

Mono Exposures to Beta-Blockers Reported to the Poisons Information Centre Erfurt from 2001-2010

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Objective

The aim of the study was to get recent information on important characteristics of all mono beta-blocker exposures (MBBE) reported to the Poisons Information Centre (PIC) Erfurt over a ten year period.

Methods

In a retrospective study we analysed the development of frequencies, circumstances of exposure, symptom severity, age groups, and substances involved in all MBBE-related inquiries to the PIC Erfurt from the beginning of 2001 to the end of 2010.

Results

In total, 846 MBBE were registered. MBBE discontinuously increased from 69 in 2001 to 86 in 2010 while the relative frequency to all exposures remained almost constant 0.5% (0.4-0.7%) over the same period (Fig. 1).

Age groups involved in MBBE were more often children 45.5% (toddlers 34.2%) and less frequently adults 54.1% than in all exposures (children: 40.0% (toddlers 5.3%); adults 59.2%) (data not shown).

The frequencies of accidental MBBE (45.0%) and all accidental exposures (44.9%) were the same while suicidal intention was more often observed in MBBE (44.2%) than in all exposures (36.1%) (data not shown).

The ten beta-blockers most frequently involved in MBBE were also the ten most often prescribed ones in Germany with slight differences in the rank order (Table 1).

Symptom severity was: none to mild 68.2% in MBBE and 65.2% in all exposures, moderate 2.8% in MBBE and 7.3% in all exposures, severe 1.3% in MBBE and 3.5% in all exposures, unknown 27.2% in MBBE and 23.9% in all exposures, and fatal 0.5% in MBBE and 0.2% in all exposures. Highest rates of moderate or severe symptoms were seen with sotalol (3/26; 11.5%), atenolol (3/45; 6.7%), talinolol (3.8%) and bisoprolol (6/245; 2.8%). Three of 4 fatal cases occurred in talinolol exposures (3/26; 11.5%) and one in metoprolol exposures (1/341; 0.3%).

References

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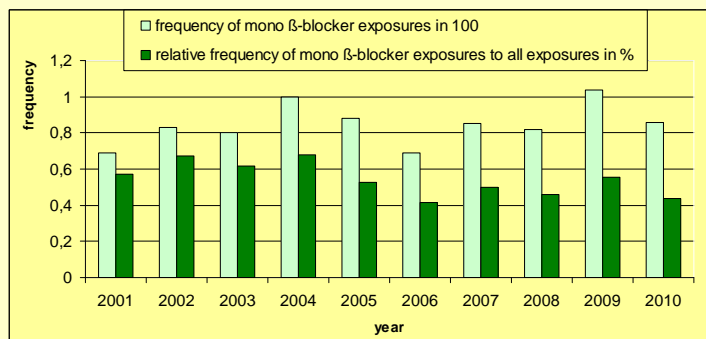


Figure 1: Frequency (absolute in 100 and in relation to all exposures in %) of mono β-blocker exposures reported to the PIC Erfurt from 2001 to 2010

Table 1 Symptom severity of mono β-blocker exposures reported to the PIC Erfurt from 2001 to 2010 in order of their frequency

	0-1	2	3	unknown	death	in total
Metoprolol	238 (69.8%)	10 (2.9%)	5 (1.5%)	87 (25.5%)	1 (0.3%)	341
Bisoprolol	183 (74.7%)	6 (2.4%)	1 (0.4%)	55 (22.4%)	0 (0%)	245
Propranolol	44 (68.8%)	2 (3.1%)	1 (1.6%)	17 (26.6%)	0 (0%)	64
Carvedilol	30 (63.8%)	2 (4.3%)	0 (0%)	15 (31.9%)	0 (0%)	47
Atenolol	31 (68.9%)	2 (4.4%)	1 (2.2%)	11 (24.4%)	0 (0%)	45
Nebivolol	27 (77.1%)	0 (0%)	0 (0%)	8 (22.9%)	0 (0%)	35
Sotalol	14 (53.8%)	1 (3.8%)	2 (3.8%)	9 (34.6%)	0 (0%)	26
Talinolol	6 (23.1%)	1 (3.9%)	0 (0%)	16 (61.5%)	3 (11.5%)	26
Beta blocker unknown	1 (12.5%)	0 (0%)	1 (0%)	6 (75.0%)	0 (0%)	8
Celiprolol	2 (33.3%)	0 (0%)	0 (0%)	4 (66.7%)	0 (0%)	6
Betaxolol	1 (33.3%)	0 (0%)	0 (0%)	2 (66.7%)	0 (0%)	3
In total	577 (68.2%)	24 (2.8%)	11 (1.3%)	230 (27.2%)	4 (0.5%)	846
All exposures	10,334 (65.2%)	11,635 (7.3%)	5,504 (3.5%)	37,828 (23.9%)	299 (0.2%)	158,600

Conclusions

- The observed rise in MBBE was probably caused by the simultaneous increase in all exposures registered by the PIC Erfurt from 2001 to 2010.
- The frequency of MBBE seems to be triggered by the prescription rate of beta-blockers.
- Talinolol poisoning caused strikingly often fatalities (1).