

The Effectiveness of a Mail Reminder System for Depot Medroxyprogesterone Injections

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To determine if a mail reminder system leads to an increase in the percentage of depot medroxyprogesterone acetate (Depo-Provera) injections administered on time, the charts of 184 women were reviewed. The reminder postcard included the due dates of both the next medroxyprogesterone injection and the next Papanicolaou test. Timeliness of injections improved with the reminder system from 64% administered on time to 76% ($P < .02$). Injections given late despite the reminders were late a mean of 8 days. Injections given late before the reminder system began were late a mean of 20 days ($P < .05$). If injections given during the injection's 14-day "grace" period are included, the on-time rate improved from 87% to 96% with the reminder system ($P < .005$). The reminder system was not effective in ensuring annual Papanicolaou testing. Vigilance is needed to ensure that women receiving medroxyprogesterone injections also receive timely Papanicolaou testing.

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Depot medroxyprogesterone acetate (Depo-Provera, Upjohn Co, Kalamazoo, Mich) has been used by women for contraception worldwide for more than 20 years. However, the Food and Drug Administration approved its use as a contraceptive relatively recently, in late 1992.¹ After a 150-mg dose of medroxyprogesterone acetate, ovulation does not occur for at least 14 weeks. Therefore, a 2-week "grace period" exists for women receiving injections every 3 months.¹

Medroxyprogesterone is an attractive birth control option for women who have difficulty remembering to take oral contraceptive tablets daily. However, medroxyprogesterone use does require remembering to return for an injection at the appropriate 3-month interval. Women who choose medroxyprogesterone for contraception may have difficulty remembering to return for injections and might benefit from a clinic reminder system.

Reminder systems have been used for a variety of clinical services, such as vaccinations and Papanicolaou testing.² Methods vary and include computerized or

manual tracking, with mail or telephone reminders. Studies of the effectiveness of patient reminders have found them to be effective, with few exceptions.³ Studies comparing mail and telephone reminders have usually found mail reminders to be more effective, mainly because of the difficulty of successfully contacting patients by telephone. Patients who are actually contacted by telephone tend to be more compliant with recommendations than those receiving mail reminders. The purpose of this study was to determine whether a clinic mail reminder system leads to an increase in the percentage of medroxyprogesterone injections administered on time.

MATERIALS AND METHODS

The study took place at the Ramsey Family Physicians clinic in St Paul, Minn. On December 1, 1993, a reminder system was started to encourage women to return for their medroxyprogesterone injections at the appropriate 3-month interval. At the time of their injection, women were given a wallet-size card with the date by which they needed to receive their next injection.

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tion. A postcard with the patient's address and due dates for the next injection and Papanicolaou test was completed by the nurse giving the injection and placed in a file box divided by month. The postcards were folded, sealed for privacy, and mailed shortly before the month when the injection was due. Initial medroxyprogesterone injections were ordered by physicians after obtaining the patients' written consent. Subsequent injections were managed by the clinic nurses.

The reminder system was very effective

Billing data were used to identify women who had received medroxyprogesterone injections from October 1992 through October 1994. Charts of these women were reviewed to determine whether the reminder system improved the timeliness of the injections and Papanicolaou tests. Women were considered to have received their injection on time if they received it within 3 calendar months of their previous injection. They were considered to be on time with their Papanicolaou test if they had the test within the past 12 months.

Charts were omitted for women receiving medroxyprogesterone for reasons other than contraception. High school students who only received their injections at the clinic and otherwise received all health care at their school were also omitted. Statistical analyses by descriptive statistics, χ^2 and t tests, were performed using Statview (Abacus Concepts Inc, Berkeley, Calif) software.

RESULTS

The charts of 184 women were reviewed. The women receiving medroxyprogesterone injections had a mean age of 23 years (range, 13 to 50 years). The women were primarily single (90%) and were receiving state medical assistance (86%). Of the 163 women whose race or ethnic group was documented in the chart, 69% were white, 21% were black, 6% were Hispanic, 2% were Asian, and 1% were American Indian. Their mean gravidity was 2, with a maximum of 11; 32 were nullgravidas.

The women received a mean of 2.6 injections and a maximum of 11. Forty-three percent of the women had previously received a medroxyprogesterone injection elsewhere. Ninety-five had previously used oral contraceptive pills, and 10 had levonorgestrel implants in the past. Only 15 women had not used any other method of contraception previously.

At the time of chart review, 105 women were no longer receiving medroxyprogesterone injections at the clinic. A variety of reasons for discontinuing the injections were documented in 32 charts. The most common reason for discontinuation, documented in nine charts, was abnormal bleeding. Women who continued the injections were similar in age, marital status, insurance status, and race when compared with women who were no longer receiving the injections at the time of review. However, women continuing the injections were of lower gravidity than women no longer receiving injections (1.7 vs 2.3; $P < .02$).

Women who received their injections on time were similar in age, insurance status, and gravidity to women who received their injections late. On-time injections were more often given to single than married women (71% vs 57%; $P < .05$). On-time rates also varied significantly by race ($P = .02$). On-time injections were most often given to nonblack minority women (85%) and least often given to black women (57%).

Injections given after the reminder system was implemented were significantly more likely to be given on time. Sixty-four percent of the injections were given on time before and 76% were given on time after the system was in place ($P < .02$). Moreover, the mean number of days that women received their injections late significantly improved after implementation of the reminder system. Injections that were given late despite the reminder system were late a mean of 8 days, and those given late before the reminder system began were late a mean of 20 days ($P < .05$). If the "on time" definition is expanded to include the 14-day grace period, the reminder system improved the on-time rate from 87% to 96% ($P < .005$).

The reminder system was not effective in ensuring annual Papanicolaou testing. Despite the reminder system, 28 women receiving medroxyprogesterone injections did not have Papanicolaou testing 12 months after their previous tests. Five women were late for their tests despite receiving two reminders, and six women were late despite receiving three reminders. However, the portion of the reminder card indicating the due date of the next Papanicolaou test was inconsistently completed by the clinic nurses. A review of reminder cards for March and April 1995 showed that 100% included the due date for the next medroxyprogesterone injection, but only 57% included the due date of the next Papanicolaou test.

Women who were late for their Papanicolaou tests did not differ from those receiving annual testing by age, marital status, insurance status, or gravidity. Annual Papanicolaou test rates did vary significantly by race ($P < .05$). Papanicolaou tests were most often late for nonblack minority women (36%) and least often for white women (18%).

COMMENT

Medroxyprogesterone is a contraception option newly available in the United States. The injections are more than 99% effective in preventing conception when given every 3 months.¹ Medroxyprogesterone offers a unique advantage over other contraceptive methods because it does not require daily compliance, as do oral contraceptive pills. Nor does it require the potential long-term commitment of levonorgestrel implants.

Medroxyprogesterone does, however, require women to receive their injections in a timely manner. This may be particularly difficult for those medroxyprogesterone users who chose the method because of problems remembering to take oral contraceptive pills. Moreover, the interval between injections is not easily remembered by associating them with other regular occurrences such as birthdays (for annual checkups) or the arrival of the monthly telephone bill (for breast self-examinations). Therefore, a reminder system could be particularly helpful for medroxyprogesterone users.

The reminder system was very effective in this clinic population and improved the on-time injection rate to 96% when the 14-day grace period was included. Women receiving injections at this clinic were primarily young, single, white, and poor and had several prior pregnancies. It is not known how typical these women are when compared with medroxyprogesterone users in other locations in the United States. Because medroxyprogesterone was approved relatively recently, little has been published about its use in the United States. In a report of 199 primarily black, low-socioeconomic status adolescents, medroxyprogesterone was especially appealing to the teenagers who had been pregnant or had difficulty with oral contraceptive pills.⁴ Although it is unknown whether a reminder system would be as effective in clinic settings with different patient demographics, its success with these women, who appear to be at high risk for contraceptive failure, is very encouraging. The study results also suggest that black and married women may be particularly at risk of receiving their injections late.

The reminder system used was a simple manual mail one that could be easily adapted to other clinic settings. Although telephone reminder systems have been successful in other settings,² telephone reminders were not considered for this study because of previously described difficulties in reaching clinic patients by telephone.⁵ Although the mail reminder system was designed to require minimal nursing staff time, the time needed to determine the date of the patients' last Papanicolaou test was apparently time-consuming and

frequently omitted. Unfortunately, many women inadvertently were quite late for their Papanicolaou testing. A computerized reminder system could potentially avoid this problem but would be more complex and expensive to initiate than a manual one.

In conclusion, clinics that offer medroxyprogesterone injections should consider providing a mail reminder system for their patients. However, clinics adopting such a system will need to ensure that other important preventive health services continue to be provided.

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