

Medication intake reminders via a smartphone app improve real-world adherence to oral anticoagulation in atrial fibrillation patients

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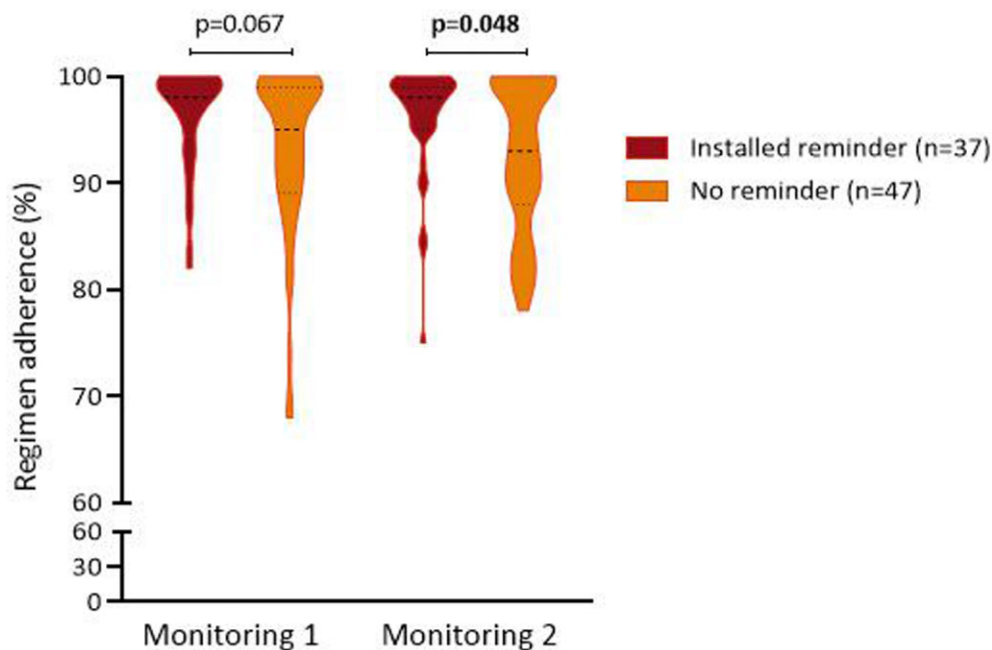
Introduction: Treatment with oral anticoagulation (OAC) is one of the main pillars in managing atrial fibrillation (AF). Education and intake monitoring are recommended to improve therapy adherence to OAC. Over the past few years, the importance of smart devices has increased, opening up new potential for patient education and better patient follow-up.

Purpose: We wanted to evaluate the usage of a medication module of an in-house developed application, AF-EduApp, and its effect on patients' therapy adherence to OAC.

Methods: The AF-EduApp multicenter study included 152 AF patients. The educational AF-EduApp contains, besides other modules, a medication module with the possibility to add a medication list. Patients also had the possibility to configure pill intake reminders which they could easily tick off. Adherence was calculated as the proportion of days that the medication was correctly taken, as indicated by the patient. This was compared with adherence measured by the Electronic Medication Event Monitoring System (MEMS, Aardex Group, Liège), which formed the primary outcome of this study. The MEMS cap registered the date and time of bottle opening and was used at baseline and after 12 months, each time for a monitoring period of 3 months (M1 respectively M2). Regimen adherence was defined as the proportion of days with the correct number of openings as recorded by MEMS.

Results: The 152 patients (Age: 68.8 ± 6.7 years; Time since AF diagnosis: 5.1 ± 6.6 years) used the application on 130.1 ± 144.7 days during a mean follow-up of 386.8 ± 108.1 days. A total of 137 patients were on OAC, of whom 87 patients set a reminder for the OAC in their medication list. If based on checking off the reminder, patients had a median therapy adherence of only 5.6% (IQR: 0.2-64.3%). This contrasts with a high regimen adherence based on MEMS: in 84 patients who completed both monitoring periods, adherence was $94.5 \pm 7.0\%$ at M1 and $94.1 \pm 6.6\%$ at M2 ($p=0.266$ between M1 and M2). At M1, there was already a trend towards a significant difference in MEMS regimen adherence between patients who did or did not set a reminder ($96.3 \pm 4.8\%$ vs $93.1 \pm 8.0\%$, $n=84$; $p=0.067$). At M2, patients who set a reminder took their medication significantly better than those who did not ($96.2 \pm 5.3\%$ vs $92.6 \pm 7.1\%$; $p=0.048$) (Fig 1).

Conclusion: The medication module was used by most of the patients, and 63.5% installed an intake reminder for at least their OAC therapy. However, checking off reminders is rarely done and cannot be used to judge adherence. On the other hand, patients who installed a reminder had a significantly higher real-world regimen adherence for OAC compared to patients who did not set a reminder. Medication intake reminders can contribute to improving adherence to OAC therapy.



MEMS based real-world regimen adherence