



**Fig. 3** Clinical course of a 40-day-old infant. Heart rate decreased after combined oral propranolol and flecainide treatment. ATP, digoxin, and mexiletine were ineffective.

### Discussion

A pharmacological approach in early infancy is regarded as the first-line therapeutic option for congenital JET,<sup>4,5</sup> although radiofrequency catheter ablation or catheter cryoablation can now be used to achieve a permanent cure at older ages.<sup>1,5</sup> Pharmacologically, amiodarone alone or in combination with other drugs is the most commonly reported effective agent for congenital JET.<sup>1,4</sup> In prior reports, the efficacy ratio of amiodarone has been reported to range from 60%<sup>3</sup> to 82%,<sup>1</sup> but i.v. and oral amiodarone treatment are associated with adverse effects, based on its electrophysiological and chemical characteristics.<sup>6–8</sup>

The present study suggests that a combination of flecainide and propranolol is an alternative effective therapy for congenital JET. The combined therapy was associated with an absence of adverse events, and enabled the heart rate to be controlled for 1 year. This may be the first report of a combination therapy of flecainide and propranolol for infants with congenital JET. Multi-drug combined therapies have generally been thought to be preferable in prior reports, because congenital JET is resistant to many kinds of anti-arrhythmia medication.<sup>1,9</sup> The combination of oral amiodarone and flecainide was referred to as a possible combination for postoperative JET in a prior study.<sup>9</sup> Propranolol was selected to avoid the adverse effects of amiodarone. Thus, a combination of flecainide and propranolol may be an alternative effective therapy for congenital JET.

Another implication of the present case was the usefulness of an esophageal lead to recognize clear P waves, as shown in previous reports.<sup>10</sup> The QRS morphology during JET is the same as sinus capture QRS morphology. The QRS morphology on the 29th day of life was wide; it was considered as bundle branch block due to the sustained tachyarrhythmia. A clear diagnosis with electrographic documentation of a given arrhythmia is required for prescription of anti-arrhythmic drugs;<sup>2</sup> the present study showed that an esophageal recording is also useful for the diagnosis of congenital JET.

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