FORUM

Home Management of Supraventricular Tachycardia: Is it safe? — MV Silbert

Supraventricular tachycardia (SVT) is an arrhythmia which *appears* relatively simple to diagnose clinically without electrocardiographic confirmation. The management with intravenous verapamil ("Isoptin" Knoll) *appears* equally simple, and the response to such management dramatically effective. Therefore, should SVT present without any clinically detectable underlying cardiac disease or hypotension, it is tempting for the general practitioner to manage the condition in the patient's home. By sparing the patient admission to hospital or an intensive coronary care unit (ICCU) it becomes a convenient and cost-effective exercise.

Controversy, however, exists as to the safety of this procedure. Some cardiologists voice strong reservations, contending that management should take place in an ICCU so that immediate steps can be taken in the event of undesirable side-effects, particularly asystole, developing during the conversion to sinus rhythm. Others contend that it is a safe procedure provided certain precautions are observed, and provided that there has been ECG confirmation that the arrythmia is indeed SVT. In this regard, the controversy has recently been highlighted by Rankin et al[1] who drew attention to the hazard of misdiagnosing *ventricular* tachycardia as SVT. Should verapamil be administered in such cases, it would not only be ineffective, but it could also precipitate serious adverse responses such as aggravation of the tachycardia, hypotension, and asystole. (Eighty one per cent of Rankin's series had significant underlying heart disease).

It is common practice for general practitioners, however, to manage tachycardias with intravenous verapamil at the bedside without significant adverse reactions. This is likely due to the fact that cases selected for such domiciliary management are either known to have had previous ECG confirmation of paroxysmal SVT, or alternatively, do not manifest clinical evidence of cardiac disease and are not hypotensive.

In a personal series of 14 attendances for tachycardia, assumed to be SVT on clinical grounds or known to be confirmed paroxysmal SVT, 1 (one) patient experienced asystole after receiving verapamil. She was a 78-year-old woman on maintenance digoxin. She rapidly reverted to sinus rhythm after thumping her chest. Results in the remaining 13 episodes were as follows. One patient with myocardial infarction was referred to Groote Schuur Hospital, 4 patients with "lone" tachycardia (assumed to be SVT) who appeared on clinical examination to be in a haemodynamically stable condition, reverted to sinus rhythm; and 3 patients (8 episodes), who had previously been diagnosed by consultants as having paroxysmal SVT, reverted to sinus rhythm. One of these, a 74-year-old woman, also on maintenance digoxin, was given verapamil on 3 separate occasions without side effects. A decision to treat her at home was taken after uneventful initial management in the ICCU. Krikler,[2] reviewing the literature on "Verapamil in Cardiology", noted that although it has been suggested that verapamil should be used with caution in patients who are already receiving digitalis, much of the experience cited in this review would tend to discount this. Prior intravenous or oral administration of B-adgeneric

blockers, however, constituted a definite contraindication to the use of intravenous verapamil. Schamroth[3] notes that verapamil may be used safely in combination with digitalis, but cautions that maintenance digitalis should be reduced in such cases. Patients should also be monitored for atrioventricular block or bradycardia, although these complications are uncommon.

Apart from Rankin et al's recording of the hazards of using intravenous verapamil in *ventricular* tachycardia, patients with the Wolff Parkinson-White (WPW) syndrome are also at risk of serious side effects from verapamil. Although this syndrome is seen relatively infrequently in general practice, patients can present with tachycardia, and once again the general practitioner may be tempted to manage this as SVT. The condition can be diagnosed only on the ECG, where it produces a classic pattern.

Other tachyarrhythmias which may be incorrectly clinically diagnosed by the general practitioner and tempt him into using verapamil do not appear to have the same hazards as ventricular tachycardia or the WPW syndrome. Krikler[2] reports on experiences of various authors on the treatment of such arrhythmias, such as atrial fibrillation and atrial flutter, where intravenous verapamil was effective in producing ventricular slowing or conversion to sinus rhythm. No side-effects were noted.

It appears therefore, from reviews in the literature and from the general practice experience, that the majority of tachycardias likely to be seen in general practice can safely be managed with verapamil. However, in view of the abovementioned and recently reported hazards, initial electrocardiographic confirmation of the diagnosis seems mandatory. Once a diagnosis of SVT has been made, it appears that verapamil may be administered with confidence on subsequent occasions, without repeated confirmation, provided there is no significant underlying cardiac disease or hypotension.

Certain additional precautions need to be observed in the method of administration of verapamil. In the series of 14 cases referred to previously, the verapamil ("Isoptin") was administered slowly intravenously, the dosage varying between 5 and 10 mg, diluted with 10 ml of the patient's own blood. Calcium gluconate 10% and atropine were at hand to be used intravenously to reverse any possible side-effects such as hypotension or bradycardia; it was never necessary to do so in the series quoted. Unilateral carotid stimulation was required on two occasions when the tachycardia did not revert within four minutes of administration of the Isoptin. (Carotid stimulation was attempted in each case prior to administration of Isoptin but was unsuccessful).

Of added interest is the fact that in 3 of the 14 episodes of SVT recorded, there may have been precipitating factors in that these 3 patients had, within the preceding 12 hours, imbibed red wine and eaten yellow cheese, both substances known to contain significant amounts of amines.

Correspondence, critical comments and sharing of personal experiences would be welcomed with regard to the feasibility and safety of managing SVT in patients' homes along the abovementioned lines.

Editor

References:

1. Rankin AC, Rae AP, Cobbe SM. Misuse of intravenous verapamil in patients with ventricular tachycardia. Lancet 1987; ii:472-3.
2. Krikler D. Verapamil in cardiology. Eur J Cardiol 1974; 2:3-10.
3. Schamroth L. Verapamil: recommendations and caveats. J Cardiovasc Med 1984; 9:206-14.