

Isradipine effectively lowers blood pressure in hospitalized pediatric patients with acute hypertension

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BACKGROUND: Isradipine has been reported to be effective for treatment of acute hypertension in adults, but no similar pediatric data have been published to date.

OBJECTIVE: To examine the efficacy and safety of isradipine for acute hypertension in hospitalized pediatric patients.

METHODS: This is a retrospective single center observational study of 391 initial doses of isradipine in 282 hospitalized and emergency room patients with acute hypertension over a 2 year period. Isradipine was administered as a capsule or as a 1 mg/ml suspension at a mean dose of 0.08 mg/kg (range: 0.015, 0.24 mg/kg). Medical records were reviewed for patients' vital signs, demographics, dose, primary diagnosis, use of chronic and acute antihypertensive medications, and adverse events.

RESULTS: The median age of patients was 13.3 yrs (range: 0.1, 21.9). Primary diagnoses included renal disease (N=232), malignancy (56), non-renal transplant (54), neurologic disease (22), or other (27). The median decrease in systolic blood pressure was 15.9% (Interquartile range (IQ): 8.2, 22.8) and in diastolic blood pressure was 24.7% (IQ: 12.9, 35.7). In multiple linear regression analyses, renal disease and neurologic disease were associated with less mean arterial pressure (MAP) decrease while non-renal transplant and malignancy were associated with greater MAP decrease. Stratified analyses showed isradipine lowering blood pressures in all age groups and in all diagnosis categories. The 2 youngest age groups (0-<2 and 2-<12 year olds) had the highest median % decreases in MAP. The median increase in pulse after isradipine dose was 7 beats per minute (IQ: 5, 8). Forty adverse events were reported in 33 patients with emesis, nausea, and headache being most common. In 5 cases, severe hypotension following isradipine doses was documented: 4 required medical intervention. Higher doses of isradipine were associated with more frequent MAP drop > 25% (Mann-Whitney: p=0.009). There was no association between dose size and adverse events or between MAP decrease > 25% and adverse events.

CONCLUSIONS: Isradipine effectively lowered BP in hospitalized pediatric patients with acute hypertension in a wide variety of age groups and underlying conditions. The decrease in BP was the highest in the 0 to < 2 yrs group, suggesting that a lower starting dose should be used in this age group.

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