

# Distribution of ABO and RH Blood Groups in Patients with Tuberculosis Referring to Health Centers in Sari City, Mazandaran Province

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## ABSTRACT

**Introduction:** Tuberculosis (TB), caused by *Mycobacterium tuberculosis*, is one of the leading causes of death from infectious diseases globally. There are varying and often conflicting reports regarding the relationship between disease type and blood type. This study aimed to investigate the relationship between ABO and RH blood groups and tuberculosis.

**Methods and Materials:** This descriptive cross-sectional study was conducted on patients with TB who visited health centers in Sari during 2008-2018. TB diagnosis was confirmed through microscopic tests and smears. Blood grouping was performed using anti-A, anti-B, and anti-D antibodies. Data on the blood groups of the general population in Sari was collected from health centers to compare the blood group distribution of TB patients with that of healthy individuals. Statistical analysis was performed using SPSS software version 20, employing Chi-square, Fisher's exact test, and independent t-test.

**Results:** Of the 420 patients studied, 56.42% were male, and 43.57% were female. Additionally, 52.64% resided in urban areas, while 35.47% lived in rural areas. The highest prevalence of TB was found in the age group of 45-60 years (34.5%). Regarding the ABO blood group distribution, 41.19% had blood group O, 28.33% had blood group A, 23.5% had blood group B, and 38.8% had blood group AB. Regarding the RH factor, 42.38% were RH positive, and 61.67% were RH negative.

**Conclusion and Discussion:** The study revealed that the incidence of TB in Sari was higher among women than men, and the majority of TB patients were over 45 years old. Additionally, TB was more prevalent in urban areas compared to rural areas. Although the O blood group was more common among TB patients, this finding was consistent with its higher prevalence in the general population of Sari, indicating no significant association ( $p = 0.05$ ). Furthermore, the occurrence of both pulmonary and extrapulmonary TB was found to be equally distributed among different blood groups ( $p = 0.05$ ).

**Keywords:** ABO blood-group system, *Mycobacterium tuberculosis*, Tuberculosis