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Quality Review of Irradiated Cellular Blood Product Orders

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Background

Transfusion-associated graft-versus-host disease (TA-GVHD) is an immunological response between a donor’s transfused T cells and the recipient’s immune defense. The risk of TA-GVHD increases with relatively large transfusions of lymphocytes (e.g., transfusion in infants or granulocyte transfusion) or immunocompromised individuals.

Irradiation of cellular blood components is managed differently amongst institutions. Factors to consider in the irradiation process include technologist time, technologist prepare and perform irradiation of the cellular blood products. This can be a labor-intensive process. Cost is another factor that includes the cost of the irradiation indicators that are placed on the units and the labor in providing this service.

Irradiation also shortens the shelf life of the cellular blood component to 28 days. If the shelf life was less than 28 days then irradiation does not extend the shelf life to 28 days (e.g. shelf life 14 days, post-irradiation remains 14 days). At Thomas Jefferson University Hospital, the Blood Bank irradiates blood products only upon request, then as per the transfusion in infants or granulocyte transfusion) or immunocompromised individuals.

Review of Inappropriate Orders

Irradiated blood product orders flagged for medical coverage review from July 2016 to March 2017 revealed 34 of the 55 orders were inappropriate. For each incorrect order, the clinician name, clinician service, hospital unit, transfusion indications, and reason for irradiation were recorded. The inappropriate orders were submitted by 31 clinicians (24 medicine residents, two anesthesia residents, two otorhinolaryngology residents, two nurse practitioners, and one attending physician). Three clinicians submitted two inappropriate irradiation orders. Two interventions were undertaken to decrease the number of inappropriate irradiation orders.

Interventions to Decrease Inappropriate Orders

Two interventions were undertaken to decrease the number of inappropriate irradiation orders.

A polite and professional email was sent to the clinicians who submitted the inappropriate irradiation orders from July 2016 to March 2017. The email informed the clinicians that they submitted an inappropriate irradiation order, provided them with a table of irradiation blood product indications, and additional resources. This email was sent on February 27, 2017.

Possible Further Interventions

• Email all Jefferson residents informing them of the indications for irradiated cellular blood products.

• Email Jefferson faculty informing them of the indications for irradiated cellular blood products.

• Present the findings of this research and the indications for irradiated cellular blood products to Jefferson residents at seminars, conferences, or meetings.

Discussion

Next Steps

• Dr. Julie Karp, Associate Director of the Thomas Jefferson University Blood Bank, will give an educational lecture to the Department of Medicine residents on blood products (including irradiated cellular blood products) on June 13, 2017.

• Irradiated cellular blood product orders will be reviewed to determine if the number of inappropriate orders decrease over time.

References


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