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An Intriguing Medical Case Report: Diplopia and Rashes Caused by Levosimendan

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ABSTRACT:
Levosimendan, a calcium sensitizer and inodilator, is increasingly used in the peri-operative management of cardiac surgery patients. Although its commonly reported adverse drug reactions (ADRs) include headache, hypotension, hypokalaemia, and arrhythmias, rare reactions are not well documented.We report the case of a 42-year-old male with ischemic heart disease and unstable angina who was scheduled for coronary artery bypass grafting (CABG). As part of the pre-operative optimization protocol, Levosimendan infusion (12.5 mg in 500 mL NS) was initiated 24 hours prior to surgery. Within five minutes of infusion, the patient developed sudden-onset diplopia and localized rashes over the fingers. The infusion was immediately discontinued, following which the diplopia resolved within five minutes and the rashes subsided completely within two days. Concomitant medications included pantoprazole and zolpidem, with no known interactions.This case highlights two uncommon ADRs—diplopia and cutaneous rash—associated with Levosimendan administration. Early recognition and prompt discontinuation of the drug are essential to prevent further complications. Clinicians should be aware of these potential reactions to ensure timely management and improve patient safety.

Keywords: Levosimendan, Diplopia, Rash, ADR, Case report
Abbreviations:

INTRODUCTION:

Post-operative complications such as multiple organ failure, acute heart failure, and low cardiac output syndrome are significant risks that can lead to a poor prognosis for patients after cardiac surgery. Recently, Levosimendan has been evaluated in both adult and pediatric patients as a bridge treatment during the peri-operative period of heart surgery [1]. Levosimendan is a new drug that exhibits a threefold mode of action, meaning that it functions via binding to cardiac troponin C in a calcium-dependent manner, as well as by opening K_{ATP} channels on smooth muscle cells in the vasculature and cardiac mitochondria [2]. It was initially authorized in Sweden in 2000, and while the Food and Drug Administration (FDA) is currently actively conducting clinical trials, it subsequently received final marketing clearance in other European nations [3].

The most often reported adverse drug reactions are headache, nausea, hypotension, arrhythmia (atrial fibrillation, extrasystoles, atrial tachycardia, ventricular tachycardia), myocardial ischemia, and hypokalaemia [4]. To our knowledge, this case report is the first to discuss Levosimendan's adverse drug reactions, such as diplopia and rashes. The aim of this case report is to alert clinicians and healthcare professionals on the safety and adverse effects of Levosimendan.

CASE PRESENTATION:

A 42-year-old male patient with k/c/o IHD, ACS- Unstable Angina, TMT +ve and T2DM came to the emergency department with c/o chest discomfort and left shoulder pain for 3 days. On physical examination, he was conscious and oriented with a BP of 130/90, PR- 69bpm, RR- 22/min and maintains a normal saturation. Through right radial artery approach, CAG was carried out which revealed TVD and hence CABG was advised. The patient underwent CABG from LIMA to LAD, RSVG to ramus and OM. On examination: CVS- S1S2 +ve, RS- AEBE +ve, PA- soft, non-tender, CNS- NFND. ECG showed ST elevation in V3, ECHO- Normal cardiac chambers, No RWMA, normal LVEF, Trivial MR and TR, no PAH, IAS+IVS intact, normal RV function, no E/O pericardial effusion/ clot/ vegetation.

Fig. 1 Injection Levosimendan 12.5mg/vial in 500ml NS

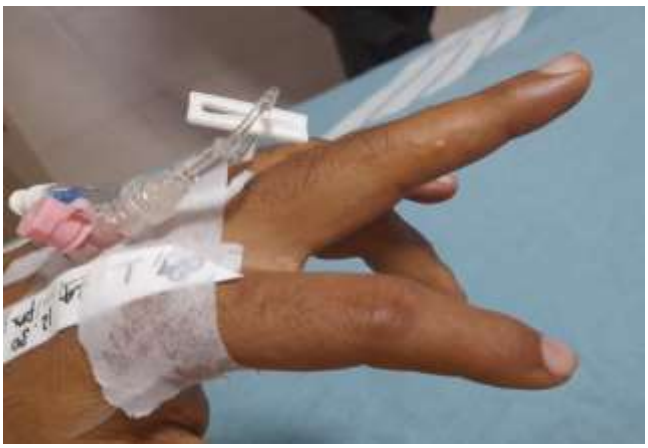

Fig. 2 Rash on the left fingers

Injection Levosimendan infusion 12.5mg/vial in 500 ml NS was given at 5pm i.e 24 hours before CABG procedure as advised by the cardiac surgeon. Within 5 minutes of the infusion, the patient started developing rashes in his left fingers and complained of diplopia. The drug was withheld immediately and the diplopia subsided within 5 minutes after it was discontinued, while the rashes disappeared after 2 days. The concomitant medications were parenteral pantoprazole and oral zolpidem. There were no known drug interactions found between these drugs.

The procedure and post-procedure period were uneventful. The patient was treated with antiplatelet, statins, antihypertensive, antibiotics, OHAs, insulin and other supportive medications. With the above line of treatment, the patient improved symptomatically, is hemodynamically stable and is being discharged.

DISCUSSION:

A novel inotropic medication, levosimendan, is a member of the class of medications known as calcium sensitizers. It is thought to be an excellent option for high-risk patients having cardiac surgery because of its inotropic and vasodilatory activities, which distinguish it from other inotropic medicines without increasing myocardial oxygen consumption. In this instance, prophylactic pre-operative levosimendan infusion was administered for CABG procedure to reduce hemodynamic disturbances and facilitate a seamless and effective surgery.

There is less evidence available in the literature regarding the ADR of Levosimendan. There have been reports like torsades de pointes and cardiac arrest associated with levosimendan administration [5] and aspen syndrome [6]. This is the first case report to demonstrate rash and diplopia caused by levosimendan, while previous research and case reports have only shown cardiac-related cases. We are sharing this extremely unusual instance with readers, physicians, and other healthcare professionals so they may make an informed decision before using levosimendan.

Questions	Yes	No	Do not know	Our score
1. Are there previous conclusive reports on this reaction?	+1	0	0	0
2. Did the adverse event appear after the suspected drug was administered?	+2	-1	0	+2

3. Did the adverse event improve when the drug was discontinued or a specific antagonist was administered?	+1	0	0	+1
4. Did the adverse event reappear when the drug was readministered?	+2	-1	0	0
5. Are there alternative causes that could on their own have caused the reaction?	-1	+2	0	+2
6. Did the reaction reappear when a placebo was given?	-1	+1	0	0
7. Was the drug detected in blood or other fluids in concentration known to be toxic?	+1	0	0	0
8. Was the reaction more severe when the dose was increased or less severe when the dose was decreased?	+1	0	0	0
9. Did the patient have a similar reaction to the same or similar drugs in any previous exposure?	+1	0	0	0
10. Was the adverse event confirmed by any objective evidence?	+1	0	0	+1
Total score				+6

Fig. 3: Naranjo's causality scale:- ≥ 9 : Definite, 5 to 8 : Probable, 1 to 4 : Possible and ≤ 0 : Doubtful

Using the Naranjo scale of causality evaluation, which is shown in Fig. 3, the current ADR report is evaluated. In our case, the causality was found to be 'Probable' suggesting that the development of rash and diplopia is probably attributable to Levosimendan.

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