NMS is caused by a complex interaction between the neuroleptics and host susceptibilities. Major symptomatology includes hyperthermia, tachycardia, diaphoresis, muscle rigidity, tremor, mutism, and altered consciousness. Nonspecific laboratory abnormalities include elevated CPK and leucocytosis. In our case, most of the above features were present. Haloperidol is the most common culprit associated with NMS. Initiation of neuroleptics or an increase in dosage or rarely sudden discontinuation can trigger NMS. In current case patient received haloperidol for period of five days and developed NMS. Treatment requires immediate discontinuation of the neuroleptic drug and the provision of supportive measures. Our patient was started on bromocriptine 2.5 mg TDS which was increased to 5 mg TDS after two days as there was no improvement clinically. Subsequently patient was taken up for surgery after five days of bromocriptine treatment with creatinine kinase levels of 125 IU/L. The patient underwent an uneventful surgery under general anesthesia and was discharged on third post-operative day. Pre-anesthetic evaluation plays a pivotal role in emergency department. Prior detection of syndrome appeared to be a boon for both patient and anesthesiologist. Hence, the importance of pre-anesthetic evaluation should never be undermined.

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Rajeev Chauhan, Gourav Mittal, Pranshuta Sabharwal, Aditi Jain
Department of Anesthesia and Intensive Care, PGIMER, Chandigarh, India

Address for correspondence:
Dr. Pranshuta Sabharwal, Department of Anesthesia and Intensive Care, PGIMER, Chandigarh - 160 012, India.
E-mail: pranshutasabharwal@yahoo.in

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Figure 1: CPK levels

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To The Editor,
The modern medicine endorses a growing trend towards a “precision” or a “personalized” management approach that fundamentally aims to customize the therapy in accordance

An individualized hemodynamic optimization: Tailoring the targets of therapy

To The Editor,
with the individual characteristics and needs, and in contrast to the conventional one-size-fits-all regimen.

The specific conceptualization of goal-directed therapy (GDT) involves the titration of fluids, inotropes, and vasopressors to "predetermined" physiological target values of the assessed hemodynamic variables aimed at adequate tissue perfusion. These "predetermined" targets are essentially the population-derived "normal" values which might not necessarily truly represent the optimal values for an individual patient. This notion is strengthened by the recent literature demonstrating a substantial degree of interindividual variability and biometric dependency of a number of hemodynamic parameters such as cardiac output (CO), global end-diastolic volume (GEDV), and extravascular lung water (EVLW) and so on.[1,2]

Ever since the first description of GDT in the 1980s, the last three decades have witnessed considerable evidence on GDT accumulating from diverse perioperative settings. However, the adoption of GDT in the routine perioperative practice has been rather moderate owing to the poor understanding of the core principle. Saugel et al. recently outlined the 5-Ts of GDT including, the target patient population, the timing of intervention, the type of intervention, the target hemodynamic parameters, and the target specified values. This particular model could constitute the basis of an augmented implementation of GDT.[3]

However, a nuanced perspective of the framework reveals the importance by correctly defining the targets of hemodynamic optimization. The present emphasis is on evaluating the role of accomplishment of personalized hemodynamic goals in improving the perioperative outcomes. Futier et al. demonstrated the role of an individualized blood pressure management regimen in minimizing the risk of postoperative organ dysfunction following abdominal surgery.[4] Moreover, a functional form of an adaptive multi-parametric hemodynamic monitoring, characterizing the fluid responsiveness employing dynamic cardiac preload variables provides a viable substrate for individualized hemodynamic management. Salzwedel et al. focused on a pulse pressure variation based on CO individualization, relying on a similar concept.[5] They depicted a significantly decreased rate of postoperative complications. However, the individualized perioperative hemodynamic goal-directed therapy in major abdominal surgery (iPEGASUS) trial outlined a comparable complication rate following the GDT protocol of an individually optimized CO.[6] Ackland et al. emphasized the significance of an individualized oxygen delivery targeted hemodynamic management at alleviating postoperative morbidity following high-risk surgery.[7]

To conclude, an individualized hemodynamic optimization addresses the concept of personalized normal hemodynamic variables adjusted for the biometric profile and the clinical context which could serve as the situational optimal target values. This approach may facilitate a sound assessment of the adequacy of the hemodynamic status of an individual patient thereby, tailoring the perioperative goal-directed therapeutic regimen. Considering the upcoming digital innovations and the technical metamorphosis of hemodynamic monitoring, the future of a personalized hemodynamic management is certainly bright.

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Rohan Magoon, Poonam M. Kapoor, Arindam Choudhury, Ameya Karanjkar
Department of Cardiac Anaesthesia, Cardiothoracic Centre, CNC, All India Institute of Medical Sciences, Ansari Nagar, New Delhi, India

Address for correspondence: Dr. Poonam M. Kapoor, Department of Cardiac Anaesthesia, Cardiothoracic Centre, Room No. 8, 7th Floor, All India Institute of Medical Sciences, Ansari Nagar, New Delhi - 110 029, India.
E-mail: docpoonamaiims@gmail.com

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