Impact of the COVID-19 pandemic on the use of advance care planning services within the veterans administration system in Taiwan

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Abstract

Background: The aim of this study is to investigate the effect of COVID-19 on the outpatient advance care planning (ACP) services provided by veterans hospitals in Taiwan.

Methods: This study adopted a retrospective data analysis. We investigated ACP services provided by 15 veterans hospitals in Taiwan from 2019 to June 2020. We also conducted a statistical analysis on the ACP services provided by the Taipei Veterans General Hospital.

Results: From 2019 to June 2020, 15 veterans hospitals in Taiwan provided ACP services to 2493 individuals. The outpatient ACP services declined significantly after January 2020, decreasing from a national average of 206.2 ± 29.2 declarants per month to 106.2 ± 30.8 declarants per month in the 6 months immediately following the COVID-19 pandemic outbreak ($p < 0.001$). From the official implementation of the ACP in January 2019 to the end of June 2020, a total of 1126 declarants accepted ACP services at the Taipei Veterans General Hospital. When the COVID-19 pandemic was prevalent, the declarants who received ACP services were younger (i.e., 60.1 ± 15.2 vs 65.5 ± 16.3 years; $p < 0.001$). After the variables had been adjusted, the changes in the characteristics of the declarants receiving ACP services when the COVID-19 pandemic was prevalent were as follows: a significant increase in the percentage of hospital staff receiving ACP services (odds ratio [OR]: 5.460, 95% confidence interval [CI]: 2.378–12.536); An increase in the percentage of declarants who paid for the ACP services received at their own expense (OR: 3.417, 95% CI: 1.591–7.339); and an increase in the percentage of declarants who received the consultations with three or more people (OR: 2.017, 95% CI: 1.278–3.182).

Conclusion: COVID-19 severely changed outpatient ACP services provided by hospitals. The results obtained by this study offer valuable insight regarding the provision of outpatient ACP services.

Keywords: Advance care planning; COVID-19; Feasibility and acceptability; Palliative care

1. INTRODUCTION

Severe acute respiratory syndrome coronavirus 2, which caused COVID-19, first appeared in China in December 2019 and has become a world-threatening disease. The spread of the COVID-19 pandemic has put tremendous pressure on the global health-care system.[1] On January 20, the Taiwan government founded the COVID-19 Central Epidemic Command Center, announcing various adaptive strategies including urging people to avoid public gatherings and public locations such as hospitals. In response to possible disease outbreaks, major hospitals have reduced non-emergency surgeries and outpatient services.[2,3] Although most hospitals have not imposed restrictions on appointments made by outpatients for advance care planning (ACP) services, understanding the changes in said services when the pandemic was prevalent is crucial to understanding the favorable allocation of medical resources. Accordingly, this study investigated the effect of COVID-19 on the outpatient ACP services provided by veterans hospitals in Taiwan.

To protect declarants' right to know, choose, and accept or refuse medical treatment, Taiwan's president promulgated the Patient Right to Autonomy Act in January 2019, granting declarants the right to sign advance directives (ADs) after receiving ACP services offered by hospitals. Through signing an Advance Decision, declarants can pre-determine whether to receive or refuse life-sustaining treatment and artificial nutrition and hydration when he/she is in specific clinical conditions (end-stage terminally ill, irreversible coma, permanent vegetative state, severe dementia and other recognized serious illness).[4]

According to the Enforcement Rules of the Patient Right to Autonomy Act introduced by Taiwan's Ministry of Health and Welfare, when discussing ACP, declarants must be accompanied by a relative of the first or second degree of affinity, and the medical consultation team should comprise a physician, a nurse,

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and either a psychologist, or a social worker, or both. The discussion entails the appropriate care methods to be provided to the declarants when they are in five specific clinical conditions, are in a coma, or are unable to express their wishes clearly; and highlights that the declarants may accept or reject life-sustaining medical treatment. During the ACP process, the medical staff discuss in detail with the declarants and their family members the declarants' values and care preferences; the declarants decide on and document the medical treatments that they wish and do not wish to receive in advance should they become seriously ill and unable to express themselves. The declarants can then proceed to sign the AD if two witnesses are available on site. After the AD has been stamped by the medical institutions, it is uploaded to the National Health Insurance Administration for a note to be added to the declarants' National Health Insurance Card. Conversely, the declarants may take the AD form to think the matters over. After signing the AD and have two witnesses/notaries public sign it, the declarants can take the AD back to their medical institutions to upload the AD as a note to be added to their National Health Insurance Card.

Taiwan has 15 veterans hospitals, which are: the Taipei Veterans General Hospital and its Taoyuan, Hsinchu, Yuanshan, Su'ao, Fenglin, Yuli, and Taitung Branches; the Taichung Veterans General Hospital and its Puli, Chiayi, and Wanqiao Branches; and the Kaohsiung Veterans General Hospital and it's Tainan and Pingtung Branches. The interdisciplinary teams among these hospitals (comprising physicians, nurses, clinical psychologists, or social workers) began officially offering outpatient ACP services starting April 2019. These teams provide fixed, at least 60-min-long ACP services to declarants in a separate outpatient area after the declarants have made an appointment. The declarants need to pay for their own ACP consultation. It costs 100 USD for a single type consultation, 50 USD per person for a double consultation, and 34 USD per person for a consultation with more than three persons. All veterans have free ACP services.

According to official statistics released by the Ministry of Welfare, the veterans hospitals had provided ACP services to more than 2500 individuals till June 2020, accounting for about one-seventh of the total number of ACP services offered to declarants nationwide. In the current pandemic, patients may cancel their appointments of ACP owing to fear of contracting the disease. The aim of this study is to investigate the effect of COVID-19 on the outpatient ACP services provided by veterans hospitals in Taiwan. It would help us develop actionable policies and offer services to those in need.

2. METHODS

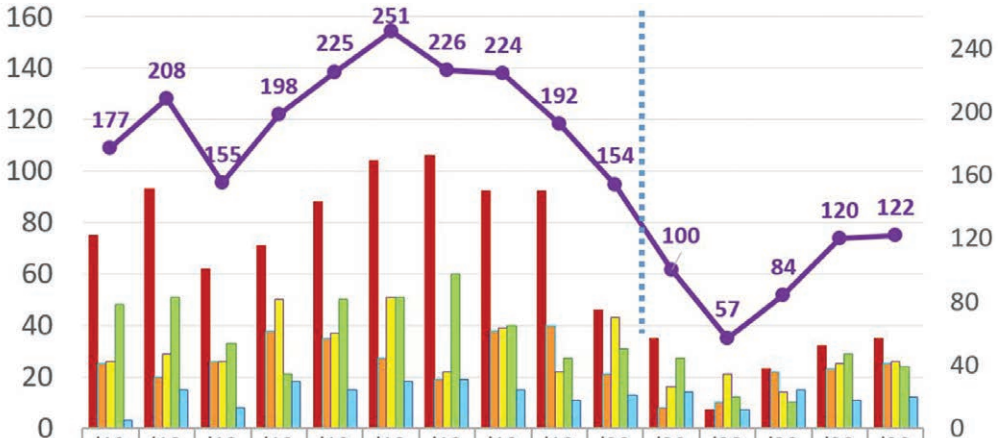
This study adopted a retrospective secondary data analysis method, investigating ACP services provided by 15 veterans hospitals in Taiwan from April 2019 to June 2020. Additionally, this study conducted a statistical analysis on the administrative services routinely registered for the outpatient ACP services provided by the Taipei Veterans General Hospital to compare the characteristics of outpatients who received ACP services when the COVID-19 pandemic was prevalent and those of outpatients who received ACP services before the COVID-19 pandemic. Since January 2019, the Advance Care Planning Center of the Taipei Veterans General Hospital registered relevant data from the declarants receiving ACP services daily in their log files to periodically evaluate the effectiveness of the services. The variables included consultation date, sex, age, identity, participation type, paid for the services at own expense, relatives accompanying the declarant, and whether AD had been signed in subsequently. We divide the main classification of the declarants into citizens, veterans, and hospital staff. We divide the ACP type into a "single person," "two persons "and "over three persons." The ACP charge includes "self-paid' and "free." In this study, "when the COVID-19 pandemic was prevalent" was defined as the period from January 20, 2020 (when the Taiwan Centers for Disease Control announced the founding of the COVID-19 Central Epidemic Command Center) to June 30, 2020.

The data examined by this study were statistical data obtained from routine administrative procedures, where all the data were collected using a coding method that made them anonymous and delinked. This study was approved by the Institutional Review Board of Taipei Veterans General Hospital (2020-03-022CC).

This study performed descriptive statistics by using an Excel package software and presented, through a bar chart, the changes in the outpatient ACP services provided by Taiwan's veterans hospitals from 2019 to 2020. For an ACP service overview, SAS Version 9.4 was used to collate data for subsequent analyses (that included data such as frequency distributions, percentages, means, and standard deviations) to compare changes that occurred before and during the COVID-19 pandemic. Categorical variables were examined using a χ^2 test and Fisher's exact test, and the correlations between the characteristics of the declarants during the COVID-19 pandemic were determined using a logistic regression model. Subsequently, both simple logistic regression and multiple logistic regression analyses were conducted to analyze the correlations between variables, which included the declarants' sex; age; identities; consultation type (whether the declarants accepted the ACP service alone, with another person, or with two or more people); whether the declarants visited at their own expense; whether the declarants were accompanied by relatives of the first or second degree of affinity; and whether the declarants signed the ADs. The odds ratios (ORs) of the variables during the COVID-19 pandemic were subsequently calculated, and a 95% confidence interval (CI) was used to indicate the sizes and significance levels of the correlations. In this study, the significance level (α level) was set at 0.05 for all statistical tests.

3. RESULTS

From April 2019 to June 2020, 15 veterans hospitals in Taiwan provided ACP services to 2493 individuals, which was equal to an average of 166.2 ± 58.3 individuals per month. The Taipei Veterans General Hospital served 961 (38.5%) of these declarants, whereas the Kaohsiung Veterans General Hospital and its Tainan and Pingtung Branches served 514 (20.6%) of the declarants. Compared with services provided in 2019, the outpatient ACP services provided by Taiwan's veterans hospitals to declarants declined significantly after January 2020, decreasing from a national average of 206.2 ± 29.2 declarants per month in the 9 months leading up to the outbreak of the COVID-19 pandemic to 106.2 ± 30.8 declarants per month in the 6 months immediately following the outbreak ($p < 0.001$). Figure 1 depicts the changes in the number of declarants receiving ACP services at Taiwan's veterans hospitals from 2019 to 2020. The decrease was significant and observed nationwide, reaching its lowest point in March 2020, with a gradual increase from April to June 2020. However, eastern Taiwan, the region with the lowest number of confirmed COVID-19 cases, witnessed a relatively mild decrease in the number of declarants receiving ACP services. Figure 2 shows the changes in the number of ACP services and the total outpatient numbers during the concordant period provided by Taipei Veterans General Hospital. The decline in ACP services precedes the shift of all outpatient visits. It reached its lowest position by March 2020 to less than 10% and picking up. The monthly outpatient numbers reached its lowest situation in April. They were down 31% on the same time last year but recovered in June to 92% on this time last year.



	'19 04	'19 05	'19 06	'19 07	'19 08	'19 09	'19 10	'19 11	'19 12	'20 01	'20 02	'20 03	'20 04	'20 05	'20 06
Taipei VGH	75	93	62	71	88	104	106	92	92	46	35	7	23	32	35
Northern VH	25	20	26	38	35	27	19	38	40	21	8	10	22	23	25
Taichung VGH	26	29	26	50	37	51	22	39	22	43	16	21	14	25	26
Kaohsiung VGH	48	51	33	21	50	51	60	40	27	31	27	12	10	29	24
Eastern VH	3	15	8	18	15	18	19	15	11	13	14	7	15	11	12
TOTAL	177	208	155	198	225	251	226	224	192	154	100	57	84	120	122

Fig. 1 Changes in the number of ACP services provided by Taiwan's veterans hospitals (from April 2019 to June 2020). (1) The COVID-19 pandemic period is defined from January 20, 2020, on which day the Taiwan Disease Control Agency announced the establishment of the "Severe Special Infectious Pneumonia Central Epidemic Command Center." (2) Taichung VGH has four hospitals, namely Taichung Veterans General Hospital, Puli Branch, Chiayi Branch, and Wanqiao Branch. (3) Northern VH has two hospitals, Taipei Veterans General Hospital Taoyuan Branch and Hsinchu Branch. (4) Kaohsiung VGH has three hospitals namely Kaohsiung Veterans General Hospital, Tainan Branch and Pingtung Branch. (5) Eastern VH has 5 eastern branches, namely Taipei Veterans General Hospital Yuanshan, Su'ao, Fenglin, Yuli, and Taitung Branch.

	'19 04	'19 05	'19 06	'19 07	'19 08	'19 09	'19 10	'19 11	'19 12	'20 01	'20 02	'20 03	'20 04	'20 05	'20 06
ACP services	75	93	62	71	88	104	106	92	92	46	35	7	23	32	35
Total OPD (*10³)	210	229	194	230	212	194	223	210	221	170	165	162	145	169	180

Fig. 2 Changes in the number of ACP services and the total outpatient numbers during the concordant period provided by Taipei Veterans General Hospital (from April 2019 to June 2020). (1) The COVID-19 pandemic period is defined from January 20, 2020, on which day the Taiwan Disease Control Agency announced the establishment of the "Severe Special Infectious Pneumonia Central Epidemic Command Center." (2) ACP = advance care planning; total OPD = total outpatient department services.

From the official implementation of the ACP in January 2019 to the end of June 2020, a total of 1126 declarants accepted ACP services at the Taipei Veterans General Hospital. Their average age was 64.7 ± 16.3 years (with those aged 109 and 20 years being the oldest and youngest, respectively; the median age being 66 years) and the average consultation time was 65.4 ± 19.0 min. Women, declarants with a veteran status, and hospital staff accounted for 58.3%, 34.0%, and 4.8% of the declarants, respectively. The majority of declarants were accompanied by other people when visiting the hospitals; 9.9%, 22.4%, and 67.8% of the declarants received the consultations alone, with another person, and with 2 or more people, respectively. Approximately 53.6% of the declarants paid for the ACP services received at their own expense. Regarding the hospital visits, 75.5%, 9.2%, and 15.3% of the declarants were accompanied by relatives of the first or second degree of affinity; were by themselves, and were with friends or relatives not of the first or second degree of affinity, respectively. A total of 65.4%, 30.1%, and 4.5% of the declarants signed the ADs on the spot, signed the ADs after taking them home, and ended up not signing the ADs, respectively (Table 1).

When the COVID-19 pandemic was prevalent, the declarants who received ACP services were younger (i.e., 60.1 ± 15.2 years vs 65.5 ± 16.3 years; $p < 0.001$). A univariate analysis revealed that a relatively higher percentage of women and hospital staff received ACP services; a higher percentage of declarants who paid for the ACP services received at their own expense, who received the consultations with two or more people, and who were accompanied by relatives of the first or second degree of affinity; and a significantly higher percentage of declarants who signed the ADs on the spot.

Both univariate and multiple logistic regression analyses were performed to compare ACP-related factors during the COVID-19 pandemic; the results are listed in Table 2. After the variables had been adjusted, the changes in the characteristics of the declarants receiving ACP services when the COVID-19 pandemic was prevalent were as follows: a significant increase in the percentage of hospital staff receiving ACP services (OR: 5.460, 95% CI: 2.378–12.536); an increase in the percentage of declarants who paid for the ACP services received at their own expense (OR: 3.417, 95% CI: 1.591–7.339); and an increase in the percentage of declarants who received the consultations with 3 or more people (OR: 2.017, 95% CI: 1.278–3.182). In terms of age, sex, whether the declarants were accompanied by relatives of the first or second degree of affinity, and whether the declarants signed the ADs, no statistical differences were observed between the two time periods.

4. DISCUSSION

To our knowledge, this study was the first-ever study that compared the characteristics of outpatients who received ACP services when the COVID-19 pandemic was prevalent and those of outpatients who received ACP services when the COVID-19 pandemic was curbed. According to the study results, when the COVID-19 pandemic was prevalent, the number of declarants who received ACP services from veterans hospitals decreased significantly across Taiwan. Additionally, when the COVID-19

Table 1

Characteristics of the declarants receiving ACP services before and after the COVID-19 pandemic, and changes in said characteristics before and after such pandemic

Variables	Total N = 1126, n (%)	Before COVID-19 N = 976 (86.7), n (%)	COVID-19 pandemic N = 150 (13.3), n (%)	T test/χ2 test
Age (years), mean ± SD	64.7 ± 16.3	65.5 ± 16.3	60.1 ± 15.2	<0.001
Age(years)				0.003
0 < 50	209 (18.6)	170 (17.4)	39 (26.0)	
50–64	317 (28.2)	267 (27.4)	50 (33.3)	
65–74	293 (26.0)	257 (26.3)	36 (24.0)	
≥75	307 (27.3)	282 (28.9)	25 (16.7)	
Sex				0.039
Female	656 (58.3)	557 (57.1)	99 (66.0)	
Male	470 (41.7)	419 (42.9)	51 (34.0)	
Classification				<0.001
Citizens	689 (61.2)	587 (60.1)	102 (68.0)	
Veterans	383 (34.0)	351 (36.0)	32 (21.3)	
Staffs	54 (4.8)	38 (3.9)	16 (10.7)	
ACP type				<0.001
Single person	111 (9.9)	104 (10.7)	7 (4.7)	
Two persons	252 (22.4)	232 (23.8)	20 (13.3)	
More than 3 persons	763 (67.8)	640 (65.6)	123 (82.0)	
ACP charge				<0.001
Self-paid	603 (53.6)	498 (51.0)	105 (70.0)	
Free	523 (46.4)	478 (49.0)	45 (30.0)	
Required attendees				0.004
Second degree of kinships	850 (75.5)	727 (74.5)	123 (82.0)	
Friends or other kins	172 (15.3)	148 (15.2)	24 (16.0)	
None	104 (9.2)	101 (10.3)	3 (2.0)	
Completion of AD				0.001
Complete immediately	736 (65.4)	617 (63.2)	119 (79.3)	
Subsequent completion	339 (30.1)	312 (32.0)	27 (18.0)	
Not completed	51 (4.5)	47 (4.8)	4 (2.7)	

ACP = advance care planning; AD = advance directives.

Table 2

Univariate and multiple logistic regression analyses comparing ACP-related factors during the COVID-19 pandemic

	Univariate analysis			Multiple logistic regression		
	OR	95% CI	*p*	AOR	95% CI	*p*
Age (years)						
0 < 50	1			1		
50–64	0.816	0.515–1.294	0.388	1.009	0.621–1.638	0.973
65–74	0.611	0.373–0.999	0.050	0.918	0.539–1.566	0.754
≥75	0.386	0.226–0.661	0.001	0.690	0.371–1.284	0.241
Sex						
Female	1			1		
Male	0.685	0.477–0.982	0.040	0.847	0.569–1.261	0.413
Classification						
Citizens	1			1		
Veterans	0.518	0.341–0.786	0.002	2.540	1.066–6.049	0.035
Staffs	3.086	1.560–6.105	0.001	5.460	2.378–12.536	0.000
ACP type						
One to two persons	1			1		
More than three persons	2.392	1.545–3.702	0.000	2.017	1.278–3.182	0.003
ACP charge						
Free	1			1		
Self-paid	2.240	1.545–3.246	0.000	3.417	1.591–7.339	0.002
Required attendees						
None/friends or other kins	1			1		
Second degree of kinships	1.560	1.004–2.424	0.048	1.572	0.958–2.578	0.073
Completion of AD						
Not completed	1			1		
Completed	1.847	0.656–5.202	0.246	1.192	0.409–3.475	0.748

ACP = advanced care planning; AD = advance directives; AOR = adjusted odds ratio; CI = confidence interval; OR = odds ratio.

pandemic was prevalent, the characteristics of declarants who received ACP services differed between declarants. For example, the percentage of hospital staff who received such services increased significantly; more declarants paid for consultation services at their own expense; and more declarants chose three or more people to accompany them when receiving the ACP services.

With Taipei Veterans General Hospital, for example, the impact of COVID on the reduction in ACP services was much greater than the impact on overall outpatient visits. It may be because outpatient ACP services are not emergency services. During the most intense period of the pandemic, some hospitals stopped offering non-emergency services similar to ACP services to minimize the spread of COVID-19. Although veterans hospitals in Taiwan did not stop offering outpatient ACP services during the COVID-19 pandemic, the average number of ACP services provided when the COVID-19 pandemic was prevalent almost decreased by half compared with that provided during the period leading up to the pandemic. The main reason behind this phenomenon may be the public complying with the government's announcements on pandemic prevention, prompting the public to cancel their outpatient ACP service appointments to reduce the risk of contracting said disease in public areas such as hospitals.

The COVID-19 pandemic remains severe, and the number of critically ill patients and deaths as a result of contracting COVID-19 continues to rise in Europe and the United States. The shortage of respiratory intensive care units makes people realize the importance of ACP and signing ADs early.[5,6] Many declarants who received ACP services during the COVID-19 pandemic did so maybe because media reports opened their eyes to the importance of ADs. After discussing with their family members and friends, these declarants came to the hospitals and accepted consultations at their own expense. In this study, when the COVID-19 pandemic was prevalent, nearly 80% of the declarants were fully prepared by the time they received the consultations and signed the ADs on the spot, supporting the aforementioned assertion.

After the variables "age," "sex," and "consultation type" had been adjusted, the analysis results indicated that the percentage of hospital staff who received ACP services increased significantly, which is a major finding in this study. Although the absolute number of hospital staff does not increase. Yet, a few hospital staffs booked ACP during COVID-19 pandemic cited their urgent need to complete an AD. This may be because of the pandemic exposing the hospital staff to a higher degree of risk, prompting them to consider the need to sign ADs in advance. Beyond that, the decline in the amount of outpatient and inpatient services provided by the hospitals during the COVID-19 pandemic, giving the hospital staff the time needed to make outpatient ACP services. Further follow-up surveys or those focused on hospital staff must be conducted to identify the true reasons behind the finding.

Related international studies have noted the obstacles hindering people from seeking, receiving, or offering ACP services, such as the general public's lack of knowledge and understanding pertaining to ACP; hospitals lacking the mechanisms needed to provide ACP services; shortages in private space in wards or outpatient environments; and difficulty finding two witnesses to complete the document-signing process.[7,8] Additionally, some studies have found that medical staff did not possess sufficient ACP knowledge, avoided talking about death-related matters, were subjected to the clinical pressure of not having enough time, and were skeptical whether the legal effects of the ADs would affect declarants' willingness to engage in ACP.[9] Currently, most of the outpatient ACP services in Taiwan are offered at fixed hours. Although the fixed hours enable consultation teams to better control their time and manpower, limited hospital space affects the outpatient ACP services received by declarants. To reduce the risk of contracting the disease, the

ministry recommended citizens not go to public areas such as hospitals in the COVID-19 pandemic. Some hospitals stopped offering ACP services. However, during the most intense period of the pandemic, many declarants still visit our ACP clinic. In order to avoid the risk of people coming to the hospital, the government should allow ACP services via telemedicine. We should plan to offer online ACP services through video chats to help people complete their ADs.

Research limitations: The data presented in this study are an overview of the outpatient ACP services provided by Taiwan's veterans hospitals and may not accurately reflect those provided by hospitals in general.

In conclusion, COVID-19 severely changed outpatient ACP services offered by hospitals. The results obtained by this study pertaining to outpatient ACP services provided when the COVID-19 pandemic was prevalent offer valuable insights regarding the provision of outpatient ACP services.

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