behavioural responses such as ‘fight or flight’ responses, lifestyle behaviours, or adaptive coping behaviour; and that stress perception is also related to physiological stress responses, with the most common responses involving the endocrine system, autonomic nervous system (ANS), and immune system. These systems are responsible for the physiological adjustment reactions, where they interact with each other in a complex non-linear network and with other mediators, such as neurotransmitters, cytokines, etc.5

The process to develop the B-MEPS had a theoretical assumption based on individual differences in capacity to respond to acute and prolonged stressors, which may be associated with the development of postoperative acute and perhaps chronic pain. The content of the B-MEPS permits assessment of individual reactivity to preoperative emotional stress. Notably, the B-MEPS items allow the identification of patients with a higher vulnerability to environmental stressors, which have higher propensity for greater preoperative emotional stress. Although further longitudinal studies are needed to assess B-MEPS properties in different samples, it was a tool constructed in a biopsychosocial perspective to provide a practical tool for research and policies for prevention and early intervention.

Declaration of interest
None declared.

References

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Hypoglycaemia after accidental ocular insulin injection

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Editor—Typically, insulin is administered subcutaneously, intravenously, or intramuscularly. Alternate routes of insulin delivery, including oral, nasal, buccal, sublingual, ocular, rectal, and vaginal, have been described, but have resulted in unreliable effects.¹

We report a case of prolonged hypoglycaemic symptoms after accidental ocular administration of insulin by a health care professional. While preparing an insulin solution in the operating room by injecting 1 ml Humulin R (Eli Lilly & Company, Indianapolis, IN, USA) containing 100 IU of insulin into a 100-ml normal saline bag using a tuberculin syringe and 18G needle, a female anaesthesiologist with no medical history accidentally splashed most of the insulin into her right eye. Although no blood glucose measurement was performed at this time, she was concerned about hypoglycaemia and immediately drank 200 ml of orange juice and ate two bars of chocolate. After 90 min she began to shiver, sweat, and feel dizzy. Her venous blood glucose level at that time was 2.2 mmol L⁻¹. She continued to ingest sugar-rich beverages and nutrients and 2 h later normoglycaemia (serum glucose of 4.0 mmol L⁻¹) was restored.

Systemic absorption of insulin via the ophthalmic route involving conjunctival and nasal mucosal absorption appears to be restricted due to significant lacrimal drainage. After ocular administration of insulin in rabbits, its bioavailability was <1%.² In humans, ocular injection of 5 IU insulin did not lower circulating blood glucose.³ If applied together with the surfactant saponin, however, hypoglycaemia was observed and lasted for 3 h.⁴

Here we report prolonged hypoglycaemic effects after inadvertent ocular administration of an unknown amount of regular insulin. Caution should be taken when handling highly concentrated insulin solutions in the operating theatre and point-of-care blood glucose testing must always be available.

Declaration of interest
None declared.
Rainbow after the storm

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Editor—A 71-year-old female presented with polymicrobial sepsis and mediastinitis following a dental procedure. After resuscitation with fluids and antibiotics, she required increasing doses of norepinephrine (up to 0.3 μg kg⁻¹ min⁻¹) prior to operative exploration. Point-of-care ultrasound revealed elevated cardiac filling pressures (dilated inferior vena cava without respiratory variation) and hyperdynamic cardiac function (ejection fraction >65%). Central venous pressure was 14 mmHg and central venous saturation was 70%. These findings, in addition to the requirement for high-dose intravenous vasopressors, confirmed a diagnosis of vasoplegia. An intraoperative infusion pump failure of norepinephrine resulted in profound hypotension [blood pressure (BP) 30/20 mm Hg] as measured by an indwelling arterial line. Intravenous vasopressor boluses and 100 mg of methylene blue increased systolic arterial BP to >100 mm Hg for 15 min. Because methylene blue was effective, but only for a short duration, we administered intravenous hydroxocobalamin (1 g/h) to treat her vasoplegia. Her acute oliguria (<10 ml h⁻¹) was reversed and urine output increased to >500 ml h⁻¹ during the final hours of surgery.

Methylene blue temporizes vasoplegia by reducing the production and effect of nitric oxide (NO), whereas hydroxocobalamin binds NO and other mediators of vasoplegia. Apart from vasodilation, NO also opens tight junctions, contributing to capillary leak and oedema. Hydroxocobalamin could theoretically reduce oedema formation and maintain circulating volume.

This image shows methylene blue mixing with concentrated yellow urine to produce a green layer. The addition of red hydroxocobalamin creates a layer of intense violet. As methylene blue clears and the urine becomes more dilute, it turns red.

Declaration of interest
None declared.

References

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