

Platelet Transfusion: A Clinical Practice Guideline From the AABB

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Background: The AABB (formerly, the American Association of Blood Banks) developed this guideline on appropriate use of platelet transfusion in adult patients.

Methods: These guidelines are based on a systematic review of randomized, clinical trials and observational studies (1900 to September 2014) that reported clinical outcomes on patients receiving prophylactic or therapeutic platelet transfusions. An expert panel reviewed the data and developed recommendations using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) framework.

Recommendation 1: The AABB recommends that platelets should be transfused prophylactically to reduce the risk for spontaneous bleeding in hospitalized adult patients with therapy-induced hypoproliferative thrombocytopenia. The AABB recommends transfusing hospitalized adult patients with a platelet count of 10×10^9 cells/L or less to reduce the risk for spontaneous bleeding. The AABB recommends transfusing up to a single apheresis unit or equivalent. Greater doses are not more effective, and lower doses equal to one half of a standard apheresis unit are equally effective. (Grade: strong recommendation; moderate-quality evidence)

Recommendation 2: The AABB suggests prophylactic platelet transfusion for patients having elective central venous catheter placement with a platelet count less than 20×10^9 cells/L. (Grade: weak recommendation; low-quality evidence)

Recommendation 3: The AABB suggests prophylactic platelet transfusion for patients having elective diagnostic lumbar puncture with a platelet count less than 50×10^9 cells/L. (Grade: weak recommendation; very-low-quality evidence)

Recommendation 4: The AABB suggests prophylactic platelet transfusion for patients having major elective nonneurological surgery with a platelet count less than 50×10^9 cells/L. (Grade: weak recommendation; very-low-quality evidence)

Recommendation 5: The AABB recommends against routine prophylactic platelet transfusion for patients who are nonthrombocytopenic and have cardiac surgery with cardiopulmonary bypass. The AABB suggests platelet transfusion for patients having bypass who exhibit perioperative bleeding with thrombocytopenia and/or evidence of platelet dysfunction. (Grade: weak recommendation; very-low-quality evidence)

Recommendation 6: The AABB cannot recommend for or against platelet transfusion for patients receiving antiplatelet therapy who have intracranial hemorrhage (traumatic or spontaneous). (Grade: uncertain recommendation; very-low-quality evidence)

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Approximately 2.2 million platelet doses are transfused annually in the United States (1). A high proportion of these platelet units are transfused prophylactically to reduce the risk for spontaneous bleeding in patients who are thrombocytopenic after chemotherapy or hematopoietic progenitor cell transplantation (HPCT) (1-3). Unlike other blood components, platelets must be stored at room temperature, limiting the shelf life of platelet units to only 5 days because of the risk for bacterial growth during storage. Therefore, maintaining hospital platelet inventories is logistically difficult and highly resource-intensive (4, 5). Platelet transfusion is associated with several risks to the recipient (Table 1), including allergic reactions and febrile non-hemolytic reactions. Sepsis from a bacterially contaminated platelet unit represents the most frequent infectious complication from any blood product today (8). In any situation where platelet transfusion is being considered, these risks must be balanced against the potential clinical benefits.

GUIDELINE FOCUS

These guidelines were designed to provide pragmatic recommendations, based on the best available

published evidence, about when platelet transfusion may be appropriate in adult patients. For several common clinical situations, we attempted to identify a platelet count threshold below which platelet transfusion may improve hemostasis and above which platelet transfusion is unlikely to benefit the patient. We did not attempt to address all clinical situations in which platelets may be transfused, and these guidelines are not intended to serve as standards. Clinical judgment, and not a specific platelet count threshold, is paramount in deciding whether to transfuse platelets.

TARGET POPULATION

These guidelines provide advice for adult patients who are candidates for platelet transfusion.

GUIDELINE DEVELOPMENT PROCESS

The AABB commissioned and funded the development of these guidelines.

Panel Composition

A panel of 21 experts was convened. Fifteen participants were members of the Clinical Transfusion Medicine Committee of the AABB, all of whom were

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web meiosis produces haploid cells from diploid cells meiosis is a peculiar type of cellular division in which diploid germ line cells give rise to haploid reproductive cells or gametes meiosis plays a key role in generating tremendous genetic diversity click on or to play or stop the animation

1 6 mitosis and meiosis ii biology libretexts - Jun 05 2023

web jul 12 2023 first you will model meiosis I then you will model meiosis II as described below model meiosis I 1 diploid cell 2 haploid cells tetrads form crossing over occurs homologues separate interphase before synthesis of dna G1 interphase after synthesis of dna G2 prophase I metaphase I anaphase I telophase I cytokinesis I model

lab 7 mitosis and meiosis lab 7 mitosis amp meiosis 10 studocu - Sep 27 2022

web exercise 2 a are the four daughter cells of meiosis genetically identical or different from one another explain your answer describe the daughter cells of your meiosis model what color and how many of each color beads were present in each of the four daughter cells the four daughter cells of meiosis are not genetically identical

meiosis lab the laboratory of recombination and segregation - Dec 19 2021

web meiosis lab the laboratory of recombination and segregation analysis recombination and segregation of chromosomes and genes in meiosis is the main source of genetic diversity in populations the purpose of the research carried out in the laboratory of recombination and segregation analysis of the institute of cytology and genetics of the

activity modeling meiosis with pop beads sharpshoot - Oct 29 2022

web materials 60 red beads 60 yellow beads 4 magnetic centromeres dry erase board desk dry erase marker eraser procedure answer all questions in your journals please 1 create four homologous chromosomes using the red beads for the paternal chromosome and the yellow beads for the maternal chromosome

chapter 11 lab modeling meiosis mr evans biology class - May 24 2022

web problem how does meiosis increase genetic variation introduction most cells in organisms that reproduce sexually are diploid they have two sets of chromosomes and two complete sets of genes gametes are an exception gametes are the cells

that combine during sexual reproduction in animals these cells are called sperm and eggs

2 2 3 lab modeling meiosis dry lab the living earth sem 1 - Feb 01 2023

web the answer is meiosis cells in reproductive organs undergo meiosis as they divide to form germ cells that mature into gametes egg cells or sperm cells this diagram compares the processes of mitosis and meiosis in this descriptive lab you will model meiosis that begins in a cell of the fruit fly *drosophila melanogaster* you will use

mitosis and meiosis lab pre lab questions what are studocu - Sep 08 2023

web a in meiosis i homologous chromosomes separate while in meiosis ii sister chromatids separate meiosis ii produces 4 haploid daughter cells but meiosis i produces 2 diploid daughter cells crossing over only occurs in meiosis i why do you use non sister chromatids to demonstrate crossing over a

meiosis cell division biology article khan academy - Mar 22 2022

web how meiosis reduces chromosome number by half crossing over meiosis i meiosis ii and genetic variation introduction mitosis is used for almost all of your body s cell division needs

lab 3 mitosis and meiosis escience labs studocu - Aug 27 2022

web lab 1 intro to science escience lab cell cycle mitosis meiosis what are chromosomes made of compare and contrast mitosis and meiosis both mitosis and meiosis are involved in making new cells

6 4 meiosis teacher s preparation notes biology libretexts - Dec 31 2022

web jul 11 2023 students use model chromosomes to simulate the processes of meiosis and fertilization as they model meiosis and fertilization students follow the alleles of three human genes from the parents body

7 3 modeling mitosis and meiosis activity biology libretexts - May 04 2023

web mar 23 2021 simulate mitosis move the chromosomes through each of the four stages of mitosis draw and label the pop bead chromosomes for one of the phases on a separate sheet it is not necessary to draw each individual bead draw a large circle on the paper to represent the cell and the nucleus with a pencil

lab 8 the modeling and microscopic observation of mitosis and meiosis - Mar 02 2023

web after completing this lab exercise you should be able to identify and describe the stages of the cell cycle mitosis and meiosis recognizing the events that occur during each stage distinguish between mitosis and cytokinesis as they take place in animal and plant cells