EDITORIAL

HEMOMAS-II, an update on the massive hemorrhage management

HEMOMAS-II, la actualización del manejo de la hemorragia masiva

On clinical practice guidelines and consensus documents

With the purpose of helping clinicians in their diagnostic and/or therapeutic decision-making processes, clinical practice guidelines (CPG) and clinical consensus documents are a common thing. A clinical practice guideline is intended to standardize medical practice, and information is typically obtained through a systematic review of the best scientific evidence available, although it may be combined with the opinions from the experts participating in the panel.[1]

A consensus document is drafted by an independent and multidisciplinary panel of experts who systematically review the medical literature available in an attempt to understand a relevant clinical topic, suggest different approaches to the same clinical problem, interpret, and above all, translate the limited data available from the medical literature available into practical recommendations.[2]

Based on the above, consensus documents and clinical practice guidelines are different. Still, many experts consider this differentiation unnecessary since both documents should be developed using international methodological recommendations for the proper analysis of the scientific evidence available and need to avoid or reduce variability in the routine clinical practice.

Contribution from the HEMOMAS-II Consensus Document

The HEMOMAS-II Consensus Document includes a set of recommendations based on a systematic review of the evidence available and the assessment of the risks and benefits of different alternatives available to optimize and provide bet-

ter healthcare to patients with massive bleeding.[3] It is the result of an update from an early document published back in 2015,[4] and provides added value through reassessment of the early recommendations given.

In the first edition of the HEMOMAS document,[4] the authors provided up-to-date knowledge on the diagnosis and treatment of massive bleeding to reduce clinical variability and improve the patients' clinical outcomes. However, to achieve these objectives, the recommendations from the CPG and consensus documents should be feasible and eligible for implementation. Therefore, we should mention that among the general issues addressed in the HEMOMAS[4] document, the authors emphasized that implementing a healthcare protocol was associated with lower morbidity and mortality rates just by optimizing the time to start the measures recommended. It was suggested that massive bleeding transfusion protocols (MBTP) should operate with established alarm systems in the hemotherapy committees of each hospital as one multidisciplinary consensus protocol. Also, their efficacy and safety should be assessed periodically.

Currently, there is no doubts on the need for implementing a protocol on the management of massive bleeding.[5,6] It is obvious that it brings a certain level of automation to the process, thus avoiding variability and heterogeneity in its approach, similar to what the CPR/ALS guidelines state.[7]

The goal is to optimize time in the decision-making process, increase patient safety, and, above all, reduce morbidity and mortality. As stated by the authors of the HEMOMAS-II document,[3] the drafting and application of MBTPs has proven to reduce the transfusion of blood components and mortality in trauma patients. It is recommended to regularly review MBTPs as part of quality and safety programs. Other situations of massive bleeding with suspected coagulopathy and bleeding difficult to manage and control could also benefit from these measures with faster, coordinated, and efficient management of massive bleeding.

The methodology used in this update applies the ADAPTE system[8] by adding recommendations from the main guidelines already published (8 were analyzed), and from a literature search for the best evidence available (63 articles). As a result, the HEMOMAS-II[3] offers 41 recommendations that cover the identification of massive bleeding, basic conditions, monitoring, fluid therapy, transfusion of blood components and derivatives or other hemostatic compounds. Among these recommendations, we should mention the emphasis put on simplicity and practicality in the diagnosis of massive bleeding provided by the Shock Index, as well as on the assessment of severity based on clinical criteria given the importance of early diagnosis and management. Regarding fluid therapy, the preferential use of balanced isotonic crystalloids is one of the few level 1A recommendations we found while the use of synthetic colloids is limited (with a contraindication for the use of hydroxyethyl starch). All this falls within the concept of hypotensive resuscitation where the early use of noradrenaline is gradually gaining more evidence. The position on viscoelastic tests as monitoring tools for coagulopathy also improves. There are not very many changes, however, in the indications for transfusion of blood components or derivatives, although some aspects have been delved into, as well as on the management or reversal of antithrombotic drugs.[3]

In favor of following the clinical practice guidelines and consensus documents

Although we are convinced that theoretical knowledge is important, its acquisition is an individual responsibility. Although experience is important its acquisition takes time. Simulation is extremely helpful. Although protocols are important, they are a collective and institutional responsibility. Teamwork, with proper leadership, is crucial. All these factors are important. Therefore, the 3 aspects already mentioned (theory, experience, and protocol) are absolutely necessary.[9]

In a recent study designed to investigate the current clinical practice on massive transfusions and the experiences and approaches of anesthesiologists towards clinical decision-making support systems and massive transfusions, a survey was anonymously conducted among 1000 practicing and trainee anesthesiologists from Australia and New Zealand.[10] Respondents answered a total of 228 surveys (23.6%), 227 of which were analyzed for a response rate of 23.3%. Most respondents reported rare involvement in massive transfusions (88.1% managed 5 or less massive transfusion protocols per year) and worked in hospitals with massive transfusion protocols (89.4%). Most respondents indicated that they were likely or very likely to use (73.1%) and trust (85%) a clinical decision-making support system for massive transfusions with no significant differences between reported between physicians and residents ($P = .375$ and $P = .73$, respectively). Based on the results from the survey, the authors established an improvement strategy to implement a clinical decision-making support system for massive bleeding by periodically updating and disseminating CPG.

Clinical decision-making support systems have become more and more popular when it comes to providing specific patient recommendations by comparing patient information with a knowledge database. In addition, they have shown to improve patient outcomes. Let us, then, spread and use the HEMOMAS-II document.

References

1. Biblioteca de Guías de Práctica Clínica del Sistema Nacional de Salud de España, Available from: http://portal.guiasalud.es/web/guest/guias-practica-clinica, 2015.
2. Sandoval W. COVID-19. Metro Ciencia [Internet]. 2021;29:3–6, http://dx.doi.org/10.47464/MetroCiencia/vol29/2/2021/3-6.
3. Llau JV, Aldecoa C, Guasch E, Marco P, Marcos-Neira P, Paniagua P, et al. Documento multidisciplinar de consenso sobre el manejo de la hemorragia masiva. Primera actualización 2023 (documento HEMOMAS-II). Med Intensiva. 2023, http://dx.doi.org/10.1016/j.medin.2023.03.007.
4. Llau JV, Acosta FJ, Escolar G, Fernández-Mondéjar E, Guasch E, Marco P, et al. Multidisciplinary consensus document on the management of massive haemorrhage (HEMOMAS document). Med Intensiva. 2015;39:483–504, http://dx.doi.org/10.1016/j.medin.2015.05.002.
5. Hsu YMS, Haas T, Cushing MM. Massive transfusion protocols: current best practice. Int J Clin Transfusi Med. 2016;4:15–27, http://dx.doi.org/10.2147/IJCTM.S61916.
6. Martínez-Calle N, Hidalgo F, Alfonso A, Muñoz M, Hernández M, Lecumberri R, et al. La aplicación de un protocolo de gestión para la hemorragia masiva reduce la mortalidad en pacientes con hemorragia no traumática: Resultados de la auditoría de un centro. Med Intensiva. 2016;40:550–9, http://dx.doi.org/10.1016/j.medin.2016.05.003.
7. Spahn DR, Bouillon B, Cerny V, Duranteau J, Filipescu D, Hunt BJ, et al. The European guideline on management of major bleeding and coagulopathy following trauma: fifth edition. Crit Care. 2019;23:98, http://dx.doi.org/10.1186/s13054-019-2347-3.
8. The ADAPTE Collaboration. The ADAPTE Process Resource Toolkit for Guideline | Course Hero [Internet]. Available from: https://www.coursehero.com/file/p4k0kp8/The-ADAPTE-Collaboration-The-ADAPTE-Process-Resource-Toolkit-for-Guideline.
9. Chang R, Holcomb JB. Implementation of massive transfusion protocols in the United States: the relationship between evidence and practice. Anesth Analg. 2017;124:9–11, http://dx.doi.org/10.1213/ANE.0000000000001731.
10. Treml AB, Gorlin JB, Dutton RP, Scavone BM. Massive transfusion protocols: a survey of academic medical centers in the United States. Anesth Analg. 2017;124:277–81, http://dx.doi.org/10.1213/ANE.0000000000001610.

María J. Colomina [a,*], Raquel Ferrandis Comes [b]
[a] *Departamento de Anestesia, Reanimación y Clínica del Dolor, Hospital Universitario de Bellvitge, Universidad de Barcelona, Campus de la Salud—IDIBELL, Barcelona, Spain*
[b] *Departamento de Anestesia, Reanimación y Clínica del Dolor, Hospital Universitari i Politècnic La Fe, Universidad de Valencia, Valencia, Spain*

[*] Corresponding author.
E-mail address: mjcolomina@bellvitgehospital.cat
(M.J. Colomina).