

## Clinical features and Prognosis in Patients with Aspiration Pneumonia

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**Background/Aims:** Aspiration pneumonia (AP) is a leading cause of death particularly in the elderly; however, the mortality of patients with AP vary widely due to its heterogeneities of baseline characteristics, comorbidities, and disease course. **Aim:** To investigate the associated factors of mortality in patients who diagnosed with AP based on chest computed tomography (CT). **Methods:** We retrospectively reviewed 550 (mean age: 77.1 years, Males: 66.4%) subjects who had definite history aspiration event or acute ( $\leq 24$  hour) clinical respiratory symptom with AP compatible radiologic images on chest CT and clinical symptoms. The Cox proportional hazard and Logistic regression models were used to estimate the prognostic factors of mortality and in-hospital mortality, respectively. **Results:** Total 441 (80.2%) patients died during the follow-up period (median: 50.7 weeks). Of total patients, 55.8% were bed-ridden status and 5.1% had tracheostomy at admission. The most common accompanying disease was hypertension, followed by diabetes mellitus. 296 (53.8%) transferred to intensive care units (ICU) due to the additional therapy including mechanical ventilation (41.6%). Among total patients, in-hospital and 1-year mortality was 16.9% and 51.0%, respectively. Multivariate logistic regression model demonstrated that the applying mechanical ventilation (MV; odds ratio [OR], 6.94;  $P=0.005$ ) and body mass index (BMI; OR, 0.82;  $P=0.033$ ) were prognostic factors of in-hospital mortality. Female (OR, 0.36;  $P=0.045$ ) was also associated with 1-year mortality with applying MV (OR, 8.27;  $P<0.001$ ) and BMI (OR, 0.77;  $P=0.001$ ) on multivariate analysis. Age (hazard ratio [HR], 1.024;  $P=0.020$ ), BMI (HR, 0.898;  $P=0.002$ ), bed-ridden status (HR, 0.511;  $P=0.003$ ), applying MV (HR, 2.910;  $P<0.001$ ), and chronic kidney disease (HR, 2.049;  $P=0.019$ ) and cancer (HR, 2.239;  $P=0.013$ ) as comorbidities were independent predictors of overall mortality. **Conclusions:** Our results suggested that the history of MV and BMI were related to both mortality and in-hospital mortality. Further large-scale prospective studies are needed.

Table 1. Mortality & discharge in patients with aspiration pneumonia

Variables	Total
No	550
In-hospital mortality	93 (16.9)
Mortality	441 (80.2)
1-yr	51.0%
1-yr	32.8%
Median survival rate, week (95% CI)	53.1 (39.8-66.5)
Discharge place	
Home	162 (27.8)
Other institute	267 (62.2)
Feeding status at discharge	
oral	173 (57.2)
1-tube	265 (69.6)
PEG	29 (6.2)
DNR status	59 (16.2)
Observation period weeks, median (range)	50.7 (0-208.3)
Mean (SD) or n (%)	

Table 2. In-hospital mortality in patients with aspiration pneumonia

Variables	P-value	OR	95% CI
Age	0.1429	0.98	0.93 - 1.03
Admission from			
Other department from our institute	1.00		
Other institute	0.9956		
Home	0.8132	0.64	0.19 - 3.57
Nursing home or hospital	0.8206	0.82	0.14 - 4.22
Recurrent AP	0.4369	0.40	0.02 - 7.21
BMI	0.0331	0.82	0.68 - 0.97
Diabetes	0.3637	2.62	0.27 - 20.64
Hypertension	0.9925		
CVA	0.7943	1.19	0.31 - 4.29
CKD	0.3668	2.84	0.36 - 11.99
MV	0.0047	6.94	2.02 - 22.40

Table 3. 1-yr mortality in patients with aspiration pneumonia

Variables	P-value	OR	95% CI
Female	0.045	0.36	0.13 - 0.95
Admission from			
Other department from our institute	1.00		
Other institute	0.2763	0.55	0.19 - 1.59
Home	0.3982	1.76	0.46 - 6.81
Nursing home or hospital	0.5518	0.63	0.12 - 3.16
Recurrent AP	0.326	0.51	0.11 - 2.24
BMI	0.0005	0.77	0.66 - 0.88
Bed ridden	0.724	0.85	0.31 - 2.36
Ch infection	0.2207	1.6	0.7 - 3.75
MV	<0.0001	8.27	3.37 - 22.41

Table 4. Independent predictors of overall mortality

Variables	P-value	HR	95% CI
Age	0.0187	1.024	1.014 - 1.044
Female	0.0066	0.667	0.413 - 1.065
Admission from			
Other department from our institute	1.00		
Other institute	0.3669	0.560	0.162 - 1.942
Home	0.1692	0.687	0.403 - 1.173
Nursing home or hospital	0.9534	0.900	0.488 - 1.669
Discharge	0.1397	1.997	0.847 - 4.251
Feeding status at adult			
Oral	1.00		
1-tube	0.4961	1.128	0.587 - 3.044
PEG	0.4948	1.520	0.457 - 5.061
BMI	0.0024	0.899	0.838 - 0.963
Bed ridden	0.0029	0.511	0.239 - 0.794
DM			
Diabetes	0.6868	1.820	0.517 - 6.613
Ch infection			
CKD	0.0345	2.048	1.128 - 3.723
Cancer	0.0132	2.239	1.184 - 4.236
MV	0.0000	2.910	1.847 - 4.588

## Factors affecting the success of digital DOTS in monitoring anti-tuberculosis use

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**Background/Aims:** Tuberculosis (TB) is one of the leading causes of death worldwide. Recently, WHO proposed digital DOTS (directly observed treatment short course) has attracted attention as a way to increase the compliance of medication, which is the main barrier of tuberculosis treatment. We investigated the factors that affect the outcome of digital DOTS in rural Morocco. **Methods:** We retrospectively analyzed 2254 patients using digital DOTS, who were newly diagnosed with tuberculosis smear positive. Logistic regression analysis was performed on factors affecting the treatment outcome (cure, completion, death, default) such as age, sex, multi drug resistant (MDR) TB and region. **Results:** The mean age was 37.55 years and male was 68.3%. Some cases were MDR TB, accounting for 0.5%. Survey area was Sale 52.8%, Casablanca 31.5%, Temara 15.6% and Rabat 0.1% in Morocco. As a result of treatment, cure rate was 70.4%, completion rate was 28.3%, death rate was 1.0% and default rate was 0.3%. The factors affecting cure and completion were region ( $p=0.000$ ), and were not affected by age, sex, and MDR TB, respectively. Casablanca and Sale were significantly higher in cure than in default (OR 12.71 95% CI 2.57-62.71  $P=0.003$ , OR 25.02 95% CI 3.51-178.74  $p=0.001$ , respectively), Sale was significantly higher in the completion ( $p=0.004$  OR 17.81 95% CI 2.49-127.31) and there was no statistically significant difference in the death. **Conclusions:** In this study, the factors affecting the success rate of digital DOTS were region. Therefore, various efforts must be supported to increase the success rate of treatment, which is different by region. And additional studies are essential to apply digital DOTS to the national tuberculosis control program.

Results	Completion	N = 2254	Percent
	Completion	637	28.3%
	Cure	1587	70.4%
	Death	23	1.0%
	Default	7	0.3%
Sex	Male	1539	68.3%
	Female	715	31.7%
MDR TB	Yes	12	0.5%
	No	2242	99.5%
Region	Casablanca	710	31.5%
	Rabat	3	0.1%
	Sale	1190	52.8%
	Temara	351	15.6%

Table1. Baseline characteristics and treatment results.

변수	Likelihood ratio test	
	Chi-square	P value
Age	1.570	0.666
Sex	6.535	0.088
MDR TB		
Region	447.094	0.000

Table2. Factors affecting the results of the analysis of likelihood ratio test.

Result	P-value	OR	95% CI
Completion			
Age	0.838	1.003	0.976 - 1.031
Male	0.205	0.333	0.061 - 1.821
Female			
MDR (-)		3.066	3.066 - 3.066
MDR (+)			
Casablanca	0.630	0.654	0.128 - 3.146
Rabat	0.956	5.708	1.142 - 2.952
Sale	0.004	17.818	2.493 - 127.315
Temara			
Cure			
Age	0.867	1.002	0.975 - 1.030
Male	0.282	0.399	0.072 - 2.150
Female			
MDR (-)	0.981	1.277	0.000 -
MDR (+)			
Casablanca	0.002	12.716	2.576 - 62.713
Rabat	0.873	149.42	4.135 - 5.400
Sale	0.001	25.052	3.511 - 178.748
Temara			
Death			
Age	0.775	1.004	0.977 - 1.032
Male	0.585	0.580	0.082 - 4.095
Female			
MDR (-)	0.990	0.001	0.000 -
MDR (+)			
Casablanca	0.021	11.157	1.434 - 86.836
Rabat	0.949	9.908	
Sale	0.014	19.038	1.811 - 199.965
Temara			

Table3. Logistic regression model assessing predictor of treatment success.