LETTERS TO THE EDITOR

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Effectiveness of remote monitoring of cardiac implantable electronic devices in detection and treatment of clinical and device-related cardiovascular events in daily practice: the HomeGuide Registry

We read with great interest the article recently published by Dr Ricci et al. entitled ‘Effectiveness of remote monitoring of cardiac implantable electronic devices (CIEDs) in the detection and treatment of clinical and device-related cardiovascular events in daily practice: the HomeGuide Registry’. The major favourable impact of Home monitoring (HM) in the management of patients with CIEDs, and particularly in patients with implantable cardiac defibrillators (ICDs), is now well established, as HM reduces the mean reaction time to major cardiovascular events and device malfunction than hospital visits. HomeGuide Registry indicates a time of 55.5 min/health personnel/100 patients/month for reviewing HM sessions. Now, considering that this study included both pacemakers (PMs) and ICDs, and that ICDs and ICD-cardiac resynchronization therapy (CRT) follow-up are likely to take longer than PMs control, the average time for ICDs and ICD-CRT control in HomeGuide can be calculated ~10–12 min/patient/year.

Thus, the resource consumption time for ICDs or ICD-CRT follow-up in HomeGuide Registry appears to be 3–10 times less than what is reported in the literature for other HM systems. As an example, in the small pilot Italian Evolvo study utilizing Carelink, the interrogation procedure lasted 7 ± 5 min, and considering an average of four follow-up contacts per year, this implies resource consumption of about 30 min/patient/year.2 Cronin et al.3 utilizing both Biotronik and Boston Latitude Systems, observed a mean follow-up time of 11.5 min per HM follow-up, implying a resource consumption of about 50 min/patient/year. Calò et al.4 evaluating the overall time required for the management of ICD patients followed by different HM systems, concluded that the average time required for remote surveillance (including both nurse and physician involvement) was 122 min/patient/year.

In our real-life experience including about 350 patients with ICDs (~50% ICD-CRTs) followed by CareLink system, we observed a resource consumption time (including nurse and physician time) of 80–120 min/patient/year, congruent with previous reports utilizing the same HM system. Now, such discrepancies in resource consumption times observed among the HomeGuide Registry and most of the published (and non-published) experiences are too evident to be overlooked. This issue is highly relevant now, since a clear and realistic indication of time required for HM is critical for establishing appropriate reimbursement fares and for planning both nurse and physician resources to be allocated to HM, in provision of a generalized use of HM as an alternative and integration of regular office visits.

Therefore, realistic and unbiased comparisons among different HM systems, on similar patient populations (better approaching separately PMs, ICDs, and ICD-CRTs) are highly required, to verify whether a Biotronik approach, based on automatic daily transmissions providing alerts only for out-of-bound parameters, is really significantly more efficient than the remaining HM systems, generally providing intermittent transmissions with full data disclosure. Such studies will objectively demonstrate whether significant differences exist in time resources to be allocated according to the different HM systems. This may provide important recommendations for the manufacturers for future directions of technological solutions to be adopted for HM systems. Conflict of interest

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Author reply

We thank Dr Locati for her interest in the HomeGuide (HG) Registry results and for raising the issue of the manpower needed for remote monitoring, which is critical for actually implementing it in standard daily practice.1 For the HG data analysis, a custom software was developed and implemented to exactly measure and record the duration of all the Home Monitoring sessions conducted by the involved nurses and physicians in all the 75 participating Italian Centres. The study results proved that Home Monitoring report reviewing required a remarkably short time (~1 h × health personnel per month every 100 patients), shorter than that reported in other studies. The applied technology may be a first reason explaining such a difference. As a matter of fact, unlike other systems, the Biotronik Home Monitoring, utilized in the HG registry, is essentially characterized by daily device-to-server transmissions: a continuous data flow allows Home Monitoring users to select and focus on the information of interest, while other systems based on periodic transmissions may require revision of each scheduled and unscheduled remote follow-ups. Finally, data pre-processing and graphical presentation may further facilitate

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