ABO and Rh blood groups in patients with cholelithiasis and carcinoma of the gall bladder

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Carcinoma of the gall bladder is a common malignancy in Eastern Uttar Pradesh and Western Bihar regions of India, constituting 4·4% of all malignancies and 0·3% of admissions to University Hospital, Varanasi.[1] Since the first report by Aird *et al* in 1953,[2] showing an association between blood group A and gastric cancer, numerous other reports have documented a high incidence of blood group A in various cancers including salivary gland, colon, uterus, ovary, pancreas, kidney, bladder, and cervix.[3] There has been no previous report of association between gall bladder carcinoma and any specific blood group. Juvonen and Niemela[4] studied 171 patients with symptomatic gall stones and found no association with any blood group, although patients with blood group A had multiple stones. Blood groups are differentially distributed in various socioeconomic, geographical, and ethnic groups. We studied the distribution of ABO and Rh blood groups in patients with carcinoma of the gall bladder and cholelithiasis, comparing it with the blood group distribution in our population.

Patients, methods, and results

Distribution of ABO and Rh blood groups was recorded in 69 patients with carcinoma of the gall bladder and 152 patients with cholelithiasis presenting to the department of surgery, University Hospital, Banaras Hindu University, Varanasi. Patients coming for routine surgical operations such as hernia, hydrocele, appendicitis, lipoma, and sebaceous cyst (n=673) and blood donors (n=367) served as controls. Statistical analysis was carried out by χ^2 test using MS-Basic epistat and MSTAT statistical packages.

The ABO blood group distribution is shown in the table. Of the 1040 controls 40 (3·8%) were Rh negative. Among the cholelithiasis group, eight (5·3%) were Rh negative, while only one (1·4%) patient with carcinoma of the gall bladder was Rh negative ($P > 0·05$).

Blood group distribution in patients with cholelithiasis, carcinoma of the gall bladder, and controls. Results are numbers (and percentages) of patients

Blood group	Cholelithiasis	Carcinoma of gall bladder	Blood donors	Routine surgery	Total
A	34 (22·4)	23 (33·3)	81 (22·1)	159 (23·6)	297
Expected value	35·8	16·3	86·4	158·5	
χ^2	0·1	2·8	0·3	0·0	
B	54 (35·5)	16 (24·8)	113 (30·8)	215 (31·9)	398
Expected value	48·0	21·8	115·8	212·4	
χ^2	0·8	1·5	0·1	0·0	
O	54 (35·5)	12 (17·5)	162 (44·1)	254 (37·7)	482
Expected value	58·1	26·4	140·3	257·2	
χ^2	0·3	7·9	3·4	0·0	
AB	10 (6·5)	18 (26·1)	11 (3·0)	45 (6·7)	84
Expected value	10·1	4·6	24·5	44·8	
χ^2	0·0	39·0	7·4	0·0	
Rh negative	8 (5·3)	1 (1·4)	12 (3·3)	28 (4·2)	

$\chi^2 = 63·64$, df=9, $P < 0·0005$.
*Figures in parenthesis show range.
χ=Contribution of each cell to χ^2.

Comment

Like previous workers,[4] we found the distribution of blood groups in patients with cholelithiasis to be the same as that of the general population. The present study, however, shows an increased frequency of carcinoma of the gall bladder in blood groups A and AB compared with the control population, which is similar to the previously reported increased incidence of blood group A in carcinoma of the stomach, colon, uterus, and cervix.[2,3]

The increased risk of development of gastric and colonic cancers in patients with blood group A has been explained by the expression of Forssmann antigen in these cancers. Forssmann antigen is structurally similar to the blood group antigen A. Because of this similarity, antibodies to A probably also attack precancerous and cancerous cells expressing this antigen. People with blood groups A and AB lack antibodies to A and so are more prone to develop these carcinomas.[3] A similar mechanism may be responsible for the high incidence of carcinoma of the gall bladder observed in patients with blood groups A and AB in this study.

It is also possible that there may be genes associated with a factor or factors that confer a favourable prognosis, closely related to the genes responsible for the expression of the blood group antigens; these may be inherited together.[5] Further studies on the blood group antigenic determinant in tumour tissues with clinicopathological correlation might further elucidate this relationship.

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GR106642X: a new, non-ozone depleting propellant for inhalers

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Metered dose inhalers are the most popular choice of drug delivery system for treating asthma and chronic airflow limitation. Unfortunately, they contain chlorofluorocarbon propellants, which contribute to the depletion of stratospheric ozone.[1] The Montreal Protocol of 1987 has therefore called for a gradual phasing out of manufacture of chlorofluorocarbons in all developed countries by 1996. Inhalers containing chlorofluorocarbons have been given a temporary exemption, but there remains considerable environmental pressure for their early withdrawal.

GR106642X (1, 1, 1, 2-tetrafluoroethane) is a new propellant which does not deplete ozone. It has been used alone, with no other excipients, to reformulate salbutamol. We investigated the safety and efficacy of the new non-ozone depleting formulation for salbutamol in a randomised, double blind, placebo controlled, crossover comparison with the traditional salbutamol inhaler containing chlorofluorocarbons 11 and 12 (Ventolin, Allen and Hanburys) in protecting adults with asthma from bronchoconstriction induced by histamine.

Subjects, methods, and results

The study was approved by the local research and ethics committee of the university hospitals of south