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Gilbert's Syndrome- Spectrum at Tertiary Care Centre of Northeren India

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1. Abstract

1.1. Introduction

Gilbert's syndrome is harmless genetic liver condition where the liver doesn't process bilirubin efficiently, leading to mild, intermittent jaundice and sometimes fatigue or abdominal discomfort, usually triggered by stress, dehydration, or fasting, but it requires no treatment as it's generally benign and people live normal lives. It occurs due to inheritance from parents of a mutated gene that affects the UGT1A1 enzyme, which helps the liver to conjugate bilirubin. The decreased level of this enzyme causes unconjugated bilirubin to build up in the blood. Majority are unaware of it and are incidentally detected on routine investigations whereas other may present with jaundice, fatigue, abdominal pain, nausea, weakness, or diarrhoea. The triggers are dehydration, stress, illness, fasting, intense exercise, or menstruation. It does not require any treatment but for identifying and avoiding triggers like alcohol, stress, lack of sleep etc. and reassurance rather than intervention.

1.2. Aim

To determine spectrum of Gilbert's syndrome at tertiary care centre of Northerner India.

Material and Methods: This was a prospective study conducted at Medical Gastroenterology Department, PGIMS, Rohtak, over a period of five years i.e. 01.12.2020 to 30.11.2025. All the patients who presented in outdoor of Medical Gastroenterology OPD and found to be having jaundice, were evaluated in detail like liver function test, viral screen, autoimmune, haemolytic and wilson's disease profile, ultrasonogram abdomen, fibro scan. After ruling out all the above diseases and only those patients with raised serum bilirubin levels, that too having predominantly indirect fraction and rest all test being normal, were diagnosed to be having Gilbert's syndrome. In total five years, twenty-eight patients were enrolled in the study after due written consent of patient and in case of minor of parents.

1.3. Results

Out of the total study group of 28 confirmed patients of Gilbert's syndrome, 27 (96.42%) were males and only 1 (3.58%) was female. On analysis of rural-urban distribution, majority belonged to urban area i.e. 17 (60.71%) and 11 (39.29%) resided in rural area. On analysing age distribution curve, none patient was seen in 0-10 yrs of age after which gradual upward trend was noted i.e. 11-20 years (12 patients, 42.85%), 21-30 yrs (10 patients, 35.71 %), 31-40 yrs (4 patients, 14.28 %), 41-50 yrs (2 patients, 7.14%) and none was above 50 yrs of age.

1.4. Conclusion

Gilbert syndrome is a benign clinical condition with no consequence rather than yellow skin and does not merit any treatment. The patient must be reassured of its benign nature, as it has excellent prognosis and normal life expectancy.

2. Introduction

Gilbert's syndrome is defined phenotypically, and therefore not according to predisposing genetic markers, as the elevation of serum unconjugated bilirubin concentration above the upper limit of normal, with no laboratory signs of haemolysis or liver damage. The only finding is mild raised serum bilirubin level with predominantly indirect or unconjugated fraction. However, the physiological range of serum/plasma bilirubin concentration is only inaccurately defined [1] but the physiological values of serum bilirubin in the general population in India encompass a range of 0.2-1.2 mg/dl. The prevalence of Gilbert's syndrome in the general population is commonly stated to be around 5% [2]. Bilirubin concentrations in both the general population and in Gilbert's syndrome often fluctuate depending on several factors such as sex, ethnicity, age, smoking status, circadian rhythms, seasonal period, nutritional influences, or physical activity [1,3,4]. In Gilbert's syndrome, there is impairment of the conjugation of bilirubin with glucuronic acid in the liver which is mediated by hepatic enzyme named biliru-

bin-UDP glucuronoxylan transferase (UGT1A1). The UGT1A1 gene was found to be the major gene that controls intravascular levels of bilirubin [5,6] and specific mutations in the UGT1A1 gene are responsible for the manifestation of mild unconjugated chronic hyperbilirubinemia [7].

3. Aim

To determine spectrum of Gilbert's syndrome at tertiary care centre of Northerner India.

4. Material and Methods

This was a prospective study conducted at Medical Gastroenterology Department, PGIMS, Rohtak, over a period of five years i.e. 01.12.2020 to 30.11.2025. All the patients who presented in outdoor of Medical Gastroenterology OPD and found to be having jaundice, were evaluated in detail like liver function test, viral screen, autoimmune, haemolytic and wilson's disease profile, ultrasonogram abdomen, fibro scan. After ruling out all the above diseases and only those patients with raised serum bilirubin levels, that too having predominantly indirect fraction and rest all test being normal, were diagnosed to be having Gilbert's syndrome. In total five years, twenty-eight patients were enrolled in the study after due written consent of patient and in case of minor of parents. Their detailed records were collected regarding epidemiological factors, clinical spectrum and were followed regularly. The detailed clinical examination and laboratory investigations were done including complete blood counts, liver function tests , renal function tests, thyroid & lipid profile, serum IgA TTG antibody, serum electrolytes, coagulation parameters (PT, INR), blood sugar, autoimmune profile, Serum ceruloplasmin level, 24 hour urinary copper excretion level, serum LDH, Vitamin B12, Folate levels, Iron profile, Hbs Ag, anti-HIV antibody, anti HCV antibody, HBV DNA & HCV RNA Quantitative, ultrasonogram abdomen, chest x ray PA view and Fibro scan.

Table 1: Showing Sex and Geographical Distribution in Gilbert Syndrome Patients.

Total Patients	Male	Female	Urban	Rural
28	(96.42%) 27	(3.58%) 1	(60.71%) 17	(39.29%) 11

Table 2: Showing Age Distribution in Gilbert Syndrome Patients.

Total Patients	11-20 yrs	21-30 yrs	31-40 yrs	41-50 yrs
28	12 (42.85%)	10 (35.71%)	4 (14.28%)	2 (7.14%)

Table 3: Showing Distribution on Basis of Clinical Presentation in Gilbert Syndrome Patients.

Total Patients	Jaundice	Dyspepsia	Pain Abdomen	Fatigue
28	18 (64.28%)	6 (21.42%)	2 (7.14%)	2 (7.14%)

5. Observation and Results

Out of the total study group of 28 confirmed patients of Gilbert's syndrome, 27 (96.42%) were males and only 1 (3.58%) was female. On analysis of rural-urban distribution, majority belonged to urban area i.e. 17 (60.71%) and 11 (39.29%) resided in rural area. On analysing age distribution curve, none patient was seen in 0-10 yrs of age after which gradual upward trend was noted i.e. 11-20 years (12 patients, 42.85%), 21-30 yrs (10 patients, 35.71 %), 31-40 yrs (4 patients, 14.28 %), 41-50 yrs (2 patients, 7.14%) and none was above 50 yrs of age. The only lab parameter which was raised was serum bilirubin which ranged between 2.1 to 4.8 mg% with mean of 2.7 mg%. The indirect fraction was predominantly raised which ranged from 1.5 to 3.9 mg% with mean of 2.5 mg%. Majority of patients presented with mild jaundice i.e. 18 (64.28%), followed by evaluation of dyspepsia 6 (21.42%), pain abdomen 2 (7.14%) and fatigue 2 (7.14%).

6. Discussion

Gilbert syndrome (GS) is the most common hereditary bilirubin mechanism disorder due to decreased activity of uridine diphosphate-glucuronic transferase 1A1 (UGT1A1) and is associated with unconjugated hyperbilirubinemia in the absence of liver disease or haemolysis [8]. It has a prevalence of 3- 7% in the general public [9,10] with preponderance in female population [11]. It is diagnosed around puberty due to an increase in bilirubin production under the influence of steroid hormones [8]. There are very few studies establishing the prevalence of Gilbert syndrome in India [12,13]. A study conducted in healthy blood donors estimates the prevalence to be as high as 6% [12]. As per some study, it is more common in males, often manifesting as mild jaundice, without liver dysfunction, but some patients have abdominal discomfort, fatigue, nausea, etc., which may be caused by anxiety and other psychological factors [14]. Our study group is in alignment with above studies and majority of patients were male and belong to pubertal age group. The more association of urban background is whether having any clinical relevance, is area of further research. It may be due to more proximity of their urban residence to our government hospital which is located in urban area or it may be due to more awareness among urban population for seeking early medical advice for any disease. The majority of GS patients keep on seeking advice for their persistent jaundice and take even alternative medications but in vain. GS is a diagnosis of exclusion with normal liver enzymes, clotting, albumin and negative haemolysis screen [15]. The prognosis of the disease is generally good, and no special treatment is needed. Rest, abstinence from alcohol, and other methods can alleviate symptoms [16]. Counselling the patient and family about the benign nature of the illness is of paramount importance [12]. Serum bilirubin has anti-inflammatory, antioxidant,

anti-mutagenic properties [17] and may even have a survival benefit in patients with GS [18]. Mildly elevated total bilirubin concentration is associated with protection from cardiovascular diseases (CVD), type 2 diabetes mellitus, certain cancers, and all-cause mortality rates. The goal is to keep on repeatedly re-assuring patient and family members about benign nature of this disease and even it is wise step to make these patients interact with each other, so as to build up positivity in them. The rest of family members should also be screened for ruling out Gilbert's syndrome in them.

7. Conclusion

Gilbert syndrome is a benign clinical condition with no consequence rather than yellow skin and does not merit any treatment. The patient must be reassured of its benign nature, as it has excellent prognosis and normal life expectancy.

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