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Acute Hand Ischemia Secondary to Intraarterial Buprenorphine Injection: Treatment with Iloprost and Dextran-40

A Case Report

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ABSTRACT

Intraarterial injection may result in acute ischemia and amputation. The authors describe the case of a 27-year-old man with an acute hand ischemia following intraarterial injection of a suspension of buprenorphine. Despite its initial severity, this case was successfully treated with iloprost, a stable prostacyclin analogue, and dextran-40, a low-molecular-weight dextran.

Introduction

Intraarterial injection of various drugs by abusers may result in severe conditions, including amputation, for which there is no generally accepted management.1,2 We describe the first such case successfully treated with iloprost, a stable prostacyclin analogue, and dextran-40, a low-molecular-weight dextran.

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Case Report

A 27-year-old man was admitted 8 hours after he had injected a 2 mg suspension of crushed oral buprenorphine into his left ulnar artery. The patient had a long history of intravenous drug abuse and his physical examination revealed acute severe hand ischemia. All the fingers of the left hand except the thumb were tender, hypothermic, cyanotic, and extremely painful and displayed both a sensory deficit and weakness. Capillary refilling was very slow. Serum creatine phosphokinase was 2,525 units/L (normal < 200 units/L). Duplex scanning revealed patent radial and ulnar arteries, but only one patent palmar arch, and no Doppler flux in the involved fingers. Nailfold capillaroscopy disclosed eight capillaries/mm, the presence of desert areas, dystrophic capillaries, numerous hemorrhages, and sludge in the involved fingers, as against 12 capillaries/mm, no desert areas, no dystrophic capillaries, no sludge, and rare hemorrhages on the contralateral healthy side. The patient was treated with 10 mg of oral nifedipine, three times a day, 7,600 anti-Xa units of nadroparine twice a day, 0.05 mg of intravenous iloprost once a day, and opiates for pain control.

After 2 days of this treatment, the patient's condition had not improved, and his fingers had become edematous and exhibited patchy cyanotic areas resembling a pregangrenous state. Low-molecular-weight dextran (dextran-40) was added to the treatment, by continuous intravenous infusion, at a dosage of 500 mL per day. On day 6, the pain decreased, and the edema resolved, and within 12 days the cyanotic areas gradually disappeared. Dextran-40 had induced hemodilution and the hematocrit fell from 43.5% to 35.2%. The treatment was well tolerated, and diuresis and serum creatinine remained stable. The patient was discharged on day 16 and no amputation was necessary.

Discussion

Intraarterial injection of a crushed oral drug constitutes a bad prognostic condition because, in addition to vasospasm, endothelial cytotoxic injury, sludging, and thrombosis, caused by such drugs, the particulate nature of the drug injected leads to multiple embolizations in the microcirculation, thus explaining the high risk of amputation.1-5 The present case was similar to severe cases reported by Treiman et al, 50% of whom had to undergo amputation.1 In our case the high level of serum creatine phosphokinase confirmed the rhabdomyolysis of the hand. Various empirical therapies, including anticoagulants, corticosteroids, antiplatelet agents, vasodilators, iloprost, dextran-40, and thrombolytics have been proposed.1-5 Iloprost has potent vasodilating and antiaggregant properties, and dextran-40 has antithrombotic properties and an antisludge effect and induces hemodilution. In our patient, these effects, which are not redundant, minimized the tissue injury and may have helped to prevent amputation.

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References