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分担研究報告書

「退院時調整会議」に再入院率と再入院の費用の減少に効果があるか？：
日本のレセプトデータの分析を通じて

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研究要旨

目的

高齢者の再入院率および再入院費用に対する「退院時調整会議」（退院時共同指導料B005、介護支援連携指導料B005-1、地域連携診療計画管理料B005-2、地域連携診療計画退院時指導料B005-3）の効果を検討する。「退院時調整会議」の期待される効果は患者の地域社会への復帰を支援することである。

方法

分析データは、千葉県柏市に共有いただいた後期高齢者の医療レセプトデータと介護レセプトデータ(2012.4-2013.9)である。急性期病院に入院した8,096人（75歳以上）の患者に対するデータを対象とした。患者が「退院時調整会議」を受けたかどうかに応じて2つの患者群のバランスをとるために、**Propensity Score Matching(PSM)**方法を用いて一致する症例の集合を生成した。急性期病院からの退院後360日以内に再入院を確認し、多重ロジスティック回帰および線形回帰モデルを用いて再入院率および再入院費用に対する「退院時調整会議」の影響を推定した。

結果

急性期病院から退院した患者のうち、367人（4.5%）が「退院時調整会議」サービスを受けた。PSM方法を使用して、304人のコントロールグループを生成し、304人の「退院時調整会議」グループに対してマッチングした。再入院率は、「退院時調整会議」グループで21.1%、コントロールグループで23.0%にあった。再入院の可能性や再入院の費用には、「退院時調整会議」の有意な効果はなかったが、「退院時調整会議」の患者では、コントロールグループに比べて、1日当たりの入院医療費が低かった。

結論

本結果では、交絡因子の影響を調整した後、「退院時調整会議」が再入院の1日当たりの入院医療費を軽減する効果を有することを意味する。この研究は、「退院時調整会議」を通じてケアの継続を改善し、医療ニーズを軽減させる可能性を示唆している。

A. 研究目的

In Japan, a universal health insurance system and long-term care insurance system cover all the population of senior citizens with a relatively wide range of service coverage [8]. However, coordination between acute care, sub-acute care, or home and community-based care is not easy, especially during the initial periods after hospital discharge [9]. As continuity of care and related discharge planning became more important, the coverage for multidisciplinary conference has been added to the original service of “cooperative discharge instructions at hospital” since 2008 [10]. This fee schedule incentivizes a “discharge conference” that includes the participation of more than 3 professionals, like community physicians or nurses, dentists, pharmacists, home visiting nurses, etc. [10]. In addition, for appropriate transfer to long-term care services, coordination between acute care physicians and community long-term care providers has been newly covered by health insurance as of 2010 [11].

Despite the fee schedule for discharge conferences has been implemented under national health insurance (NHI) system, empirical studies have not yet been performed to evaluate the effectiveness of this policy in Japan. It has been scarce of evidences about how many people receive a discharge conference, and whether it is related to a lower rates or delayed readmission to hospital, amount of length of stay (LOS) or costs on hospital readmission.

The purpose of this study was to show the utilization of discharge conferences, and to evaluate the impact of the discharge conference on probability of readmission and readmission costs among senior citizens, using one city’s health and long-term care claims data.

B. 研究方法

1. 使用データ及び対象者

This study used NHI administrative claims data, diagnosis procedure combination (DPC) claims data, and long-term care insurance (LTCI) claims data from a suburban city in Japan, from April 2012 to September 2013. We included 8,096 patients who were 75 years of age or older, and admitted to an acute hospital during the study period.

2. 変数定義

1) Explanatory variable: The main explanatory variable was whether or not a person received a discharge conference. A discharge conference was defined by the NHI fee schedule of 2012 [12]. It included discharge instructions by “collaboration of healthcare professionals (B005)”, “supporting the linkage with long-term care services (B005-1)”, “care plan for linkage with community healthcare services or long-term care services (B005-2 or B005-3) [12, 19, 20]. Because each services are alternatively provided, if a patient received one of those services, that case was defined as discharge conference.

2) Outcome variable: In this study, the outcome variables were hospital readmission within 360 days after discharge, LOS of hospital readmission, total costs and cost per day of hospital readmission.

3. 分析方法

To reduce the confounding effect when we estimate the impact of discharge conference on readmission, we used propensity score matching (PSM) to adjust the significant differences in the baseline characteristics among the patient with discharge conference and those without [4, 32].

In before and after matching groups respectively, we compared the basic characteristics, readmission rates, and the readmission related outcomes according to patients that received a discharge conference or not, using the chi-squared test for categorical variables and the t-test for

continuous variables. To identify the relationship between discharge conference and hospital readmission, we estimated the probability of hospital readmission using a multiple logistic regression, and among those who readmitted to hospital within 360 days, we applied multiple linear regression analysis or negative binomial regression.

C. 研究結果

1. 対象者の特性

The PSM allows one control group (patients who did not receive a discharge conference, n=304) to be matched to one treatment group (patients who received a discharge conference, n=304). We defined the full participants as “before matching” (n=8,096) and the matched sample as “after matching” (n=608).

In the before matching sample, among the 8096 patients, 367 (4.5%) patients received a discharge conference, and 7729 (95.5%) patients did not. Patients who received a discharge conference showed higher proportion of women, older age group, severer care-needs level, and utilization of facility services or home services before the index hospitalization.

In the after matching sample, the propensity score matching seems to significantly reduce the imbalances between the two groups in the original study sample, although there were still differences in prior utilization of LTCI home services, and LOS of the index hospitalization.

2. 再入院率、入院費用の比較

Before matching, it was not different between patients who received a discharge conference (21.0%) and those that did not (22.0%). In the group of after matching pairs, 21.1% readmitted among discharge conference group and 23% among the counterpart. There was no difference in the average value of LOS, but the significant

difference in cost per day for the readmission still remained (see Table). In the regression model, although there was no significant effect of discharge conference on probability of readmission or total costs for readmission, a lower cost per day was identified in those with discharge conference, in the matched sample.

D. 考察

The effect of discharge conference on the probability of readmission was not consistent between before and after matching sample. Only at before matching, it showed a reduced odds ratio of readmission, which is accordance with previous studies [3, 17], but the estimates of after matching group concluded no significant effect.

Discharge conference did not have significant effect on total costs for readmission, but it reduced a cost per day of readmission. It might decrease the intensity of care rather than the volume of services for readmission. In other words, discharge conference might have preventive role of becoming severer case until patients are readmitted, by helping the integration between acute and community-based care. Despite this, there has been a low implementation rate of discharge conferences with limited evidences.

E. 結論

This study examined the effect of a discharge conference on readmission among older patients in a suburban city in Japan. Those who received a discharge conference showed lower cost per day of readmission after adjusting for effect of confounding. National level studies and clear guidelines of the discharge conference will be necessary for active policy implementation.

F. 研究発表

1. 論文発表

PLoS One (投稿中、論文投稿中)で、査

読後の修正により結果が変わる可能性がある。)	なし
2. 学会発表 なし	2. 実用新案登録 なし
G. 知的財産権の出願・登録状況（予定を含む）	3. その他
1. 特許取得	なし

Table. Comparisons of readmission rates, LOS, and costs of hospital readmission by whether a patient received a discharge conference or not

	Before matching (n=8096)		p values	After matching (n=608)		p values
	Discharge conference: Yes (n=367)	Discharge conference: No (n=7729)		Discharge conference: Yes (n=304)	Discharge conference: No (n=304)	
	Mean±SD (interquartile range)			Mean±SD (interquartile range)		
Readmission within 360 days / N (%) ¹	77/367 (21.0%)	1699/7729 (22.0%)	0.651	64/304 (21.1)	70/304 (23.0)	0.557
Among the patients who readmitted to hospital within 360 days ²						
LOS of readmission ² [unit: days]	35.9±33.9 (8.0, 52.0)	24.6±37.3 (6.0, 29.0)	0.009	35.3±33.7 (8.0, 53.0)	32.7±40.7 (9.0, 50.0)	0.688
Total costs of readmission ² [unit: 100 JPY]	14848.0±16402.2 (3552.2, 18438.5)	12356.0±17156.9 (2920.1, 14810.7)	0.212	14290.6±16276.9 (3165.8, 18604.1)	14849.6±21932.2 (4234.8, 17700.4)	0.867
Cost per day of readmission ² [unit: 100 JPY]	452.1±166.9 (313.7, 556.3)	591.8±395.1 (442.3, 634.9)	<.0001	441.7±165.4 (311.2, 555.0)	514.8±253.2 (406.6, 557.3)	0.048

Note. LOS means length of stay, SD means standard deviation, JPY means Japanese yen.

¹The number of participants was 8096 at the group of before matching, and 608 at the group of after matching.

²In this analysis, only the patients who readmitted to hospital within 360 days were included. The number of participants was 1776 at the group of before matching, and 134 at the group of after matching.