Impact of After Visit Summaries on Patient Return Rates at an Acupuncture and Oriental Medicine Clinic

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ABSTRACT

Objective: To determine whether an after visit summary (AVS) provided to patients at the conclusion of their first acupuncture treatments affects the number of times patients return for follow-up treatments, a retrospective cohort study was performed.

Materials and Methods: Two random samples of 100 new patient records ($N=200$) at the Oregon College of Oriental Medicine's (OCOM) outpatient clinics in Portland, OR, were reviewed over a 3-month period before and after the implementation of using the AVS. Patients who had been seen previously at any of the college clinics were excluded. The number of return visits recorded in the MediSoft™ database was hand counted for each patient.

Results: The use of an AVS did not significantly change the mean number of return visits for acupuncture (2-sided p -value=0.91), but there was a trend toward more frequent returns by patients who received AVS, compared to those who did not (2-sided p -value=0.0827, relative risk [RR]: 1.51, confidence interval [CI] 0.95–2.41).

Conclusions: These data support the concept that the AVS has a positive influence on patient return rates. In this study, patients who received an AVS were 51% more likely to return for 5 visits than patients who did not receive an AVS.

Key Words: Compliance, Patient, Patient Adherence, Patient Cooperation

INTRODUCTION

MANY PATIENTS HAVE A POOR UNDERSTANDING of their diagnoses and treatment plans regardless of whether they are receiving conventional or alternative therapies.^{1–3} Friedman and Makaryus,⁴ and Ley⁵ have found that less than half of patients interviewed at the time of medical discharge are able to name their diagnoses or important information regarding their medications. This, in turn, affects patients' ability to comply fully with discharge instructions.

In January 2012, the Oregon College of Oriental Medicine (OCOM), in Portland, OR, implemented use of an after visit summary (AVS) in the college's outpatient clinics with the belief that written AVS' provided to patients at the conclusions of their first visits would enhance adherence to follow-up

recommendations, including returning as instructed for a minimum of 5 visits. Prior to the implementation of the written AVS, which at OCOM is called an "End of Visit Summary," follow-up recommendations regarding return frequency, self-care and referrals were given to patients verbally. The typical recommendation is for patients to return for at least three and up to ten additional visits, depending on the specific conditions and circumstances for which they are requesting treatments. The current authors were interested in investigating if the use of a written AVS increased patient compliance with this recommendation.

OCOM's End of Visit Summary includes the patient's chief complaint, treatment modality recommendations, and frequency and duration of treatment. In addition, the written form includes lifestyle recommendations and referral information to

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be used when applicable. This form is a duplicate form; one copy is given to the patient and the other copy is filed in the patient's chart for future reference. Students are encouraged to review this plan with each of their patients and complete an additional AVS whenever there was a change in chief complaint or if a patient failed to respond to the initial treatment plan. Once the use of AVS had been standard procedure for > 1 year, the effectiveness of the procedure was evaluated to answer the following question: "Do written AVS increase compliance with recommendations for return visits?" This retrospective cohort study compares patient return rates with and without written AVS'.

MATERIALS AND METHODS

Study Design/Setting/Participants

Using MediSoft™—the college outpatient community clinics' patient database and scheduling system—two groups of patient data were extracted. The control group consisted of a random sample of 100 patients taken from all of the new patients treated in the student clinics from January 1, 2011, through March 31, 2011. This was prior to the use of written AVS. The second group made up the cases for which the AVS was used, and consisted of a random sample of 100 patients taken from all of the new patients treated in the student clinics from January 1, 2012, through March 31, 2012, after implementation of the AVS. When patients at OCOM's clinics consent to treatment, these patients may opt out of the use of their data for research purposes. No data from patients that had opted out were used. The project was reviewed by the college research council and received institutional review board approval. During data analysis, data associated with 1 control patient were lost, so the final data set included 199 patients.

Variables/Quantitative Variables/Data Sources/Measurements

The intervention studied was the implementation of the AVS. Six months prior to the initiation of the current study, the same research model was piloted using data from 50 randomly selected patients to assess the outcome of the AVS initiative. There was a trend suggestive of an increase in patient return visits after the use of AVS; however, this small sample size did not have adequate power to demonstrate statistical significance, so the sample size was increased to 100 cases of patients who received the AVS and 100 controls (patients who did not receive the AVS).

An attempt was made to control for confounding created by inconsistency of implementation of AVS by interns and supervisors. The current authors realized that, if a clinician had forgotten to give an AVS to a patient at the conclusion of the first visit to the clinic, and the patient had not returned, this would create false-negatives in the data for this

study and produce a Type 2 error. To estimate compliance by clinicians to the AVS requirement, 25 randomly identified patient records were reviewed by hand. It was noted that 23 out of 25 patient files had a copy of the AVS in the file. Thus, 92% of clinicians had implemented the new policy of giving a written AVS to each new patient, and the impact of type 2 error was considered to be < 10%.

There was no control for recommended treatment duration, and this limited the data interpretation. Clinicians may recommend a long series of treatments for severe medical issues; treatments recommended for acute self-limiting illnesses may be fewer. The outcome of interest was change in return rate after the implementation of the AVS, so the number of returns within 3 months of the new visit were counted. Confirming compliance with explicit recommendations for return visits would entail hand review of every new patient's chart, which was beyond the scope of this investigation. Future studies could resolve this issue by selecting only patients seen for conditions of similar types and severities—which would have similar return recommendations—or by performing retrospective chart reviews by hand to confirm that patients returned for the number of treatments explicitly recommended.

Study Size

The Medisoft™ database included 6500 patient visits that met the new patient criterion within the two, 3-month intervals of interest. A random number generator was used to extract data regarding groups of 100 patients from all new patients seen within each of the 3-month periods. Based on the current authors' previous pilot study, it was believed that this sample size represented the minimal power necessary to demonstrate an increase in average number of returns to the OCOM clinics. Those 200 patients were de-identified to protect their personal information. Next, the number of visits to the clinic that each of these patients made over the next 3 months was counted by hand using the summary data from MediSoft. Two students hand counted the number of visits for each patient. One student hand counted each cohort, and then an independent validator (R.I.D.) confirmed the counts in order to reduce the possibility of reporting bias. Sample size was limited by the workload involved in hand counting the data. Three months of data were collected before and after the initiation of AVS. Three months was chosen as a reasonable time interval to avoid the impact on the data of school vacations and clinic closures.

Statistical Methods

The results of the hand count were statistically analyzed using Stata 12.1 software. The mean number of return visits of the cases (patients seen after AVS was initiated) was compared by a 2-sample *t*-test to the mean number of return visits of the controls (patients seen before AVS was initiated). The number of patients and the number of visits they

FIG 1. Box plot of mean number of returns before and after implementation of after visit summaries (AVS).

returned for was compared by a Wilcoxon ranked-sum and Fisher's exact test.

RESULTS

The mean number of return visits for acupuncture did not change after AVS was initiated. Figure 1 shows a box plot of the comparison of the 2 cohorts. On average, patients seen in 2011, before AVS was initiated, returned for 3.75 (mean: 3.747; standard deviation [SD]: 2.67; confidence interval [CI] 3.21–4.28) visits and patients seen after AVS was initiated in 2012 returned for 4.03 (mean: 4.03; SD: 3.54; CI: 3.33–4.73) visits.

Obviously, patients did not return for fractions of a visit. In order to compare the two groups further, histograms were

plotted to compare the true number of returns completed by the 2 groups. Those data are shown in Figure 2.

A Wilcoxon ranked-sum analysis was used to determine if the two groups differed significantly in numbers of returns completed. There was no significant difference between the mean number of returns in the two populations (2-sided p -value = 0.91). Testing was performed to determine if there was any difference in the variance between the two groups, and it was noted that the SD of the variance between the two groups was statistically significant (2-sided p -value = 0.005; SD: 3.13; CI: 3.45–4.33), implying that the distribution in the number of visits was significantly different, although the 2 groups shared the same mean number of visits. The distribution was analyzed further using Fisher's exact test to compare the 2 groups by number of visits. Patients who had received the AVS tended to return for 5 visits more often than controls, and, although the mean number of visits was the same in the two populations, there was a trend toward more-frequent return visits in the population of patients seen after AVS was initiated than beforehand (2-sided p -value = 0.0827; relative risk [RR]: 1.51; CI 0.95–2.41). In other words, patients given an AVS were 51% more likely to return for 5 visits, compared to patients who did not receive an AVS.

DISCUSSION

Use of the AVS has become the norm at the conclusion of medical encounters, but it is unclear if and how they affect patient adherence to treatment recommendations or if the AVS alters practitioner behaviors.⁶ Data are needed to show

FIG. 2. Histogram of distribution of return visits before and after implementation on after visit summaries (AVS).

how to implement these instructions in the best fashion—both for patients and practitioners. Lifestyle modifications, and physical and behavioral therapies especially require patient adherence to be successful in achieving patient goals and desired outcomes. Acupuncture is a form of mind–body physical therapy that benefits from repetition, but it is not clear how to motivate patients to complete a recommended therapeutic course. The current authors investigated if the use of AVS increased patient return rates. The present study found that an AVS alone is insufficient to increase the average number of times a patient returns for acupuncture, but that patients given the AVS were more likely to return for 5 visits than patients who did not receive the form. Future studies should be designed to assess if patient adherence to dosage and duration of treatments improves when patients are given written recommendations.

Limitations

This study was limited by numerous factors. First, the greatest limitation was that there was no control for the number of treatments recommended. If the AVS recommended a small number of treatments, compliant patients may have returned for the few treatments recommended, and this would have skewed the mean number of returns downward. The analytical method used in this study was based on an assumption that a patient did not return to the clinic because of a lack of an AVS or because of a lack of compliance with the AVS provided.

Second, the primary outcome of interest was an increase in number of return visits associated with the implementation of AVS/End of Visit summaries. The data that were analyzed had been collected from information regarding office visits only over a 3-month period. It is possible that individuals in this study population continued to return to the OCOM clinics after the study had ended.

Third, acupuncture affects different people, as well as different illnesses, in different ways. It is possible that a single visit had such a profound effect on the illness being treated that a given patient may not have needed to return for additional treatments.

Fourth, as mentioned previously, at least 8% of the time, written AVS were not used because of deficiencies in training, skill, or timeliness. Variations in clinician training and use of written AVS may have led to variations in the advice given to patients at the end of a given office visit.

Fifth, attachment to a practitioner by a patient may increase the number of visits past AVS recommendations. Conversely, failing to connect positively with a clinician may discourage some patients from returning for follow-up treatments. Future studies could control for attachment effects by implementing the National Institutes of Health Toolbox Social Support instruments to evaluate patients' reliance on their caregivers.

Finally, the AVS form itself is a possible limitation. The current form omits data pertaining to adherence to dietary,

exercise, or herbal medicine recommendations. Furthermore, the form does not include the words “Recommendations” or “Treatment Plan.” The title of the form states “End of Visit summary,” which may imply to some patients that treatment has ended.

Generalizability

In this study, there was no increase in the mean number of return visits for patients with a written AVS, compared to those without written a AVS. However, there was a trend toward patients returning for five or more visits after implementation of AVS forms. These data suggest that, prior to the use of AVS forms, patients returned for at least two visits of their own volition; whereas, after AVS was initiated, more patients returned for only one visit. The reason for this shift is unclear, but the current authors suggest that it may reflect the inconsistent use of the AVS. It is likely, before AVS' were given, patient behavior represented typical patterns seen in the United States: Patients self-identified that 2–3 visits were sufficient to reduce symptoms.^{7,8} When AVS forms were initiated, patients may have begun anticipating written follow-up instructions. However, current clinic policy requires an AVS only at the end of the *first* office visit. Neglecting an AVS at subsequent visits implies that further follow-up is neither recommended nor necessary. Based on this observation, the current authors' suggestion, when recommending acupuncture, would be to use AVS forms at the end of *every* office visit—not merely the first office visit—to reinforce follow-up recommendations.

CONCLUSIONS

The data generated by this study do not support the hypothesis that the use of a single AVS form given at the end of the first office visit significantly increases the mean number of patient office visits. It appears as though, overall, the number of patient return visits was the same during the 3-month period after the implementation of a written AVS as beforehand (number of returns beforehand=371; number of returns after=403). However, when looking only at the population of patients who returned for 5 or more treatments, there was trend toward more patients doing so after the AVS was initiated than beforehand (2-sided p -value=0.0827; RR: 1.51; CI: 0.95–2.41). In other words, there was a 51% increase in likelihood that a patient given an AVS returned for 5 visits, compared to patients who did not receive AVS.

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DISCLOSURE STATEMENT

No competing financial interests exist for any of the authors.

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