

Analysis of Blood Transfusion Practices during Chemotherapy in Acute Myeloid Leukemia Patients in a Tertiary Care Oncology Centre

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BACKGROUND

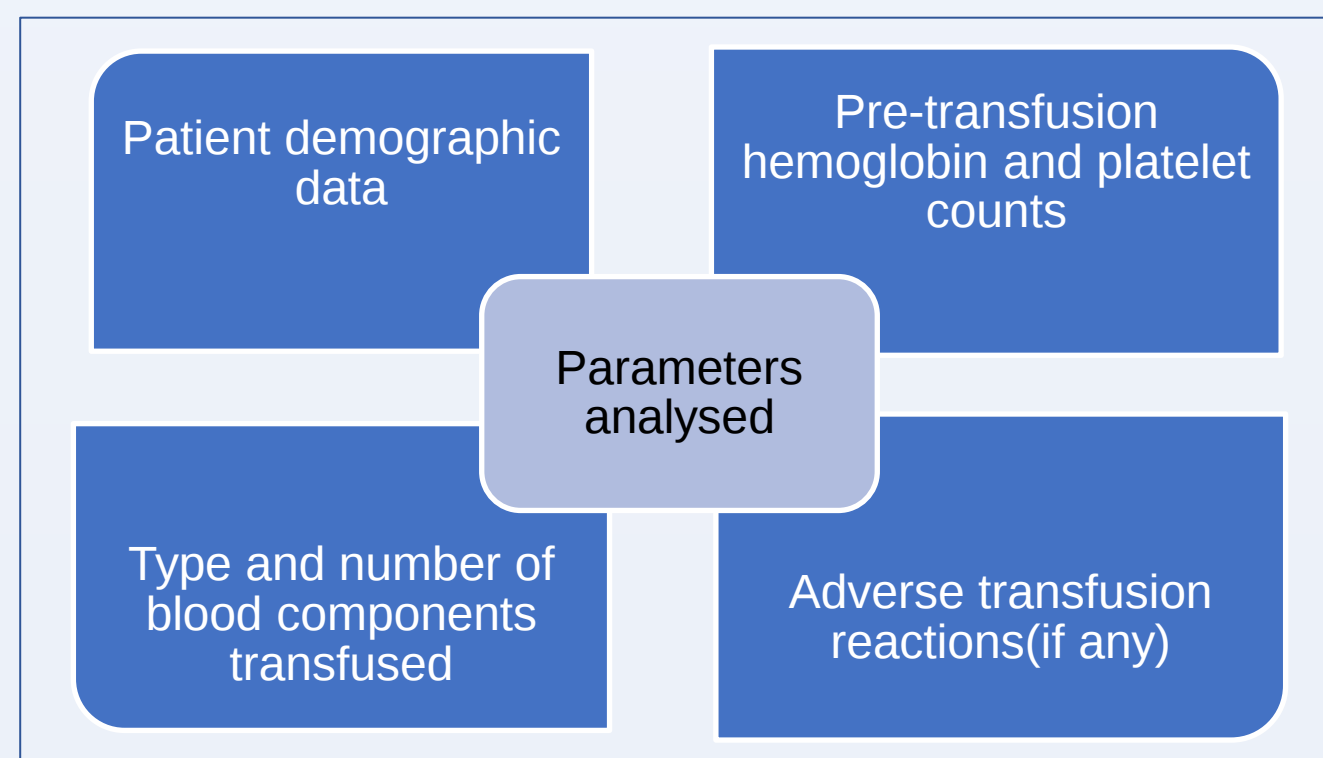
- Acute Myeloid Leukemia (AML) is a life threatening haematological malignancy requiring intensive chemotherapy and supportive care including blood transfusions.
- Blood transfusions play a crucial role in managing anemia, thrombocytopenia and bleeding complications in patients with AML.

OBJECTIVE

- To analyse the blood transfusion practices among AML patients undergoing chemotherapy.

METHODS

- Study type - Retrospective observational study.
- Study period - 8 months (January – August, 2024)
- Study sample - All AML patients data who received different blood components during chemotherapy.
- Data was retrieved from Electronic Medical Records and Departmental records.
- Analysis - Descriptive analysis.
- Statistical tool- Spearman's rho test was applied to see the relationship between different variables.



RESULTS

- During study period, 107 AML patients (70 males, 37 females) with mean age of 36 years (range 25-48 years) and varying blood group distribution received total of 3812 blood components (Figure 1)
- The details of various blood components transfused to AML patients is shown in Table 1

Table 1: Utilization of blood components

Components	No of units	No of patients	Mean (Range)
RDP	1043	86	12 (4-17)
SDP	1337	102	13 (5-18)
PRBC	999	107	9 (4-14)
Cryo	327	15	22 (3-44)
FFP	83	6	14 (2-48)
Granulocyte	23	23	1 (0-1)

RDP – Random Donor Platelets, SDP – Single Donor Platelets, PRBC – Packed Red Blood Cells, FFP – Fresh Frozen Plasma.

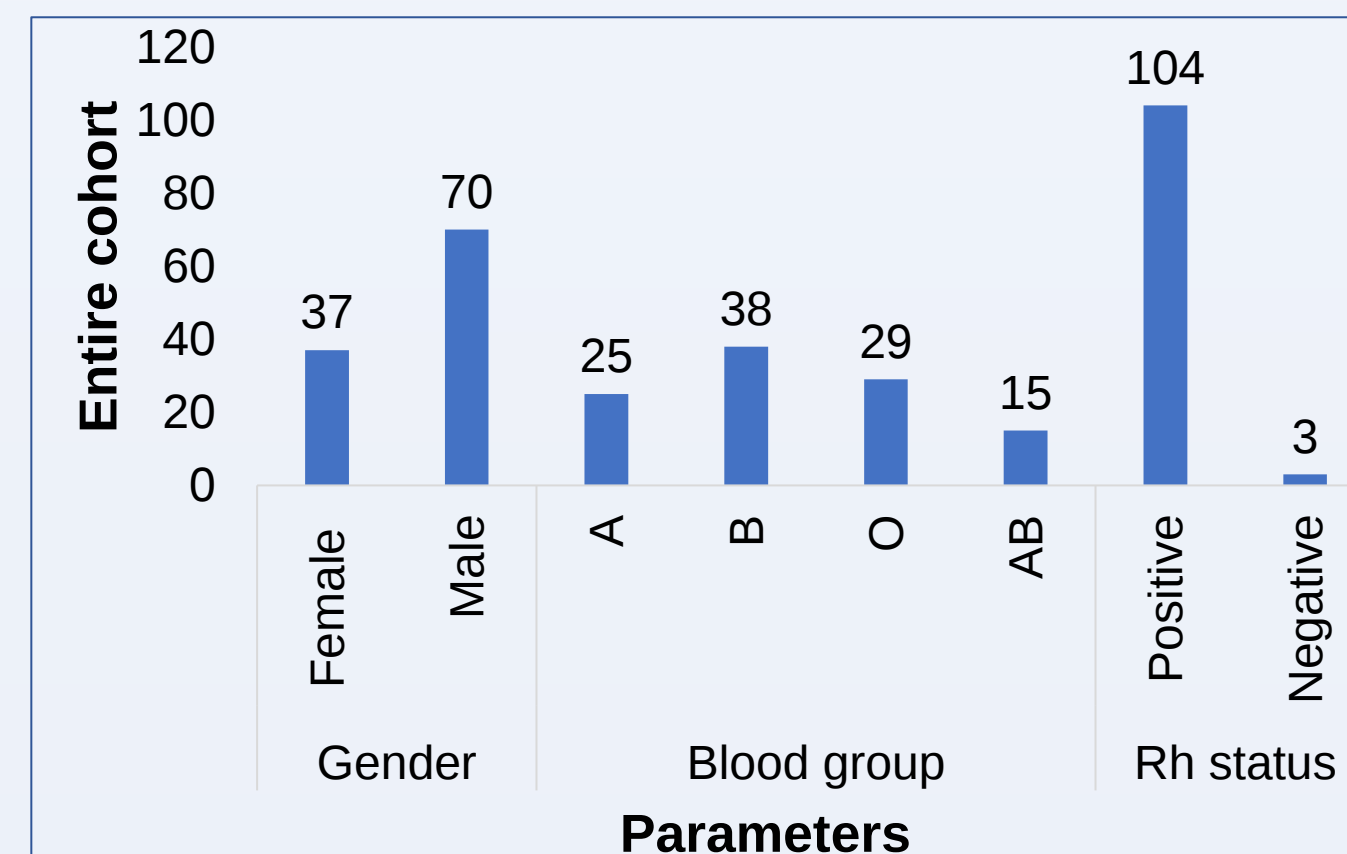


Figure 1: Patient demographic details

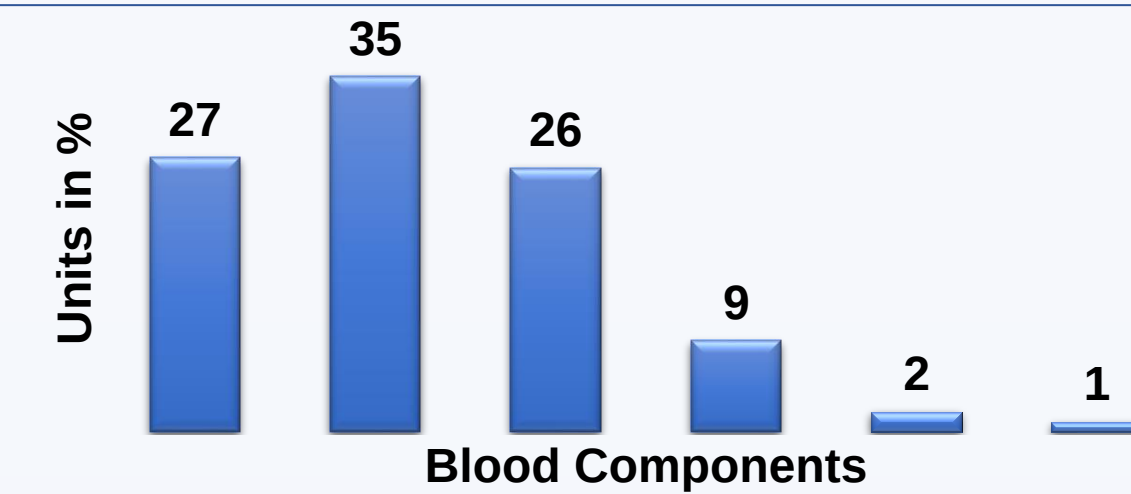


Figure 2: Percentage of blood components transfused

- Percentage of different blood components transfused among AML patients is explained in Figure 2.
- More than 75% of patients required transfusion during induction phase of chemotherapy (Figure3)
- Mild transfusion reactions occurred in 5 (4%) patients.
- Low pre-transfusion platelet counts (<20,000/ μ L) predicted higher platelet transfusions ($p<0.001$).
- For PRBC transfusions, 55 patients were transfused with pre-transfusion hemoglobin (<7g/dL).

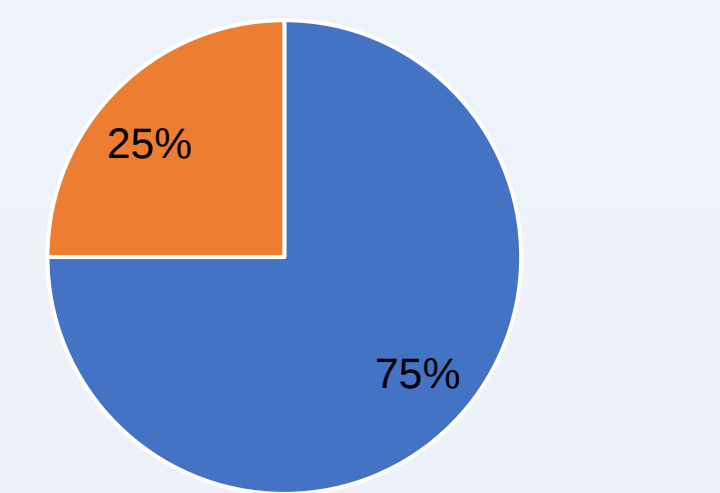


Figure 3: Chemotherapy Phases

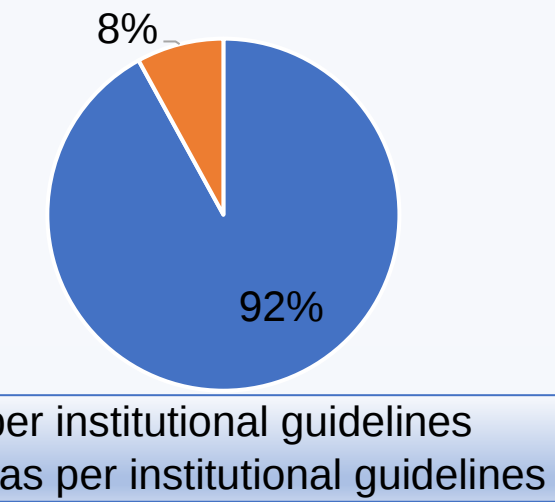


Figure 4: Utilisation of Blood Components as per Institutional Guidelines.

- FFP and Cryoprecipitate were transfused to patients experiencing active bleeding with deranged coagulation profile.(1)
- More than 92% of transfusions were found to be appropriate as per institutional guidelines (Figure 4) (2)

CONCLUSION

- The transfusion patterns among AML patients showed that platelets were required more frequently than other blood components probably due to chemotherapy induced thrombocytopenia.
- Anticipating transfusion needs of AML patients during chemotherapy induction phase will aid in resource allocation and planning which will positively impact the patient services and care.

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