The Possible Correlation between Blood Groups and Medical Conditions Occurrence in Pregnancy: A prospective Study

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Introduction

A number of literatures discussed the relationship between ABO blood group and the susceptible occurrence of diseases as an example of the genetic basis for family predisposition. Many studies have tried to find out the relationship between the ABO blood group and various systemic diseases, and the results showed a significant association. Blood group phenotype O was associated with a substantially increased risk for coronary artery disease and diabetes mellitus.

Aim of the study

To investigate the possible correlation between different blood group phenotypes and certain medical conditions occurrence and risk observed during pregnancy.

Methods

A prospective observational study was carried out on 92 pregnant women at different gestational weeks admitted at a gynecological clinic in a certain sector of Baghdad Governorate between February and May 2017. Gestational, demographic and health records were collected for patients during the study.

Main outcome measures

Correlation between ABO blood groups, Rh types, certain biochemical parameters and the occurrence and risk of certain medical conditions.

Results

- A 86% (n=79) of the pregnant women were Rh-positive and 14% (n=13) were Rh-negative.
- The distribution of the ABO blood groups of the patients was O (n=66; 72%); AB (n=12; 13%); A (n=10; 11%) and B (n= 4; 4%).
- Among different conditions, (43.3%; P=0.008) of the pregnant women of the blood group O phenotype were suffering from concomitant hypertension with DM.
- There was a significant correlation between Rh-positive patients with elevated LDL-cholesterol (n=79; P=0.05).
- However, there was no significant correlation between pregnant women of the ABO blood groups with systolic (P=0.401) and diastolic (P=0.543) blood pressure as well as with different lipid panels including total serum cholesterol (P=0.175), LDL-cholesterol (P=0.505), HDL-cholesterol (P=0.332), and non-HDL cholesterol (P=0.173).
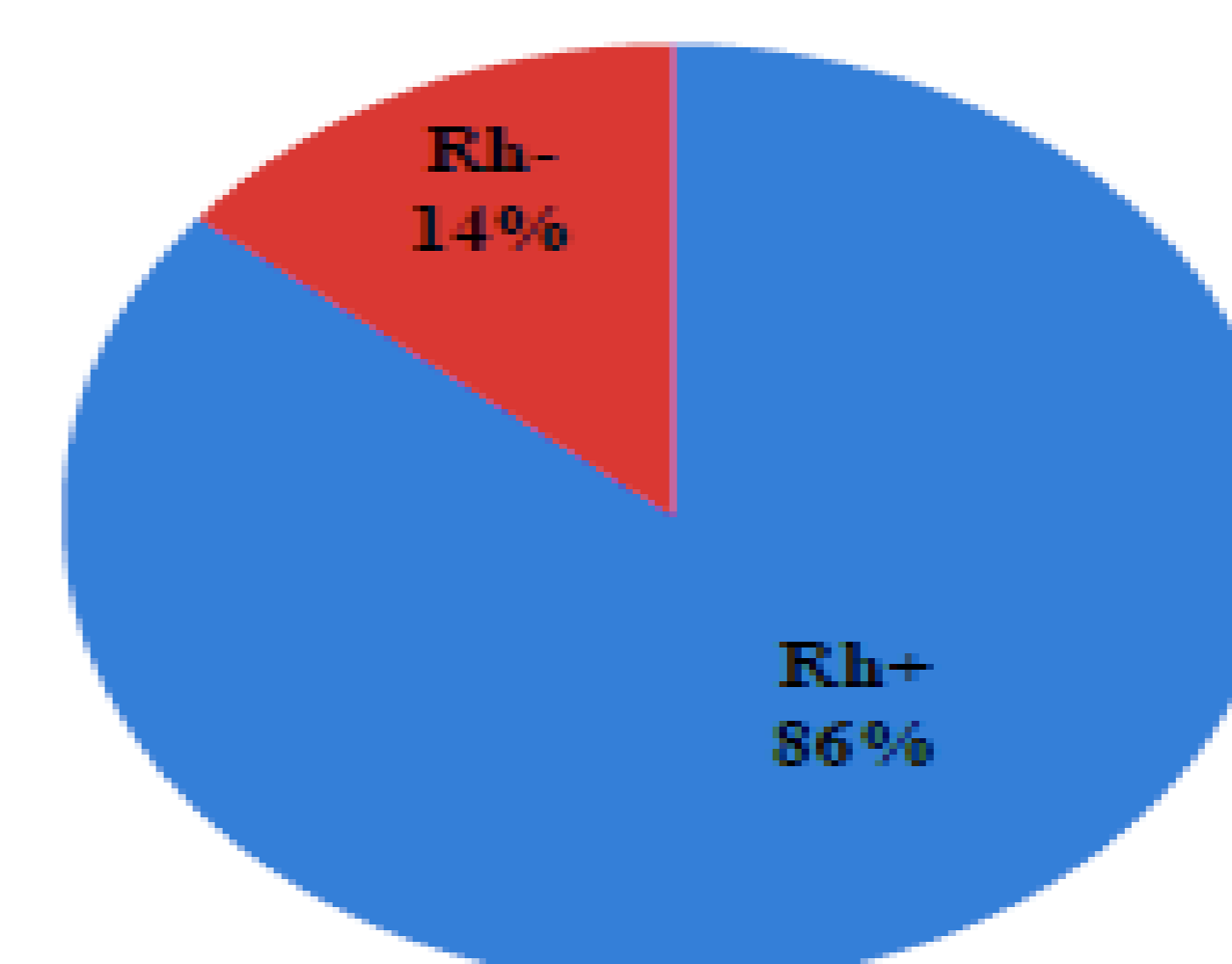
Conclusions

The results of this study revealed that Rh-positive was more common among the participants. It also demonstrated a higher occurrence of medical conditions mainly hypertension and DM among patients of the blood group O. This could support the discipline of the clinical pharmacist for further knowledge of medical condition's occurrence and better follow-up of treatment during pregnancy.
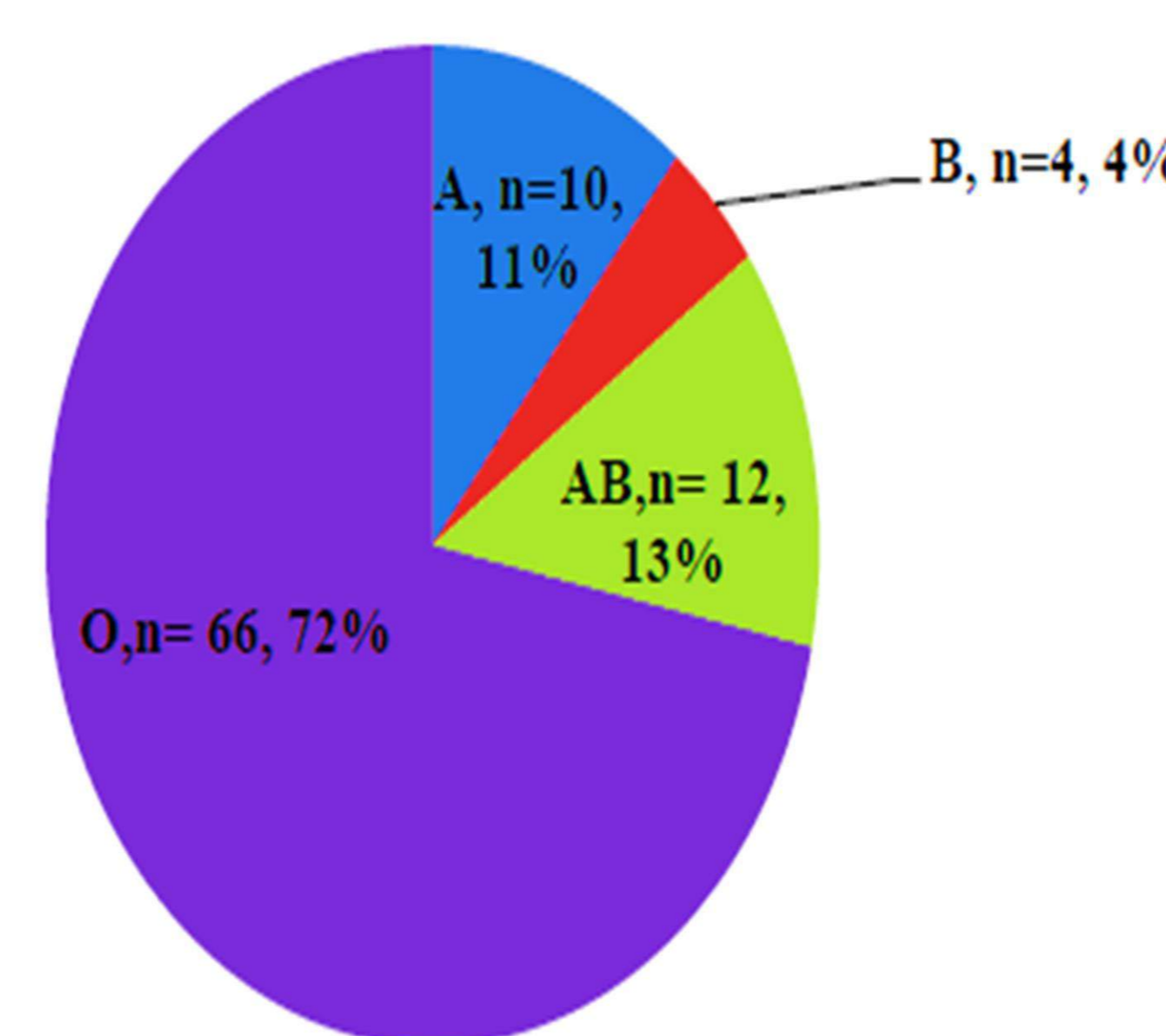
Acknowledgement

Rh Distrbution among Study Patients

Distribution of Patients' Blood Group

Incidence of Hypertension+DM among Study Patients

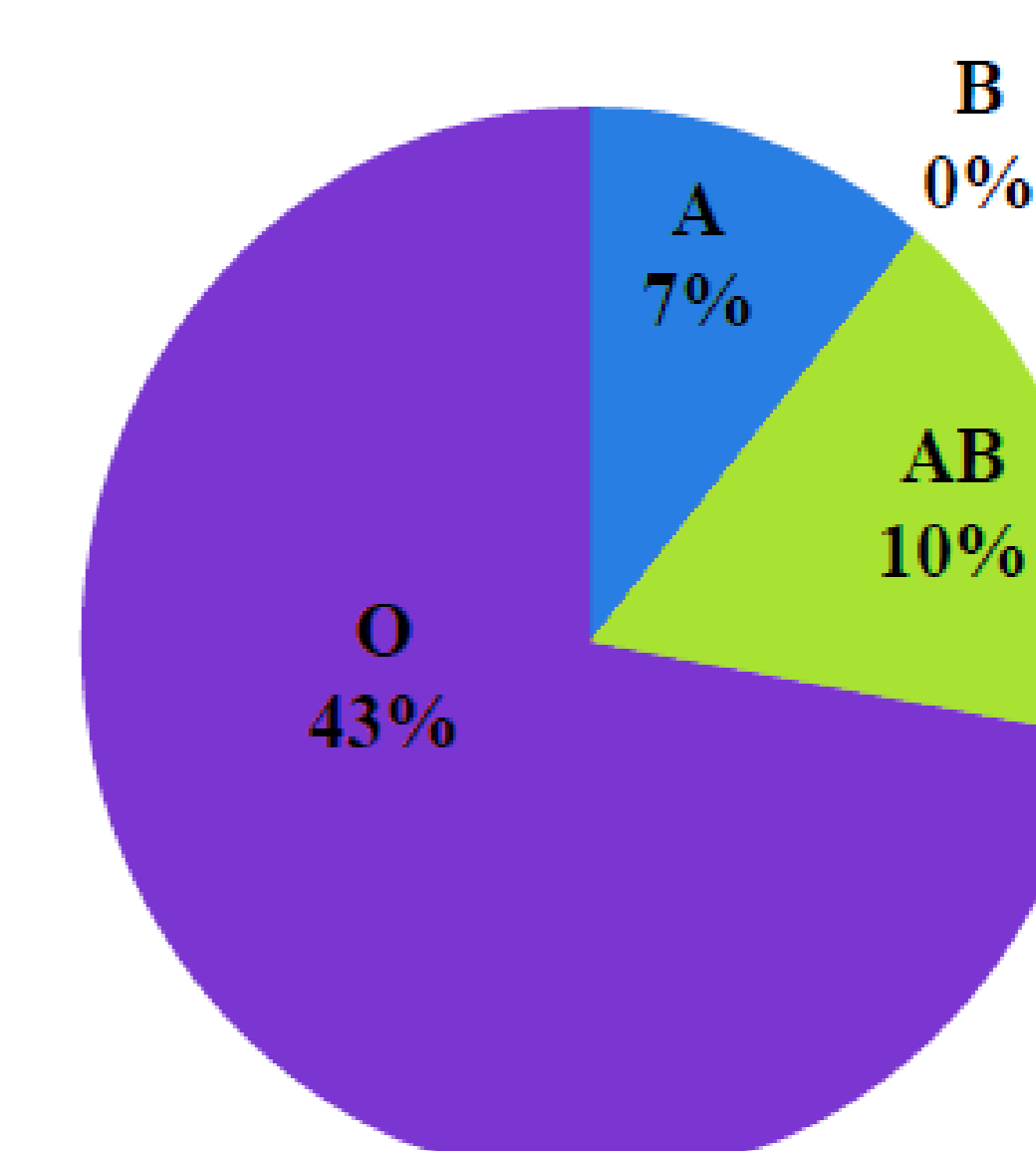**TABLE (1): Correlation between Patient Blood Rh with Bio-vital Variables**

Variables	Rh+ (N=79)	Rh- (N=13)	P-value
Systolic BP (mmHg)	118.60 ± 4.36	121.67 ± 2.24	0.6191 NS
Diastolic BP (mmHg)	76.37 ± 1.41	80.00 ± 2.74	0.0748 NS
Total Cholesterol (mg/dL)	161.60 ± 10.31	140.83 ± 12.92	0.1421 NS
LDL-Cholesterol (mg/dL)	109.67 ± 4.66	96.17 ± 6.82	0.0501 *
HDL-Cholesterol (mg/dL)	40.07 ± 0.95	41.67 ± 1.03	0.2783 NS
Non-HDL-Cholesterol (mg/dL)	121.97 ± 10.74	99.17 ± 14.03	0.1378 NS

* (P<0.05), NS: Non-Significant.

TABLE (2): Correlation between Patient Blood Phenotype Groups with Bio-vital Variables

Variables	A (N=10)	B (N=4)	O (N=12)	AB (N=66)	P-value
Systolic BP (mmHg)	128.00 ± 15.48	120.00 ± 0.00	117.09 ± 21.81	121.67 ± 11.14	0.4012 NS
Diastolic BP (mmHg)	78.00 ± 4.21	80.00 ± 0.00	76.09 ± 7.21	75.00 ± 5.22	0.5438 NS
Total Cholesterol (mg/dL)	166.00 ± 29.51	125.00 ± 28.87	163.18 ± 49.14	140.67 ± 32.43	0.1752 NS
LDL-Cholesterol (mg/dL)	104.80 ± 21.13	103.00 ± 9.23	110.12 ± 23.37	100.00 ± 26.21	0.5055 NS
HDL-Cholesterol (mg/dL)	40.80 ± 3.79	44.00 ± 4.62	39.85 ± 4.95	41.00 ± 3.86	0.3329 NS
Non-HDL-Cholesterol (mg/dL)	125.20 ± 31.94	81.00 ± 24.25	123.88 ± 53.69	99.67 ± 34.00	0.1733 NS

NS: Non-Significant.