[ID-P#080] Carotid Artery Chlorhexidine Injection: Case Report

Jenan Salmeen[a], Abdullatif Aloumi[a] and Robert J Hoffman[b]
[a]Kuwait Poison Control Center, Kuwait City, Kuwait; [b]Division of Pediatric Emergency Medicine, Division of Toxicology, UT Southwestern Medical Center, Dallas, USA

Background: Chlorhexidine is a widely used antiseptic and disinfectant. Allergic reaction and systemic toxicity after ingestion or injection are reported. We report a case of unintentional intravascular chlorhexidine injection.

Method: This single case reports a 48-year-old man with hypertension and diabetes complicated by end-stage renal disease requiring hemodialysis. After hospital admission for catheter-related bloodstream infection, a hemodialysis catheter was incorrectly inserted into his right carotid artery. The vascular surgeon performed a right carotid cover stent and removal of hemodialysis catheter under local anesthesia. The final stage of that procedure required injection of contrast, but chlorhexidine 10 ml (ethanol 70%, chlorhexidine gluconate 5%) was erroneously injected instead.

Results: The patient immediately developed left hemiparesis and severe right-sided burning sensation. He was admitted to an ICU and a nitroglycerin infusion was initiated. He became comatose, developed hypotension requiring vasopressors, and respiratory insufficiency requiring endotracheal intubation and mechanical ventilation. A brain CT revealed right cerebral hemisphere ischemia, edema, and 4 mm midline shift to the left. Therapy with aspirin, levetiracetam, and mannitol was initiated. The patient developed anuria requiring hemodialysis. A 24-hour follow up brain CT showed worsening edema and ischemia, loss of grey-white differentiation, diffuse generalized hypodensity, and increased midline shift of 10 mm to the left. The patient deteriorated despite therapy and he expired 3 days after the chlorhexidine injection.

Discussion: Toxicity due to intravascular chlorhexidine injection is rare. We believe this is the first case report of direct brain tissue injury from chlorhexidine. Severe consequences including acute respiratory distress syndrome, tissue necrosis, and death were previously reported.

Conclusion: Intra-arterial carotid injection of chlorhexidine has devastating effects on brain tissue and can be fatal. Injection exposing other end organs would likely cause severe injury as well. Safety measures to prevent such medical errors should be part of routine practice.