0	7	0	0	0	1	0	0	0	86	0	9	0	0	**69**	**31**
SRILANKA	**389**	**18830**	**68**	**2470**	**0**	**98**	**14**	**600**	**26**	**756**	**35**	**2268**	**28**	**1114**	**18**	**885**	**0**	**22**	**59**	**2934**	**14**	**497**	**17**	**731**	**79**	**21**

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 07th August , 2015 Total number of reporting units 337 Number of reporting units data provided for the current week: 270 C**-Completeness

A = Cases reported during the current week. **B** = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

01st – 07th August 2015 (32nd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2015	Number of cases during same week in 2014	Total number of cases to date in 2015	Total number of cases to date in 2014	Difference between the number of cases to date in 2014& 2015
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	00	00	00	00	00	00	01	45	53	-15.1%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	01	00	01	00	00	00	00	00	01	03	13	242	467	-48.1%
Measles	33	03	10	00	04	08	01	06	09	74	39	1764	2366	-25.4%
Rubella	00	00	00	00	00	00	00	00	00	00	01	07	14	-50%
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	04	-100%
Tetanus	00	00	00	00	00	00	00	00	00	00	01	12	10	+20%
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	00	07	19	-63.1%
Whooping Cough	00	00	01	00	00	00	00	00	00	01	02	57	33	+72.7%
Tuberculosis	80	19	12	10	11	00	00	16	05	153	242	5714	5973	-4.3%

Key to Table 1 & 2

Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: East, **NC**: North Central, **NW**: North Western, **U**: Uva, **Sab**: Sabaragamuwa.

RDHS Divisions: **CB**: Colombo, **GM**: Gampaha, **KL**: Kalutara, **KD**: Kandy, **ML**: Matale, **NE**: Nuwara Eliya, **GL**: Galle, **HB**: Hambantota, **MT**: Matara, **JF**: Jaffna, **KN**: Killinochchi, **MN**: Mannar, **VA**: Vavuniya, **MU**: Mullaitivu, **BT**: Batticaloa, **AM**: Ampara, **TR**: Trincomalee, **KM**: Kalmunai, **KR**: Kurunegala, **PU**: Puttalam, **AP**: Anuradhapura, **PO**: Polonnaruwa, **BD**: Badulla, **MO**: Moneragala, **RP**: Ratnapura, **KG**: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS** =Congenital Rubella Syndrome

AFP and all clinically confirmed Vaccine Preventable Diseases except Tuberculosis and Mumps should be investigated by the MOH

Dengue Prevention and Control Health Messages

Look for plants such as bamboo, bohemia, rampe and banana in your surroundings and maintain them

PRINTING OF THIS PUBLICATION IS FUNDED BY THE WORLD HEALTH ORGANIZATION (WHO).

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to **chepid@sltnet.lk. Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

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