Objective
To describe a case of rate dependant bundle branch block (RDBBB) in an overdose of desvenlafaxine and temazepam.

Case report
A previously well 21 year-old male presented by ambulance three hours after an overdose of 2.35g (47x50mg) desvenlafaxine and 250mg (25x10mg) temazepam. Urinary drug screen was positive for amphetamines, methamphetamines, cannabis and benzodiazepines. Paracetamol was undetectable.

On arrival he had a Glasgow coma scale (GCS) of 6, heart rate (HR) of 151 and blood pressure (BP) of 128/78. His airway was managed with supportive measures. Initial electrocardiogram (ECG) showed a narrow complex sinus tachycardia (figure 1).

Discussion
RDBBB was first described in 1913 and was thought to be secondary to ischaemic heart disease but has been demonstrated in patients with normal coronary angiography. In overdose it has been reported with amisulpride and citalopram. It commonly occurs at a HR >100 but can occur at a much lower HR. Postulated mechanisms include an alteration in the his-purkinje system cycle length - refractory period relationship whereby the refractory period duration becomes relatively longer than the cycle length, which shortens with increasing HR. The onset and offset of the RDBBB demonstrates a hysteresis relationship whereby the onset HR (narrow QRS to BBB) is higher than the offset HR (BBB to narrow QRS). RDBBB is morphologically distinct from the QRS widening seen with sodium channel blocking drugs e.g. tricyclic antidepressants. It is unknown if drug induced RDBBB occurs because of a drug induced tachycardia, or if other drug related mechanisms are also contributing in a patient with underlying propensity to develop RDBBB.

References