

A POPULATIONAL RESEARCH REGARDING THE FREQUENCY AND TRANSMISSION OF AB0 BLOOD GROUPS IN THE ROMANIAN REGION BÎRLAD

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Abstract: Part of a larger study regarding the genetic polymorphisms present in the human population of Romania, we have studied the frequency and transmission of AB0 blood groups in the Bîrlad region. We have investigated all the children born in Bîrlad (and resident in the region of birth) during a given year. AB0 blood groups were determined by the Blood Transfusion Centre of Bîrlad. The obtained frequencies (group 0 = 34,36% group A = 40,28%, group B = 17,46%, group AB = 7,90%) and sex ratios were concordant with previous values obtained for the romanian population. We are discussing various reasons for the slight regional differences of the AB0 blood group frequencies registered between different romanian regions. One of the most important causes of variation could be the materno-fetal incompatibility regarding AB0 blood groups. After performing a thorough family inquiry, our research proved a very limited importance of this mechanism as a generator of populational variability.

INTRODUCTION

AB0 blood groups are ones of the most studied pure inherited traits. Due to their monogenic determinism, AB0 blood groups are fulfilling all the criteria for the optimal genetic study: high frequency, easy to be determine and analysed statistically (Tudose et al., 2000).

Part of a larger study regarding the genetic polymorphisms present in the human population of Romania, we have studied the frequency and transmission of AB0 blood groups in the Bîrlad region. The motivation of the study resides in the need of a centralised and widespread research covering all Romanian regions. There are also medical and forensic reasons to study thoroughly this subject, such as transfusions, certification of identity, paternity and filiation. The well known correlation between AB0 worldwide distribution in human populations and the biological history of some infectious diseases will be investigated in a future study of ecogenetics, a major concern of the authors.

Our research focused mainly on two directions: the frequency of AB0 blood groups in Bîrlad region and the study of the hereditary transmission of this monogenic trait in various families. We have also kept in mind and observed when encountered other topics, such as materno-fetal incompatibility, paternity and filiation problems.

MATERIALS AND METHODS

We have investigated a group of 355 teenagers born in Bîrlad between 1982 - 1985 (and resident in the region of birth) gathered in the same school unit. AB0 blood groups were determined by the Blood Transfusion Centre of Bîrlad which staff kindly provided us the results. Data were systematised into tables and frequencies were calculated and statistically investigated. We are mentioning the difficulties encountered because of the low addressability for blood group typing of the local population after 1990.

We have conducted family inquiries, we have gathered the data into genetic consultation sheets and we have drawn pedigrees.

RESULTS AND DISCUSSIONS

The frequency of AB0 blood group in the studied population (teenagers born in Bîrlad between 1982 - 1985 and resident in the region of birth, gathered in the same school unit), n = 355, lead to the following result (fig. 1):

- Group 0 - 34,36%
- Group A - 40,28%
- Group B - 17,46%
- Group AB - 7,90%

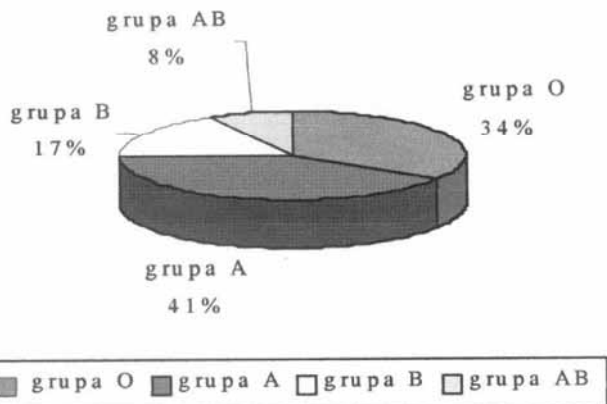


Figure 1: The frequencies of AB0 blood groups obtained in Birlad county

The obtained frequencies and sex ratios were concordant with previous values obtained for the romanian population: groups 0 and B are more frequent in men, while groups A and AB in women.

We also discussed various reasons for the slight regional differences of the AB0 blood group frequencies registered between different romanian regions. One of the most important causes of variation could be the materno-fetal incompatibility regarding AB0 blood groups.

After a thorough analysis of the consultation sheets (fig. 2) and of the drawn pedigrees (fig. 3) our research proved a very limited importance of this mechanism as a generator of populational variability.

Fișa nr.17

Subiectul	Gradul de rudenie	Grupa sangvina	Nascut(i) in	Locuiește in
A.C. ♀		AII	Birlad Jud.Vaslui	Birlad Jud.Vaslui
Frate	O I	O I	Birlad Jud.Vaslui	Birlad Jud.Vaslui
Mama	O I	Com Bacani Jud.Vaslui	Birlad Jud.Vaslui	Birlad Jud.Vaslui
Mătușa de pe mama	O I	Com Bacani Jud.Vaslui	Birlad Jud.Vaslui	Birlad Jud.Vaslui
Unchi de pe mama	O I	Com Bacani Jud.Vaslui	Birlad Jud.Vaslui	Birlad Jud.Vaslui
Unchi de pe mama	O I	Com Bacani Jud.Vaslui	Birlad Jud.Vaslui	Birlad Jud.Vaslui
Tata	AII	Com Banca Jud.Vaslui	Birlad Jud.Vaslui	Birlad Jud.Vaslui
Mătușa de pe tata	AII	Com Banca Jud.Vaslui	Constanța Jud.Constanța	Constanța Jud.Constanța
Mătușa de pe tata	AII	Com Banca Jud.Vaslui	Com Fedeti Jud.Vaslui	Com Fedeti Jud.Vaslui
Unchi de pe tata	AII	Com Banca Jud.Vaslui	Com Baicea Jud.Botoșana	Com Baicea Jud.Vaslui
Bunica de pe mama	O I	Com Bacani Jud.Vaslui	Birlad Jud.Vaslui	Birlad Jud.Vaslui
Bunicul de pe mama	O I	Com Bacani Jud.Vaslui	Birlad Jud.Vaslui	Birlad Jud.Vaslui
Bunica de pe tata	AII	Com Banca Jud.Vaslui	Com Banca Jud.Vaslui	Com Banca Jud.Vaslui
Bunicul de pe tata	AII	Com Banca Jud.Vaslui	Com Banca Jud.Vaslui	Com Banca Jud.Vaslui

Figure 2. Exemple of a genetic consultation sheet

The decreased importance of the materno-fetal incompatibility resulted in unions of type 0 x A, 0 x B, 0 x AB might be influenced also by the reduced number of offspring per family.

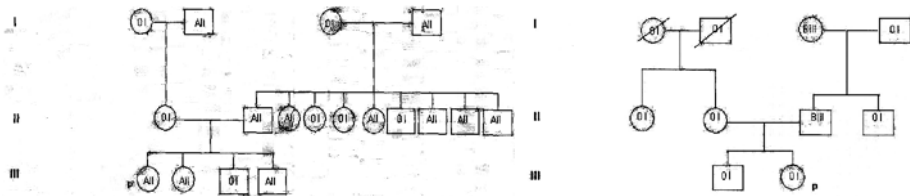


Figure 3: Examples of pedigrees used in our study

CONCLUSIONS

The frequency of AB0 blood group in the studied population (355 teenagers born in Birlad between 1982 - 1985 and resident in the region of birth, gathered in the same school unit), $n = 355$, lead to the following result: Group 0 - 34,36%, Group A - 40,28%, Group B - 17,46% and Group AB - 7,90%

The obtained frequencies and sex ratios were concordant with previous values obtained for the romanian population: groups 0 and B are more frequent in men, while groups A and AB in women.

We also discussed various reasons for the slight regional differences of the AB0 blood group frequencies registered between different rumanian regions. One of the most important causes of variation could be the materno-fetal incompatibility regarding AB0 blood groups.

After a thorough analysis of the consultation sheets and of the drawn pedigrees our research proved a very limited importance of this mechanism as a generator of populational variability. The decreased importance of the materno-fetal incompatibility resulted in unions of type 0 x A, 0 x B, 0 x AB might be influenced also by the reduced number of offspring per family.

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