Universitat Autònoma de Barcelona

2021/2022

Blood Transfusion

Code: 43317
ECTS Credits: 10

Degree	Type	Year	Semester
4314643 Transfusion Medicine and Advanced Cell Therapies	OB	0	1

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

Name: Enric Contreras Barbeta

Email: Enric.Contreras@uab.cat

Use of Languages

Principal working language: english (eng)

Other comments on languages

The working language will be English, but it will be possible to communicate in Spanish. The subject material will also be in English.

Teachers

Joan Ramon Grífols Ronda

Montserrat Saez Bruguera

Enric Contreras Barbeta

Prerequisites

Level B2 or equivalent in English.

Objectives and Contextualisation

In this module we will review the entire transfusion circuit, but we will focus on indication, optimisation and use in special situations involving the different components of the blood. The safety of the administration of blood and the prevention of adverse effects is an important part of this analysis. In parallel, we will study the role of the transfusion service in carrying out procedures of therapeutic apheresis and in the handling of the stable blood components for therapeutic ends.

Competences

- Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
- Describe the processes of selecting units of blood and blood components compatible with each clinical situation.
- Design and develop research using appropriate methodologies.
- Identify and analyse quality indicators in the distinct methodologies for producing blood components.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.

- Securely select blood components for transfusion, giving special attention to the management of possible adverse reactions.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Use acquired knowledge as a basis for originality in the application of ideas, often in a research context.
- Work in multidisciplinary teams.

Learning Outcomes

1. Analyse the quality indicators of blood products.
2. Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
3. Describe correct action to counter adverse effect.
4. Describe the technical principles of apheresis.
5. Design and develop research using appropriate methodologies.
6. Identify alternatives to blood transfusion.
7. Identify quality indicators based on practical cases.
8. Identify the clinical conditions for using plasma derivatives.
9. Identify the indications for transfusion.
10. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
11. Interpret pre-transfusion tests.
12. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
13. Understand the adverse effects of a blood transfusion.
14. Understand the candidate pathological conditions for therapeutic apheresis.
15. Understand the fundamental concepts of European regulation on transfusion and how these apply to daily practice.
16. Use acquired knowledge as a basis for originality in the application of ideas, often in a research context.
17. Work in multidisciplinary teams.

Content

1. Introduction to transfusion medicine: do we really know the patients to whom we are administering transfusions?

2. Pretransfusion test and blood transfusion processes.

3. Indications for transfusion.

3.1 Indications for transfusion of labile blood components: red blood cells, plasma and platelets.

3.2 Indication for transfusion in special situations.

3.2.1 Transfusion behaviour in the case of massive haemorrhage.

3.2.2. Blood transfusion in pregnancy.

3.2.3 Transfusion in immunosuppressed/transplanted patients.

3.2.4. Intrauterine, neonatal and paediatric transfusions.

3.2.5 Transfusions in patients with irregular positive antibody counts.

3.2.6 Transfusions in haemolytic autoimmune anaemia.

3.2.7 Transfusion in antiaggregation and anticoagulation patients.

3.2.8 Transfusions in the elderly.

4. Incidents and effects of transfusions.

5. Patient blood management.

6. Therapeutic apheresis.

7. Handling and indications of stable blood components.

8. Lean management in a blood transfusion service.

Methodology

The methodology for this course is active and constructive. It does not only contemplate the content but also reading, reflecting and applying knowledge to reasonably close situation to create meaningful learning.

Students will work on real life examples and case studies, reflecting on complex and relatively unstructured situations to find adequate solutions.

Faithful to the proposed methodology, students form the centre of the learning process and generate knowledge by interacting significantly with their peers, with the teaching materials and with the environment. This programme not only teaches training in a virtual environment but also allows them to experience their learning every day.

At the beginning of the unit, the teacher will present a learning plan to the group with specific objectives, learning activities, the necessary resources and recommended deadlines for each activity.

The dates for carrying out the activities are recommended in order to be able to follow the course. The only fixed dates are the beginning and end of each teaching unit. This means that students can do their own planning but they must respect the dates for the beginning and the end of each unit.

Students are recommended to work in a continuous and consistent manner and not allow tasks to accumulate around the deadlines, which may lead to haste, undue time pressure and not allow the students to enjoy their learning or carry out additional reflections. Also the course offers group activities which require synchronisation among the group.

Some of the activities must be send online to the teacher for assessment and receive feedback of progress. Teachers will return the work with comments and together the students can continue to think and learn. The deadline for each of these activities is the end of the teaching unit. Other activities will consist in discussion and working together in shared spaces.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Discussions in the Virtual Campus	35	1.4	13, 5, 9, 10, 12, 2, 16, 17
Type: Supervised			
Elaboration of projects	20	0.8	1, 3, 5, 7, 10, 12, 2, 16, 17
Virtual cases/Problem solving	20	0.8	5, 11, 10, 12, 2, 16, 17
Type: Autonomous			
Personal study	25	1	15, 4, 5, 6, 10, 12, 2, 16, 17

Reading articles/Reports of interest/Videos	25	1	1, 15, 13, 14, 4, 3, 5, 7, 6, 8, 9, 11, 10, 12, 2, 16, 17
Test/Scheme	25	1	13, 5, 7, 9, 10, 12, 2, 16, 17

Assessment

This module will be assessed on the following exercises:

1. Exercise 1. Individual work in which students review the situation of donation and transfusion in their own countries. The text should not exceed 900 words. This exercise counts for 10% of the final grade.

2. Exercise 2. Group work centred on the analysis of key points in a transfusion request. The text should not exceed 900 words. This exercise counts for 10% of the final grade.

3. Exercise 3. Individual multiple choice test on indications of transfusion. This test counts for 10% of the final grade.

4. Exercise 4. Individual multiple choice test on transfusion in special situations. This test counts for 20% of the final grade.

5. Group discussion on different national surveys on haemovigilance. Student contribution will count for 10% of the final grade.

6. Exercise 5. Group work focused on a specific transfusion procedure related to one of the special critical situations (to be chosen by the group). The text should not exceed 900 words. This exercise counts for 10% of the final grade.

7. Exercise 6. This exercise is in two parts: Individual multiple choice test on therapeutic apheresis (8% of the final grade) and individual participation and comments in a forum on therapeutic apheresis (2% of the final grade).

8. Exercise 7. Individual work where students propose and develop at least three measures to improve self-sufficiency in stable blood components. The text should not exceed 900 words. This exercise counts for 10% of the final grade.

9. Exercise 8. Individual work in which students analyse a case on how to implement lean management in a transfusion service. The text should not exceed 900 words. This exercise counts for 10% of the final grade.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exercise 1	10%	10	0.4	1, 15, 5, 7, 10, 12, 2, 16, 17
Exercise 2	10%	10	0.4	5, 7, 10, 12, 2, 16, 17
Exercise 3 and 4	30%	10	0.4	13, 3, 5, 7, 11, 10, 12, 2, 16, 17
Exercise 5	10%	24	0.96	3, 5, 10, 12, 2, 16, 17
Exercise 6	10%	12	0.48	13, 3, 5, 6, 9, 11, 10, 12, 2, 16, 17
Exercise 7	10%	12	0.48	14, 4, 5, 10, 12, 2, 16, 17
Exercise 8	10%	10	0.4	5, 8, 10, 12, 2, 16, 17
Student participation	10%	12	0.48	14, 4, 5, 6, 9, 10, 12, 2, 16, 17

Bibliography

Babia, F. Cuando llovía fuego. La Vanguardia (Supla), 2007 (Febrero 11).

Barrios, LF. Los aspectos legales de la transfusión. Ed. You & Us, S.A. Madrid, 2006.

Barbolla, L; Contreras E, Pujol Mª M. Manual práctico de Medicina transfusional. p 19-

37. FEHH. Madrid, 2002.

Carreras E et al. El Consentimiento informado. Guía de uso y elaboración de documentos (2ª ed.). AEHH, Madrid, 2001.

Guideline 2002/98/CE of the European Parliament and the Council, 27th January 2003, which establishes the quality and safety regulations for the extraction, verification, treatment, storage and distribution of human blood and its components.

Guideline 2004/33/CE of the Commission, 22nd March 2004, for which the Guideline 2002/98/CE of the European Parliament and the Council is carried out in certain technical requirements about blood and blood components.

Duran Jordà, F. The Barcelona blood-transfusion service. Lancet 233, 1939.

Duran Jordà, F. La transfusión de sangre citrada-conservada. El problema de la dosis. Revista Sanidad de Guerra, 1937.

Duran Jordà, F. El Servei de transfusió de sang al front. Organització i utillatge. La Medicina Catalana 1936.

Grífols Espés, J; Duran I Jordà, F. Un mètode, una època. Barcelona, Hemo-Institut Grífols, 1997.

Grífols Ronda, JR. Jeringa Jubé para Transfusión. Revista de la Sociedad Española de Transfusión Sanguínea, Vol. 45, Barcelona, 2002.

Grífols Ronda, JR. De oficio, barbero. Revista de la Sociedad Española de Transfusión Sanguínea, Vol. 55, Barcelona, 2005.

Grífols Ronda, JR. Una buena idea a destiempo suele ser una mala idea. Revista de la Sociedad Española de Transfusión Sanguínea, Vol. 68, Barcelona, 2008.

Grífols Ronda, JR. Author of the article Agote, Hustin o Lewisohn. Una polémica estéril. Revista de la Sociedad Española de Transfusión Sanguínea, Vol. 71, Barcelona, 2009.

Grífols Ronda, JR. Mortus est qui non respira... Revista de la Sociedad Española de Transfusión Sanguínea, Vol.21(4) nº74, Barcelona, 2009.

Grífols Ronda, JR. Ottenberg y la nueva era de la hemocompatibilidad. Revista de la Sociedad Española de Transfusión Sanguínea, Vol.21(1) nº75, Barcelona, 2010.

Judine S. La transfusion du sang de cadavre à l'homme. Gaceta Médica Española, 1932.

Law 41/2002, 14th November, basic regulation of the patient's autonomy, as well as rights and duties in the matter of information and clinical documentation.

Cortés, A. Medicina Transfusional en condiciones de trauma. Parte II Transfusión masiva. Colombia Médica 28, 1997:188-99.

Stainsby, S.; Mac Lennan, S.; Hamilton, P.J. Management of massive blood loss. A template guideline. British Journal of anaesthesia 2000; 85 (3):487-91.

Wendy, N. Massive blood transfusion in the elective surgical setting. Transfusion and apheresis science. 2002 Aug , 27 (1). 83-92.

Vasief, S.N.; Knudsen, N.W.; Neligan, P.J.; Sebastian, M.W. Massive transfusion exceeding 50 units of blood products in trauma patients. Trauma 2002 Aug; 53 (2) : 291-5.

Hellstern, P.; Haubelt, H. Indications for plasma in massive transfusion. Thrombosis Research October 2002, 107 (1): 519-22.

García Caballero, M.; Villagrasa, E.; Martínez Moreno, J.M. Guías para la reposición de las pérdidas sanguíneas en cirugía abdominal de urgencia. Cirugía Esp 2003; 74 (2) . 62-8.

O'Connell, N.; Perry, D.; Hodgson, A.; Laffan, M.; Smith, O. Recombinant FVII a in the management of uncontrolled hemorrhage. Transfusion 2003 Dec; 43 (12) 1711-16.

Urbina, A.; Peñuela. O. Transfusión de sangre almacenada, efectos colaterales. Universidad Nacional de Colombia. Revista de la Facultad de Medicina 2003; 51 (2) : 103-8.

N. Engl. J. Med. Safe study investigators. A comparison of albumin and saline for fluid resuscitation in the intensive care unit. 2004; 317.235-40.