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Zolpidem (Stilnox, Hypnogen) is an imidazopyridine derivate with a strong sedative effects used as a short acting hypnotic agent. A fatal overdose with zolpidem only is rare. On the other hand, the intoxication due to a combination of zolpidem with the other CNS action drugs including alcohol can induced a coma until to the death. The authors describe six lethal cases with important role of zolpidem.

Gastric contents, urines, livers and kidney have been prepared by the routine isolation processes. Screening and identification of extractive compounds have been realized by thin layer chromatography (TLC) method and gas chromatography-mass spectrometry (GC-MS) one. Zolpidem has been quantificated in blood (subclavian artery blood) by liquid chromatography-mass spectrometry method (LC-MS-APCI) after its isolation from blood using toluene. LC analysis was applied to C18-Gemini column (2 x 50 mm, 5  $\mu$ m). Mobile phase was completed 0,01 M ammonium acetate buffer with 0,1 M formic acid and acetonitrile in a gradient mode; the value of flow rate was 0,2 ml/min. Propiverine was used as an internal standard. MS measurement has been applied to single quadrupole with APCI source in positive mode.

**THE RESULTS:** Three lethal cases has been specified the overdose by medicaments (zolpidem - 1,10 mg/l with maprotiline - 12,20 mg/l, zolpidem - 1,03 mg/l with alcohol - 2,08 g/kg and zolpidem - 3,02 mg/l with citalopram - 11,40 mg/l, betaxolol - 5,43 mg/l and verapamil - 20,15 mg/l), in one case the death became by suffocation in consequence of drowning (zolpidem - 1,23 mg/l, betaxolol - 2,47 mg/l), and in one situation the death became by traumatic shock due to fall from window (zolpidem - 0,6 mg/l, clomipramin - 0,01 mg/l). In one case zolpidem was established as a stressor in heart disease (zolpidem - 1,22 mg/l).

**KEYWORDS:** *Zolpidem, LC-MS analysis, Lethal cases*

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