Abstract

A Pilot Project of Community-Based Care and Management for Tuberculosis Patients

Choi Hongjo
Department of Preventive Medicine, Konyang University College of Medicine
Seo Jeongmi, Jeong Dawoon
Division of Health Policy, Research Center, Korean Institute of Tuberculosis
Han Jiyeon, Kim Jaetae, Kwon Yunhyung, Shim Eunhye
Division of Tuberculosis Prevention and Control, Bureau of Infectious Disease Policy, Korea Disease Control and Prevention Agency (KDCA)

Objective: The study was performed to identify outcomes of a pilot project of community-based care and management for tuberculosis patients. **Methods:** During the study period, we conducted a vulnerability assessment for all notified tuberculosis patients and implemented an enhanced case management according to the grade of the vulnerability. **Findings:** As a result, firstly, the intermediate and high vulnerable groups were likely to be associated with unfavorable outcomes compared with the low-vulnerable group. Furthermore, among the intermediate and high-vulnerable groups, the enhanced case management was tended to be inversely associated with unfavorable outcomes, but with little statistical significance.

Keywords: Tuberculosis, Case management, Vulnerability

Table 1. General characteristics of all participants in the vulnerability assessment

Characteristics		Control group		Intervention group		p-value
		n	%	n	%	
Age	≤39	87	13.3	98	14.0	0.94
	40–49	54	8.2	62	8.9	
	50–59	99	15.1	103	14.7	
	60–69	116	17.7	131	18.7	
	70–79	151	23.0	146	20.9	
	≥80	149	22.7	160	22.9	
Gender	Male	381	58.1	401	57.3	0.77
	Female	275	41.9	299	42.7	
Bacteriological classification	Bac+/DS	421	64.2	426	60.9	0.45
	Unknown	223	34.0	260	37.1	
	MDR	12	1.8	14	2.0	
Type of lung involvement	Pulmonary	452	68.9	465	66.4	0.54
	Extrapulmonary	158	24.1	177	25.3	
	Mixed	46	7.0	58	8.3	
Previous history	New	552	84.2	580	82.9	0.52
	Previously treated	104	15.9	120	17.1	
PPM participation	Participation	561	85.5	601	85.9	0.86
	Non-participation	95	14.5	99	14.1	
Type of institutions	Health center	10	1.5	14	2.0	0.72
	General hospital	605	92.2	649	92.7	
	Hospital	16	2.4	12	1.7	
	Clinic	25	3.8	25	3.6	
Smoking history	Non smoker	401	61.1	405	57.9	0.26
	Ex-smoker	140	21.3	148	21.1	
	Current smoker	115	17.5	147	21.0	
Chest X-ray	Normal	234	35.7	227	32.4	0.32
	Abnormal	173	26.4	207	29.6	
	Unknown/missing	249	38.0	266	38.0	
AFB smear	Negative	394	60.1	430	61.4	0.82
	Positive	191	29.1	193	27.6	
	Unknown	71	10.8	77	11.0	
Culture	Negative/unknown	291	44.4	333	47.6	0.24
	Positive	365	55.6	367	52.4	
Treatment outcomes	On treatment	327	49.9	304	43.4	0.02
	Cured	34	5.2	20	2.9	
	Completion	169	25.8	238	34.0	
	Loss to follow up	15	2.3	12	1.7	
	Transfer	41	6.3	42	6.0	
	TB-related death	16	2.4	20	2.9	
	Other death	53	8.1	63	9.0	
	Failure	1	0.2	1	0.1	

Abbreviation: Bac+=bacteriologically confirmed tuberculosis, DS=drug-susceptible, MDR=multidrug-resistance, PPM=public-private mix, AFB=acid-fact-bacilli

Table 2. Distribution of treatment success rate by characteristics including the vulnerability grade

Characteristics		Control group		Intervention group		p-value
		n	%	n	%	
Vulnerability grade	Low	429	76.5	132	23.5	<0.01
	Intermediate-high	32	39.5	49	60.5	
Study group	Control group	203	70.5	85	29.5	0.50
	Intervention group	258	72.9	96	27.1	
Age	-39	84	87.5	12	12.5	<0.01
	40-49	46	86.8	7	13.2	
	50-59	80	85.1	14	14.9	
	60-69	88	76.5	27	23.5	
	70-79	88	67.2	43	32.8	
	80-	75	49.0	78	51.0	
Gender	Male	268	71.5	107	28.5	0.82
	Female	193	72.3	74	27.7	
Bacteriological classification	Bac+/DS	276	70.4	116	29.6	0.01
	Unknown	185	74.9	62	25.1	
	MDR			3	100.0	
Type of lung involvement	Pulmonary	305	70.0	131	30.1	0.20
	Extrapulmonary	126	77.3	37	22.7	
	Mixed	30	69.8	13	30.2	
Previous history	New	404	72.8	151	27.2	0.16
	Previously treated	57	65.5	30	34.5	
PPM participation	Participation	398	71.5	159	28.6	0.61
	Non-participation	63	74.1	22	25.9	
Type of institutions	Health center	10	90.9	1	9.1	0.04
	General hospital	425	71.1	173	28.9	
	Hospital	8	57.1	6	42.9	
	Clinic	18	94.7	1	5.3	
Smoking history	Non smoker	280	72.7	105	27.3	0.05
	Ex-smoker	90	64.3	50	35.7	
	Current smoker	91	77.8	26	22.2	
Chest X-ray	Normal	153	71.5	61	28.5	0.27
	Abnormal	130	68.1	61	31.9	
	Unknown/missing	178	75.1	59	24.9	
AFB smear	Negative	311	75.5	101	24.5	<0.01
	Positive	93	58.1	67	41.9	
	Unknown	57	81.4	13	18.6	
Culture	Negative/unknown	224	72.5	85	27.5	0.71
	Positive	237	71.2	96	28.8	

Abbreviation: Bac+=bacteriologically confirmed tuberculosis, DS=drug-susceptible, MDR=multidrug-resistance, PPM=public-private mix, AFB=acid-fact-bacilli

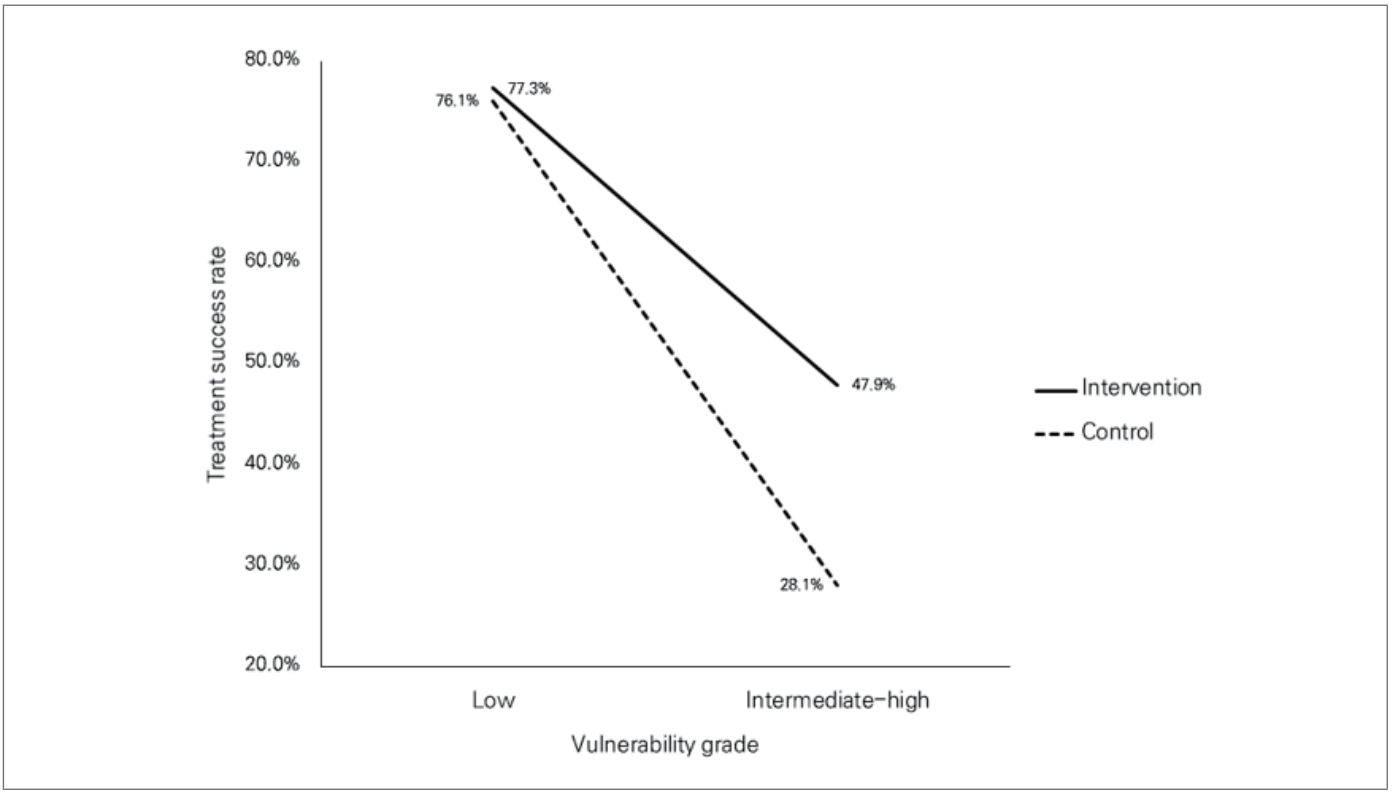

Figure 1. Differences of treatment success rates by vulnerability grade and intervention

Table 3. Interaction of vulnerability grade and intervention on treatment outcomes

	Community-based case management program				OR (95% CI) for intervention within strata of vulnerability
	Intervention		Control		
	N favorable / unfavorable outcome	OR (95% CI)	N favorable / unfavorable outcome	OR (95% CI)	
Vulnerability					
Low	235 / 69	reference	194 / 61	1.14 (0.74–1.74) P = 0.554	1.16 (0.75–1.78) P = 0.507
High	23 / 25	3.56 (1.73–7.31) P = 0.001	9 / 23	10.73 (4.27–26.96) P < 0.001	1.70 (0.54–5.31) P = 0.363
OR (95% CI) for vulnerability within strata of intervention		3.93 (1.84–8.43) P < 0.001		9.33 (3.59–24.19) P < 0.001	

Abbreviation: N=number, OR=odds ratio, CI=confidential interval

Measure of interaction on additive scale: RERI (95% CI) = 7.03 (– 2.71 to 16.77); AP (95% CI) = 0.66 (0.29–1.02)

Measure of interaction on multiplicative scale: ratio of ORs (95% CI) = 2.65 (0.84 to 8.38)

ORs are adjusted for age, gender, previous tuberculosis history, public–private mix, smoking and smear