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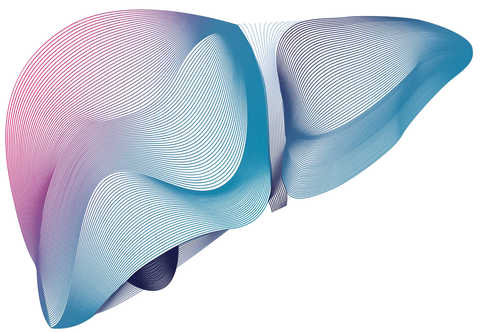
# Hepatotoxicity by stanozolol is characterized by high levels of bilirubin,mildly elevation of aminotransferases and near normal GGT levels



# Stanozolol-induced liver injury: a peculiar biochemical profile in a series of thirteen cases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UFBA

## 1 Introduction

Anabolic androgenic steroids (AAS) are synthetic derivatives of testosterone and stanozolol is a AAS 17α-alkylated derivative, often used for aesthetic purpuse. However, the AAS process of biotransformation involves the liver and has a large potential toxicity. Frequently, the use of stanozolol occurs concomitantly with other supplements or AAS, so it is crucial to understand how the hepatotoxicity of each drug presents clinically and laboratory. Also important is knowing other aspects such as latency period and prognosis, aiming to provide the best support for each case.

The objective is to characterize patients with hepatotoxicity of stanozolol.

## 2 Method

Thirteen patients were evaluated by a group of specialists from the Latin American Dili Registry, configurating an epidemiologic, descriptive, prospective and observational study about hepatotoxic effect of Stanozolol between 2013 and 2022. The data were collected in Brazil (HC-UFBA and HC-USP), Argentina (Hospital Provincial Del Centenario-Rosário), and Uruguay (HC-Montevideo).[1,2]

## 3 Results

Nine reports of Stanozolol Induced Liver Injury were observed in Brazil, 02 in Argentina and 02 in Uruguay. All patients were males between 21-37 years old, and all of them reported use of AAS with the objective of muscular hypertrophy. About the symptoms latency period, the average was 63.2 days, and the average resolution time was 141 days. All patients presented with jaundice, pruritus and fatigue. The enzymatic pattern observed was a total bilirubin (TB) mean of 30.2 mg/dl, with 92.3% of patients presenting values higher than 9 mg/dL, a small increase of aminotransferases, which the aspartate transferase (AST) presented a mean value of 62.75 U/L, and the alanine transaminase (ALT), of 117.5 U/L. The alkaline phosphatase (ALP) was characterize by an increase in all cases with an average of 311.9 U/L, and the gama-glutamyl-transferase (GGT) was very close to normal, presenting an average of 52 U/L, in which all cases presented values bellow 100 U/L.

| Subject | Age | Sex | Latency period of time | Duration | TB | AST | ALT | ALP | GGT |
|---|---|---|---|---|---|---|---|---|---|
| | *years* | | *days* | *days* | mg/dL | U/L | U/L | U/L | U/L |
| 1 | 21 | M | 45 | 180 | 15.2 | 52 | 72 | 258 | 17 |
| 2 | 31 | M | 45 | 60 | 15 | 99 | 147 | 146 | 36 |
| 3 | 26 | M | 180 | 100 | 9.7 | 60 | 103 | 217 | 53 |
| 4 | 29 | M | 15 | 180 | 15.7 | 53 | 61 | 100 | 75 |
| 5 | 29 | M | 30 | 120 | 45 | 38 | 50 | 139 | 71 |
| 6 | 25 | M | - | 90 | 31 | 47 | 49 | 250 | 45 |
| 7 | 22 | M | - | - | 21 | 48 | - | 241 | 80 |
| 8 | 29 | M | 45 | - | 36 | - | 46 | 319 | 13 |
| 9 | 37 | M | 45 | 180 | 44.3 | 105 | 98 | 281 | 89 |
| 10 | 31 | M | 50 | - | 32 | - | 98 | 775 | 42 |
| 11 | 37 | M | 80 | - | 5,1 | - | 355 | 253 | 51 |
| 12 | 36 | M | 99 | - | 38 | - | 104 | 689 | 52 |
| 13 | 26 | M | 62 | 218 | 49 | - | 228 | 387 | 22 |

## 4 Conclusions

Liver injury induced by stanozolol was found in a population of young men, who have aesthetic purpose. These patients have high levels of total bilirubin, modest aminotransferases elevations and the GGT level was very close to the normal.

## 5 Acknowledgements


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## 6 References


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