FATAL POISONING CAUSED BY FELODIPINE
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Objective
Felodipine is a calcium-channel blocker of dihydropyridine type similar to nifedipine. This is the first report of a fatality after ingestion of an overdose.

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Patient: 33-year-old woman

Route of exposure and dose:
Ingestion of 600 mg felodipine at an indefinite time before admission

Time of admission:
Indefinite time after ingestion

Clinical features:
• Severe vasoplegic shock with normal left ventricular function already during transfer to the ICU
• Systemic vascular resistance was decreased to 300 dyn.sec.cm⁻⁵ (normal 1000 to 1500), although catecholamines were administered in maximum dose

Treatment and course:
• Calcium gluconate, glucagon, insulin-glucose, and lipid emulsion were ineffective.
• Albumin dialysis with Molecular Adsorbents Recirculation System (MARS®) was used to remove protein bound felodipine. Actually, the catecholamine supply could be reduced temporarily, but peripheral oxygen utilisation was massively disturbed.
• Lactic acidosis and acute renal failure were treated with continuous venovenous hemofiltration. Despite of all this measures, the critical state of the patient could not be stabilized.
• An abdominal compartment syndrome developed 24 hours after ingestion. A serious compression of mesenteric aortic branches with underperfusion of intestine was recognized by CT angiography.
• Laparoscopy showed a large increase of intraabdominal pressure and gangrenous changes of the whole small intestine.
• The patient died on the following day.

Toxicity of felodipine

THERAPEUTIC DOSE oral
• Adults (2,5)-5-10-(20) mg/d; Children MDD 3 x 15 mg/d
• 30 to 75 mg per day

TOXIC DOSE oral
• Adults felodipine 50 mg/d over 2 days without any symptoms coingestions of felodipine 100 mg and theophylline 9 g with severe hypotension, tachycardia, circulatory insufficiency and paralytic ileus (2)
• Children no data available

Conclusions
• Massive overdose of felodipine caused exclusively a long-lasting peripheral vasodilatation resistant against all appropriated therapeutic measures.
• This vasoplegic syndrome corresponds to the felodipine half-life (11 to 16 hours after single dose; 22 to 27 hours after repeated dose) (3).
• No cardiotoxic effects occurred in our case as well as reported (2) confirming the high selective binding of felodipine to voltage-dependent calcium channels of vascular smooth muscle cell membranes also in life-threatening poisoning.
• The possibility to opening of calcium channels by use of 4-aminopyridine (4-AP) infusion was not available (2).

References