

# A prospective analysis of propranolol exposures reported to the UK National Poisons Information Service (NPIS), 1 June 2019 – 31 May 2020

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## Objective

To clarify the circumstances surrounding overdose in patients prescribed propranolol.

## Methods

Prospective analysis of twelve months' enquiries involving propranolol to the Birmingham and Edinburgh Units.

## Results

We received 171 enquiries regarding 164 patients. Most exposures (140) occurred at home; 17 were in prison. Further analysis will concentrate on the 82 (50%) patients who took a deliberate overdose of prescribed propranolol, 22 of whom (27%) had taken overdoses previously. The tablet size was documented in 65 cases: (79%); 10 (n=14), 40 (n=38), 80 (n=12) and 160 mg (n=1). Only 2/65 were sustained release preparations. Median dose of propranolol taken, n=71, was 600 (IQR 260–1240) mg. Median dispensed dose, n=21, was 980 (IQR 560–2240) mg. Propranolol was prescribed for anxiety (n=46), migraine (n=8), mood stabilisation (n=2), hypertension (n=2), and essential tremor (n=1).

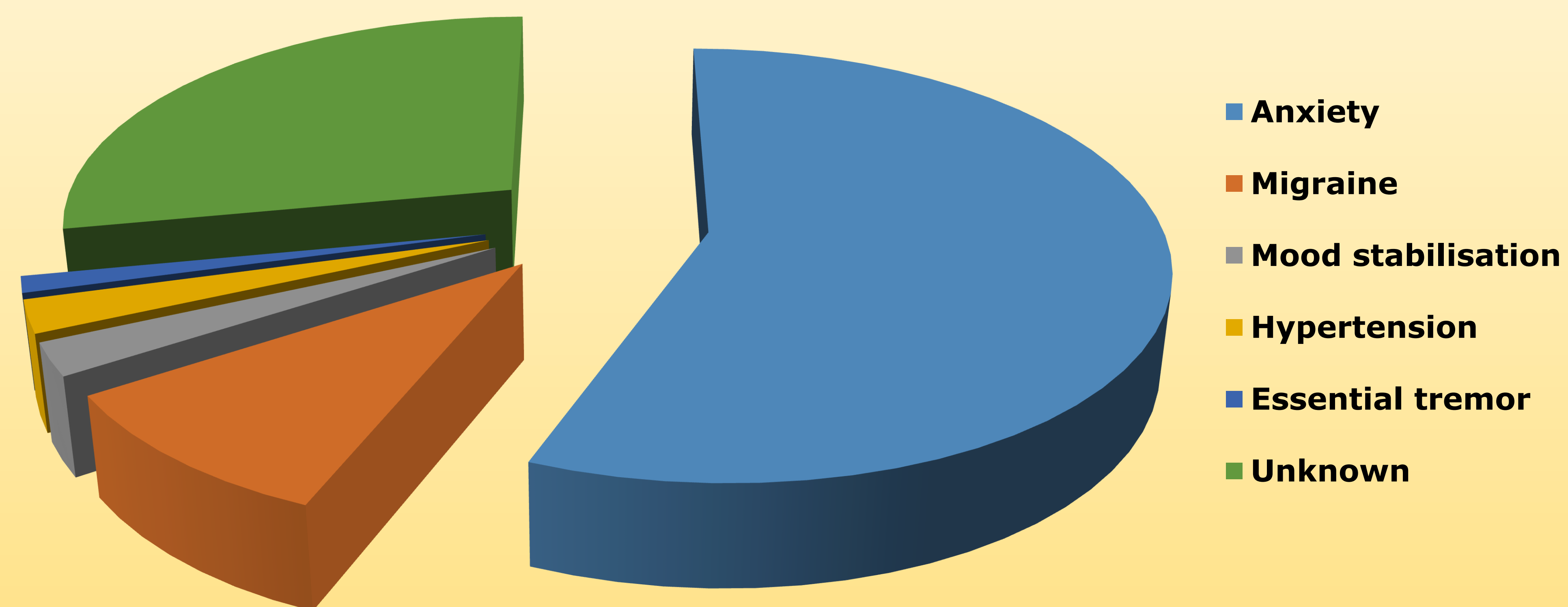


Figure 1: Indications for prescribed propranolol

Of the 46 patients prescribed propranolol for anxiety, 14 (30%) had taken overdoses prior to this exposure, and 16 (35%) suffered severe or fatal poisoning as a consequence of this most recent overdose. Twenty-eight patients took propranolol alone; 52 took it with alcohol and/or other drugs.

## Results

Seventeen patients took a deliberate overdose of both prescribed propranolol and one or more selective serotonin reuptake inhibitors (SSRIs): sertraline (n=8), citalopram (n=6) and fluoxetine (n=5). SSRIs had been prescribed to at least 12 of these patients. Nine of the 17 patients developed severe poisoning and at least one died.

The maximum Poisoning Severity Score [1] is as shown in Figure 2.

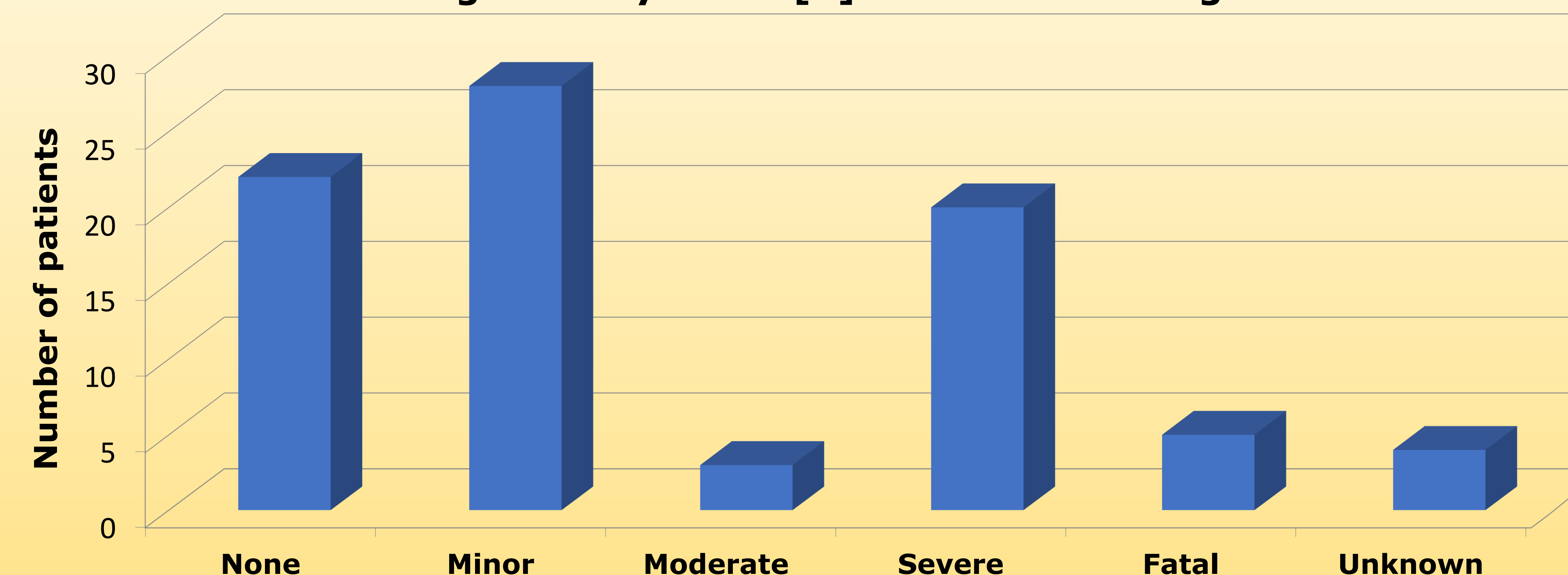


Figure 2: MAX PSS of patients

In those who developed severe or fatal propranolol toxicity, the median recorded dose, n=17, was 1600 (IQR 1120–3000) mg.

The indications in the five patients who died after taking prescribed propranolol were: anxiety (n=3), migraine (n=1), and unknown (n=1). All had intentionally ingested propranolol with other drugs and the doses, documented in four cases, were 240, 840, 1600, and 2240 mg.

## Conclusions

Propranolol had been prescribed for anxiety to more than half of the patients who took a deliberate overdose; 30% had taken overdoses previously and 35% developed severe or fatal poisoning. Co-ingestion with an SSRI may increase the risk of severe toxicity in those taking propranolol overdoses.

## References:

- Persson HE, Sjöberg GK, Haines JA, De Garbino JP. Poisoning severity score. Grading of acute poisoning. *J Toxicol Clin Toxicol.* 1998; 36: 205-213.

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