



## Short Communication

## Correlation between blood groups and blood hemoglobin levels in pregnant females of rural area of Himachal Pradesh

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## ABSTRACT

**Introduction:** Anemia is a major concern during pregnancy especially in rural areas where females are nutrient deficient. Apart from nutritional deficiency there are many causes of anemia like anemia of chronic diseases, thalassemia, neoplasia etc. Many studies in the past revealed a correlation between blood groups and hemoglobin levels. In this study we have tried to establish the correlation between blood groups and hemoglobin among pregnant females in rural population of Himachal Pradesh.

**Aim and Objective:** To find out the correlation of hemoglobin level and blood groups during pregnancy.

**Material and Methods:** Blood groups and hemoglobin levels are investigated during antenatal checkup. We have taken data of 120 pregnant females visited to the OPD for routine antenatal checkups.

**Result:** Among studied population A positive is the commonest blood group followed by B positive while anemia is most prevalent in B positive blood group.

**Conclusion:** Anemia is a major concern among pregnant females as it affects the outcome of pregnancy. Many females have to go under caesarean section due to anemia related complications. So this study of correlation between blood groups and hemoglobin levels help to screen the pregnant females prone for anemia during first visit itself so that the treatment and the follow-up can be done as per the requirement of the patient.

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## 1. Introduction

According to the World Health Organization criteria, anemia is defined as blood hemoglobin concentration <13 g/dl or hematocrit <39% in adult males; hemoglobin <12g/dl or hematocrit <37% in adult females. Anemia can be caused by many factors; nutritional deficiency is the commonest among all. Though it is prevalent in all the countries but it is a major concern in developing countries like India as the commonest cause is nutritional deficiency which is a treatable cause. Children < 5 years and pregnant females are the most affected groups suffering from nutritional deficiency anemia and their complications.

There are 33 blood groups recognized by the international society of blood transfusion.<sup>1</sup> In the past many studies are conducted to find out the relation between blood group and Hb levels. In our study we have tried to establish this correlation in the pregnant females in rural population as anemia is a major concern in pregnancy as it is the state which further lowers the hemoglobin levels due to hemodilution and increases the anemia related complication affecting the pregnancy outcome.

## 2. Aim and Objective

To establish the correlation of hemoglobin level and blood groups in pregnant population.

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### 3. Materials and Methods

Blood groups and hemoglobin levels are investigated during antenatal checkup. We have taken data of 120 pregnant females age ranging from 19 to 38 years visited to the OPD for routine antenatal checkups. Blood groups were detected by slide method and hemoglobin by Sahli's method.

### 4. Result

**Table 1:** Commonest blood group: A positive followed by B positive

Blood Groups	Hb gm% (min. value)	Hb gm% (max. value)	Hb gm% (Average value)
A positive	8	11.2	9.9
B positive	8.2	11	9.6
AB positive	8.6	11.2	10.0
O positive	8.0	11	9.7
B negative	9.6	10.6	10.1

Anemia is most prevalent in blood group B positive.

### 5. Discussion

Anemia is common in pregnancy due to hemodilution which worsen the condition and makes a pregnant female severely anemic if the hemoglobin levels are low before conception itself. There are studies in the past which suggest that certain blood groups are more prone for anemia. Pernicious anemia is more common in A blood group.<sup>2</sup> In a study done among the Bengalee family, low hemoglobin levels were observed in A1 and O blood groups.<sup>3</sup> Mahapatra et al. also have found comparable differences in blood hemoglobin values in different types of ABO blood groups.<sup>4</sup> Similar study was also done by Ramalingam et al.<sup>5</sup> In our study we have tried to further establish this relationship. A positive was the most common blood group with average hemoglobin level of 9.9 gm/dl followed by B positive. In this study anemia was most prevalent in blood group B positive. B negative blood group has highest level of mean hemoglobin level of 10.1.

### 6. Conclusion

This study provides a background to screen the blood groups more prone to anemia which can be further supported by conducting study among a larger population. This screening helps to detect the pregnant females which can require treatment and follow up to avoid the severe anemia and its complications to improve the outcome of pregnancy.

### 7. Source of Funding

None.

### 8. Conflict of Interest

None.

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