Costs and their impacts that should be included in health technology assessment of remote palliative care.

HTA99

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Introduction

In Japan, the population has already started to decline, but the number of elderly people is expected to continue to increase for some time. Therefore, the cancer incidence rate remains high, the medical insurance system allows patients to receive affordable, advanced medical care. Thanks to that, age-adjusted cancer mortality rate for decreasing for both males and females since late 1990s. Moreover when restricted to age group under 75, age-adjusted cancer mortality rate is decreasing for both males and females since late 1980s [1)].

There are various treatment modalities for cancer, including surgical treatment, laparoscopic surgery, endoscopic treatment, radiotherapy, chemotherapy, and endocrine therapy. According to the National Cancer Registry Data of Japan (2021) [2)], chemotherapy accounted for approximately 30% of initial treatments, representing the highest proportion among all modalities. Meanwhile, the Ministry of Health, Labour and Welfare recommends initiating palliative care at the time of cancer diagnosis, with the aim of improving patients' quality of life (QOL) [3)].Furthermore, previous studies have demonstrated that the early introduction of specialized palliative care is associated with superior cost-effectiveness, including cost reduction and improvement in QOL [4-7)].

Therefore, in Japan, where outpatient chemotherapy has become increasingly common, we considered that implementing early, specialized palliative care in conjunction with chemotherapy may contribute to improved cost-effectiveness and maintenance or enhancement of QOL for a greater number of cancer patients. However, as outpatient chemotherapy requires patients to travel back and forth between home and hospital—resulting in increased burden—we examined this approach on the premise that it would be conducted remotely.

Objective

The purpose of this study is to examine the costs and their impacts that should be included in HTA for the introduction of remote palliative care, which allows early intervention.

Method

Expenses that may have an impact on HTA are extracted separately for society, medical providers, and patients. Then, the variability and range of fluctuation of each expense is examined.

[Social cost (Medical fee)]
Assume that an additional "Remote Palliative Care Team Consultation Fee" is billed.

[Costs of medical providers]
Development costs of remote palliative care consultation system
(Based on the development cost of the system currently under development in this study.)

Compensation of healthcare professionals [8)]
Doctor, Nurse, Pharmacist
- Length of service : over 10 years
- Hourly scheduled cash earnings

Estimate the personnel cost based on a 30-minute consultation by the remote palliative care team.

[Costs of patients]
Patients' (or their families') out-of-pocket expense
- Time and transportation costs associated with visiting to the hospital
- Opportunity loss associated with family members accompanying patients

Results

Cost			Hourly scheduled cash earnings [8)]	Cost per one palliative care consultation (30 minites)	Cost per one course of palliative care consultation (6 times)	283,517 patients *30% of newly diagnosed cancer patients (2020) [1)]
Costs of medical providers	Development costs of remote palliative care consultation system		-	-	-	¥50,000,000
	Compensation of healthcare professionals	Doctor	¥14,624	¥7,312	¥43,872	¥12,438,457,824
		Nurse	¥2,060	¥1,030	¥6,180	¥1,752,135,060
		Pharmacist	¥2,652	¥1,326	¥7,956	¥2,255,661,252
Patients' (or their families') out-of-pocket expense	Time associated with visiting to the hospital			25.7 min	154.2 min	43,718,321 min
	Transportation costs associated with visiting to the hospital			¥1,100	¥6,600	¥1,871,212,200
	Opportunity loss associated with family members accompanying patients		Unable to calculate			

Comparison of cost savings	Type of palliative care	Cost savings Mean	Based on the annual number of chemotherapy patients in Japan (283,517 patients)
Peter May, et al. 2018 [4)]	Early–intervened	$4,251.00	¥185,605,538,118
Christine Mathew, et al. 2020 [6)]	Home-based	€ 23,559.00	¥1,188,929,106,534

*Converted price in Japanese yen
1 USD = 154 JPY, 1 Euro = 178 JPY

・Assuming that Japan's medical expenses are about one-third of those in the United States, the estimated cost reduction would be 61,868,512,706 yen.

	The rate of patients provided with early-intervented remote palliative care				
	100% 283,517	50% 141,759	10% 28,352	5% 14,176	2% 5,670
Estimated cost reduction	¥61,868,512,706	¥30,934,256,353	¥6,186,851,271	¥3,093,425,635	¥1,237,370,254
Compensation of healthcare professionals	¥16,446,254,136	¥8,223,127,068	¥1,644,625,414	¥822,312,707	¥328,925,083
Development costs of remote palliative care consultation system	¥50,000,000	¥50,000,000	¥50,000,000	¥50,000,000	¥50,000,000
Final reduction cost	¥45,372,258,570	¥22,661,129,285	¥4,492,225,857	¥2,221,112,929	¥858,445,171

・Lower out-of-pocket costs are presumed to encourage patients to use remote palliative care.

Conclusions

Assuming there is no impact on patients' QALYs, my results suggest that remote palliative care could have a significant impact on the health economy in remote islands and other isolated areas with large elderly populations.

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