

A Study on the Efficacy of Aloe Vera Juice in the Management of Viral Hepatitis

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Abstract: *Hepatitis, a chronic liver disease affecting around 250 million people worldwide, can be caused by viruses, alcoholism, and medications. Aloe vera, a medicinal plant known for its detoxifying, antiseptic, immune - boosting, and antiviral properties, contains essential vitamins and amino acids. This study aims to evaluate the efficacy of aloe vera juice in managing viral hepatitis. The study, conducted at Chakradatta Ayurveda Hospital in Mysore, involved 50 patients with viral hepatitis. After screening and obtaining written consent, 30 patients were assigned to a control group receiving allopathic medicine. The experimental group received 50 ml of freshly extracted aloe vera juice twice daily, 30 minutes before meals, for one month. Weekly clinical and laboratory tests, including bilirubin (total, direct, and indirect), serum glutamic - oxaloacetic transaminase (SGOT), and serum glutamate pyruvate transaminase (SGPT), were performed. The results were recorded and analyzed statistically. In subjects given aloe vera juice, appetite improved moderately, and nausea decreased. Total bilirubin levels dropped from an average of 4.5 to 1.7 mg/dL. Serum glutamic oxaloacetic transaminase levels decreased from 440 to 110 units per liter, and serum glutamic pyruvic transaminase levels decreased from 520 to 140 units per liter. Similar results were observed in the control group. Aloe vera was found to be significantly useful in the effective management of viral hepatitis in improving the patient's general well - being with significant improvement in appetite, fever and general debility.*

Keywords: Viral Hepatitis, Aloe vera, Bilirubin, SGOT, SGPT

1. Introduction

Hepatic fine periportal fibrosis commonly results from liver injury due to viral hepatitis, HBV, HCV, and other factors. This condition leads to excessive apoptosis and necrosis of hepatocytes, which activate Kupffer cells (Bataller & Brenner, 2005). These cells release cytokines, reactive oxygen species (ROS), and other agents that act on hepatic stellate cells (HSCs), causing them to transform into myofibroblast - like cells and proliferate (Arjan et al, 2014). This process involves increased production of extracellular matrix (ECM) and reorganization of collagens, proteoglycans, structural glycoproteins, and hyaluronic acid (Lu et al, 2011).

Oxidative stress plays a crucial role in liver disease pathology, causing hepatocyte damage through lipid peroxidation and protein alkylation. Both acute and chronic liver diseases are global concerns with challenging and often limited treatment options (Moreau et al, 2013). Consequently, there is significant interest in developing herbal medicines from documented medicinal plants to treat various clinical conditions, aiming to reduce toxicity risks associated with conventional drugs (Ekor, 2014).

Aloe vera (L.) Burm. f. (syn. *Aloe barbadensis* Mill.) is a succulent from the Asphodelaceae (Liliaceae) family, found in dry regions of Asia, Africa, America, and Europe (Maharjan et al, 2015). The Aloe vera leaf has three layers: the green rind, which synthesizes carbohydrates and proteins; the middle latex layer, containing yellow sap with phenolic compounds like anthraquinones; and the innermost pulp, a clear gel rich in polysaccharides such as acetylated mannans (Surjushe et al, 2008). Traditionally used in folk medicine for digestive issues, skin problems, burns, wounds, diabetes, and high blood pressure, Aloe vera is also an

additive in cosmetics (Radha & Laxmipriya, 2014). There is substantial evidence of the immunomodulatory effects of Aloe vera gel and, to a lesser extent, its antiviral properties (James et al, 2004). Aloe has been purported to have positive effects on wound healing, recovery from burn injury, cell growth, and immune modulation (Surjushe et al, 2008). Not many studies have been reported with respect to effect of Aloe vera on Hepatitis. This study was planned to study the effect of supplementation of Aloe vera juice on viral hepatic subjects.

2. Methodology

- Patients (50 in Number) of either sex were selected at Chakradatta Ayurveda Hospital in Mysore for the study between the age group of 20 - 60 years with signs & symptoms of Viral Hepatitis confirmed by laboratory investigations
- Patients with other systemic diseases like Diabetes Mellitus and Hypertension were eliminated
- 30 patients were assigned to a control group receiving allopathic medicine. The experimental group received 50 ml of freshly extracted aloe vera juice twice daily, 30 minutes before meals, for one month.
- Weekly clinical and laboratory tests, including bilirubin (total, direct, and indirect), serum glutamic - oxaloacetic transaminase (SGOT), and serum glutamate pyruvate transaminase (SGPT), were performed.
- Patients were administered with Aloe vera juice with hot water before food for 90 days along with Diet for experimental subjects
- Standard case sheet proforma was made and the data of the patients were documented
- Clinical observation of signs and symptoms and laboratory investigations were done regularly over a period of one month before and after treatment.

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Clinically Fever, Nausea, Vomiting and loss of appetite were recorded

3. Results

3.1 Demographic Profile of Subjects

The study subjects were found equally among both below poverty line and above poverty line income groups. The incidence of viral hepatitis is actually more in low socio economic group people due to the underprivileged hygiene and lack of hygiene awareness (Carr et al, 2014). Because the viral hepatitis ABC is more commonly spread through road and water routes. Significantly the equal proportions of viral hepatitis are found in upper income group people also (Fonseca, 2010). It was also found equally distributed among males and females 50 percent each. It is obvious that if one of the partners is hepatitis positive the other has the risk of getting infected. 40% of the subjects were females and remaining was male.

3.2 Habits of Subjects

In this study 35% were having the history of smoking and 65% were having the history of alcohol consumption. Alcoholism causes protein energy malnutrition eventually leading to liver dysfunction. This will become hot for hepatitis virus since the body cannot synthesize required anti globulins or immune cells (Jaurigue & Cappell, 2014).

3.3 Clinical Features of Subjects

Loss of appetite is one of the major clinical features in viral hepatitis; in the present study most of the subjects complained about loss of appetite. Prior to intervention 65% had poor appetite and 35% had mild loss of appetite; however after intervention 90% of subjects had improved the appetite. 85% of subjects had complained nausea prior to intervention but later improved. More than 90% of the subjects had informed about weakness, eventually improved after the correction of loss of appetite and nausea.

3.4 Laboratory Investigations of Subjects

The overall observations of total bilirubin, direct bilirubin, indirect bilirubin, serum glutamic - oxaloacetic transaminase (SGOT) and serum glutamate pyruvate transaminase (SGPT) had significantly decreased after intervention in comparison with prior to intervention of aloe vera juice.

4. Discussion

Aloe vera is widely known for its medicinal properties, particularly for skin conditions and digestive health. However, its effect on total bilirubin levels is less commonly discussed (Surjushe et al, 2008). Total bilirubin is a measure of bilirubin in the blood, which can be an indicator of liver function. Aloe vera might have hepatoprotective (liver - protecting) properties which mean that it could potentially help in maintaining or improving liver function, which might indirectly affect bilirubin levels (Madrigal - Santillán et al, 2014). Aloe vera contains compounds that have anti - inflammatory effects. Inflammation of the liver (hepatitis)

can lead to increased bilirubin levels, so reducing inflammation could theoretically help manage bilirubin levels (Negi et al, 2008). Aloe vera is sometimes used for its detoxifying properties (Jacob, 2009). A well - functioning liver is essential for detoxifying the body, and improved liver function might help in maintaining normal bilirubin levels. The effect of aloe vera on bilirubin levels might vary depending on individual health conditions, the form of aloe vera used (e. g., juice, gel, supplements), dosage, and duration of use (Wu & Cederbaum, 2009).

Serum glutamic - oxaloacetic transaminase (SGOT), also known as aspartate aminotransferase (AST), is an enzyme found in various tissues, including the liver, heart, and muscles. Elevated levels of SGOT/AST in the blood can indicate liver damage or other medical conditions. Aloe vera's effect on SGOT/AST levels has been a subject of some research, though the evidence is not extensive. Aloe vera may have hepatoprotective effects, which could help protect the liver from damage (Ikeno et al, 2002). This might result in stabilized or reduced SGOT/AST levels in individuals with liver issues. Aloe vera contains anti - inflammatory compounds. Since inflammation can contribute to liver damage and elevated SGOT/AST levels, reducing inflammation could potentially help in managing these enzyme levels (Malik & Zarnigar, 2002). Aloe vera has antioxidant properties, which can help in reducing oxidative stress and protecting liver cells from damage. This could indirectly help in maintaining normal SGOT/AST levels (Shahidi & Zhong, 2010). The impact of aloe vera on SGOT/AST levels might vary depending on the form of aloe vera used (e. g., juice, gel, supplements), the dosage, the duration of use, and the individual's health condition.

Serum glutamate pyruvate transaminase (SGPT), also known as alanine aminotransferase (ALT), is an enzyme primarily found in the liver. Elevated levels of SGPT/ALT can indicate liver damage or other liver - related issues. Aloe vera's effect on SGPT/ALT levels has been the subject of some research, though the evidence is not extensive (Rodriguez et al, 2010). Aloe vera has been suggested to have hepatoprotective (liver - protecting) properties, which might help in reducing liver damage and thereby potentially lowering SGPT/ALT levels (Torres - González, 2014). Aloe vera contains anti - inflammatory compounds that could reduce liver inflammation, which in turn might help in managing SGPT/ALT levels (Werawatganon et al, 2014). The antioxidant properties of aloe vera can help reduce oxidative stress in liver cells, potentially preventing liver damage and stabilizing or reducing SGPT/ALT levels. Aloe vera is sometimes used for its detoxifying effects, which might support liver health and contribute to maintaining normal enzyme levels (Anilakumar et al, 2010).

5. Conclusions

Aloe vera was found to be significantly useful in the effective management of viral hepatitis in improving the patient's general well - being with significant improvement in appetite, fever and general debility. Animal studies are recommended for further clarification through surgery after aloe vera treatment. Aloe vera is basically slimy in nature, hence we put forth for product developments using aloe vera.

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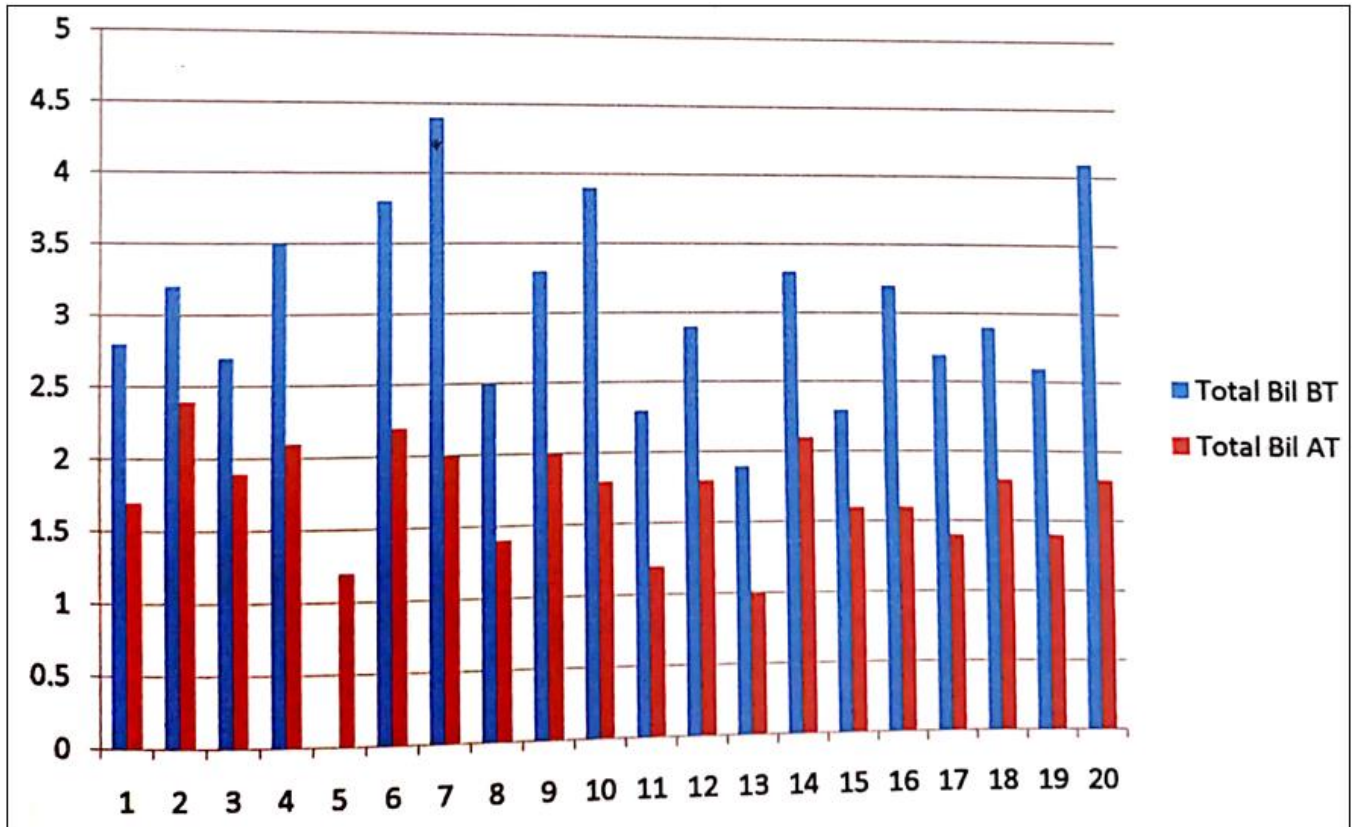


Figure 1: Total Bilirubin levels before and after intervention

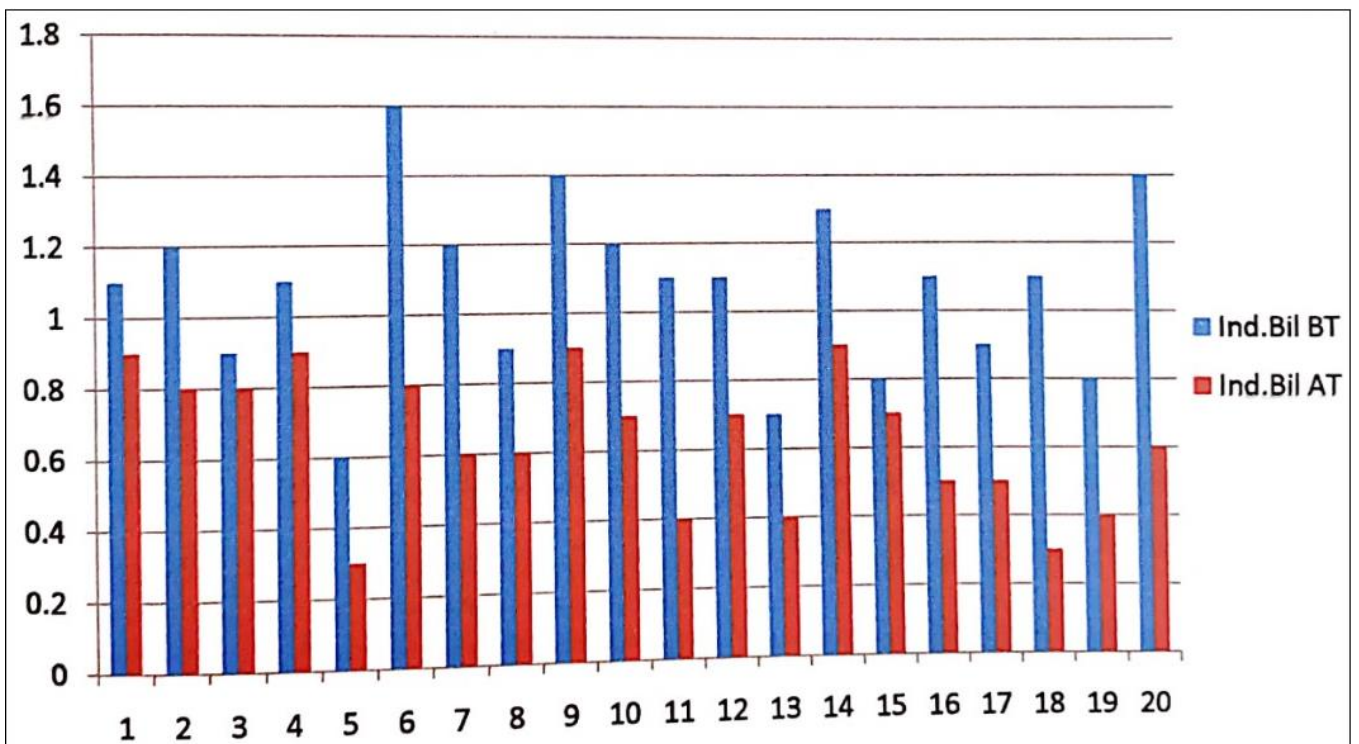


Figure 2: Indirect Bilirubin levels before and after intervention

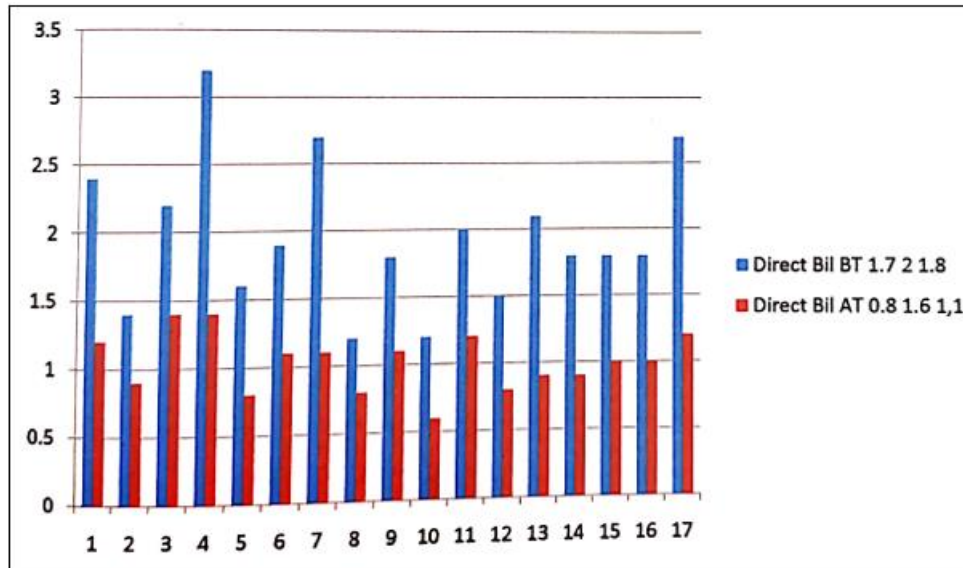


Figure 3: Direct Bilirubin levels before and after intervention

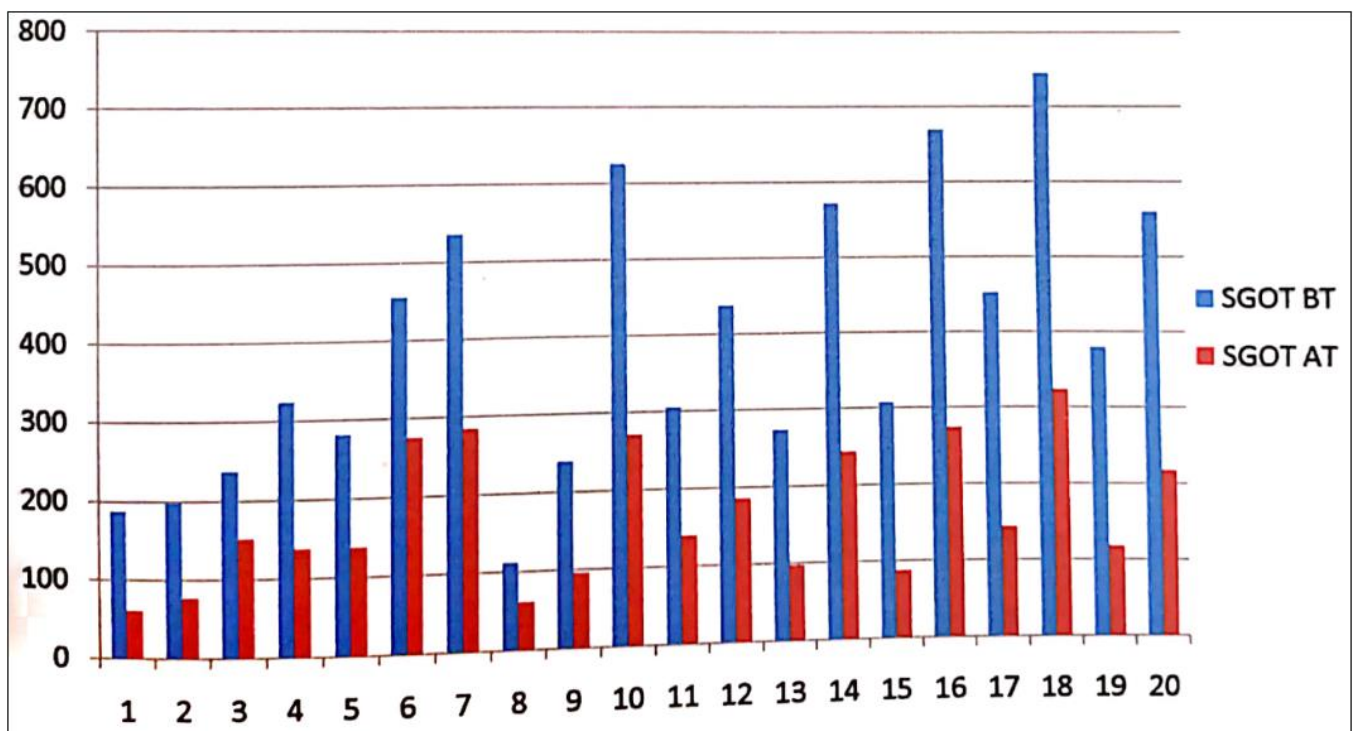


Figure 4: SGOT levels before and after intervention

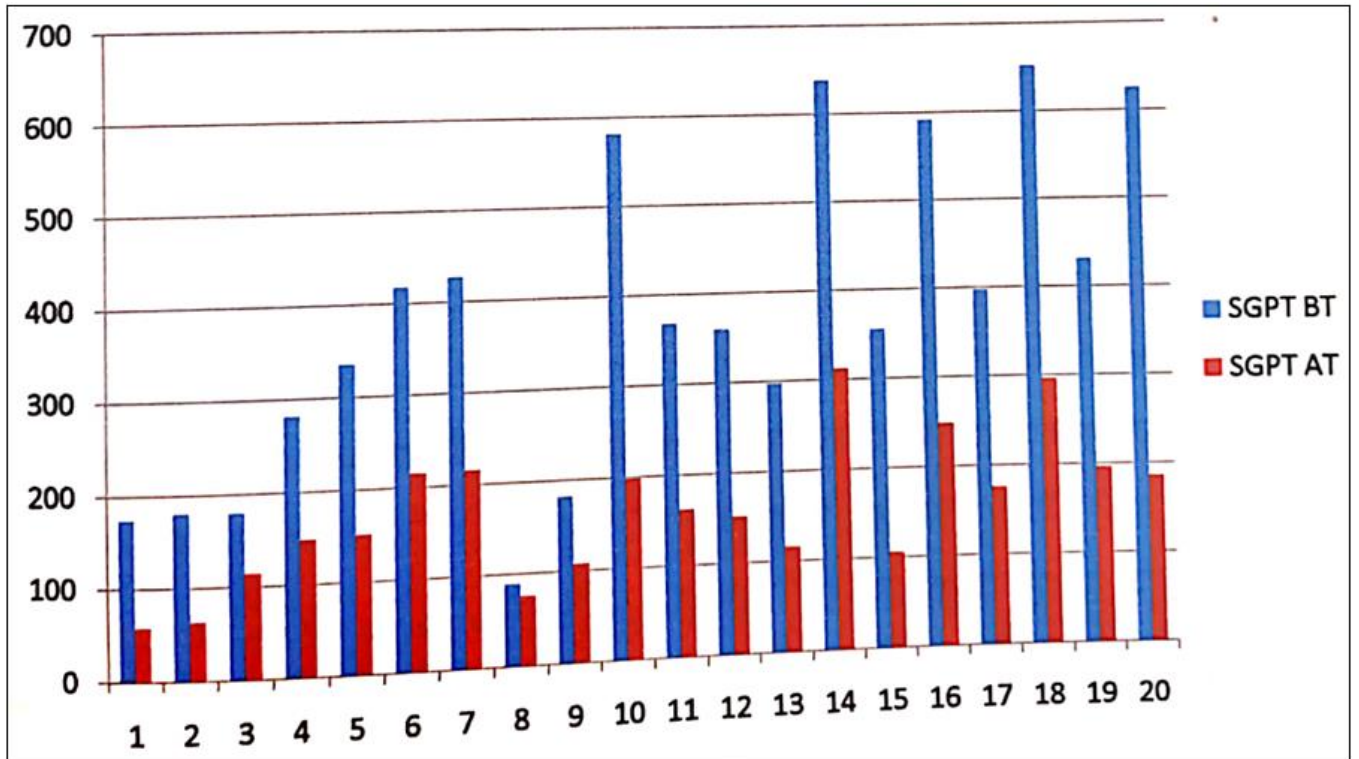


Figure 5: SGPT levels before and after intervention