





An experience of therapeutic phlebotomy procedures as adjunct therapy in patient with their symptom in a tertiary care hospital [Author-Dr. Neha Singh (ID-EeP145)][AIIMS PATNA]

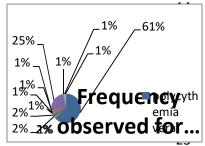
## Introduction

Therapeutic phlebotomy is a medical procedure that involves removing blood, particularly red blood cells or serum iron, as a treatment for specific blood disorders. It serves as an effective adjunct therapy for conditions such as polycythemia vera, hemochromatosis, porphyria cutaneous trade, sickle cell disease, and non-alcoholic fatty liver disease (NAFLD) with hyperferritinemia, among others.

## **Material and Method**

This prospective longitudinal study was conducted over 37 months. The desired hematocrit for polycythemia vera and secondary polycythemia was 45% and 42% respectively. A fixed volume of 250 ml phlebotomy was performed. Presenting symptoms was evaluated before and after each procedure questionnaire based assessment like[mild,moderate and severe] relief in symptoms.

### Result



From 2019 to 2024, a total of 151 therapeutic phlebotomy (TP) procedures were performed on 44 patients. Of these, 26 procedures were conducted on female patients, while male patients accounted for 121. Polycythemia vera was the predominant indication for TP(61%), followed by congenital heart disease(21%) (see Figure 1). Uncommon presentations for TP included polycythemia with optic neuritis, acute appendicitis, obesity with nasal obstruction, chronic obstructive pulmonary disease (COPD), sarcoidosis, and coronary artery disease with hypertension. Other rare cases involved hypothyroidism, complex cardiac conditions (e.g., Tetralogy of Fallot [TOF], ventricular septal defect [VSD], TOF with pulmonary stenosis [TOF+PS]), and associated polycythemia.

Pre-procedure and post procedure symptoms of patient compared with paired T test and chi squared test ( The two-tailed P value equals 0.6657) with mild and moderate symptoms group. Single frequency of TP observed in n-14 patients, whilst rest attended more than one TP procedure.(n-15) patients attended >9 times TP procedures and mean interval was 28 days among them. Platelet counts varied among patients, with some exhibiting levels exceeding  $400,000/\mu$ L, while the average platelet count was  $340,000/\mu$ L. The majority of TP procedures were performed in patients aged 31-40, with only 9 procedures in older age groups. Hemoglobin levels averaged 18.1 g/dL, with 10 patients presenting with exceptionally high levels exceeding 20 g/dL. Moreover, 23 patients experienced episodes of fever accompanied by elevated total leukocyte counts above  $12,800/\mu$ L, while 11 patients had critically

high hematocrit levels over 70%, with a pre-procedure mean of 55%. Fear was the most common complication noted during primarily first procedure of TP among (n-15) person.(n-2)patients complained about pain and one patient hematoma over the site of procedure which was subsides by compression of cold sponging.

#### Discussion

1,Primary Indications for Therapeutic Phlebotomy- TP was utilized in 61% of cases involving polycythemia vera,2. Advantages and Efficacy of Therapeutic Phlebotomy- TP has consistently demonstrated effectiveness in managing iron and red blood cell levels. 3. Selected Case Studies and Observations- TP was shown to be effective in managing iron levels in patients with childhood-onset familial porphyria cutaneous trade. 4. Use of MCV and Hb as Indicators Bolan CD et al. emphasized the utility of mean corpuscular volume (MCV) and hemoglobin (Hb) levels as inexpensive yet reliable markers for monitoring erythropoietic iron availability -. 5. Considerations in Elderly Patients- This study, involving elderly patients aged 61 to 73 years, highlighted the benefit of TP in older populations who may experience symptoms related to erythrocytosis and polycythemia: 6. Managing Anemia and Neutropenia in Hemochromatosis- Finch SC demonstrated that regular TP can correct moderate anemia and neutropenia, likely caused by hypersplenism.

# **Conclusion:**

Therapeutic phlebotomy has proven effective across various clinical contexts, from managing common conditions like polycythemia and hemochromatosis to treating rare or complex cases. The evidence indicates that TP, when appropriately customized to the patient's specific needs and health status, can significantly alleviate symptoms and improve quality of life, offering a valuable tool in managing hematologic and iron overload disorders. There was significant amelioration of the clinical parameter.

#### References

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- 2. Bolan CD, Conry-Cantilena C, Mason G, Rouault TA, Leitman SF, MCV as a guide to phlebotomy therapy for hemochromatosis. Transfusion. 2001 Jun;41(6):819-27.