Awareness of Lidocaine Toxicity and Lipid Rescue: A Completed Loop Cycle Audit in Plastics Trauma Resident Doctors and Clinical Staff

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Abstract:

Local Anaesthetic Systemic Toxicity (LAST) is a rare but potentially life-threatening complication requiring rapid recognition and timely administration of 20% lipid emulsion. Previous institutional audits highlighted insufficient awareness of safe lidocaine dosing, toxicity features, and antidote availability. This closed-loop audit evaluated knowledge of junior doctors and clinical staff working in the Hand and Plastic Injuries (HAPI) service regarding safe dosing limits, early and late signs of LAST, correct lipid rescue management, and antidote location. Fourteen staff members participated in Cycle 1 through a structured questionnaire administered without prior notice to minimise bias. Baseline results demonstrated low confidence (mean 1.8/5), poor knowledge of maximum dosing limits, limited recognition of toxicity features, and no staff awareness meeting audit standards. Additionally, no lipid rescue pack was available in HAPI, with the closest supply located in theatres. Following targeted interventions—including teaching sessions, visual protocol posters, and collaboration with pharmacy to introduce a lipid rescue pack—Cycle 2 showed marked improvement, with average confidence rising to 4.25/5 and substantial gains across all audit standards. This audit highlights the effectiveness of focused education and system-based improvements in enhancing LAST preparedness and patient safety.

Keywords:

Local Anaesthetic Systemic Toxicity, Lidocaine, Lipid Rescue, Clinical Audit, Patient Safety, Plastic Surgery, Education.