

## Short Communication

# Some hematological and biochemical parameters in smokeless tobacco (Jharda) chewers

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**The effect of Jharda powder (smokeless tobacco) on some hematological and biochemical parameters in consumers was investigated. Hematological parameters including hemoglobin content and white blood cell and leukocyte counts were higher in jharda powder consumers, while monocytes and basophiles counts were lower. Higher biochemical parameters like serum cholesterol, glucose and protein were observed in blood samples of Jharda consumers.**

**Key words:** Jharda powder, hematological and biochemical parameters.

## INTRODUCTION

The use of tobacco as drug substance has been used throughout the world although it has dangerous effect on human health (Idris et al., 1998). Nicotine is used in different forms including smoking and smokeless tobacco (ST). Most of the educated and uneducated young peoples are addicted to Jharda powder (ST) in India. Basically nicotine tobacco is used to prepare chewing tobacco (Jharda). Their leaves are powdered and mixed with lime. This mixture is packed in 9 g/packet and sold in local groceries. The ready availability and the inexpensive price give rise to high consumption of chewing tobacco (ST). Although never been studied before, prevalence of ST is thought to be highly common. This simply readily available powder is placed between lower labile mucosa and gingival for about 5-10 min and then spit out. The mixture is used 1-2 packets (6-9 times per day) 2-3 g for each time. An attempt was made in the study to evaluate the effect of smokeless tobacco (Jharda) on hematological and biochemical parameters in Jharda chewers.

## MATERIALS AND METHODS

Blood and serum samples were collected from persons of different age groups who are consuming jharda 10-12 g/day for a period of 3-4 years. The blood samples were used for hematological and biochemical studies. The blood samples were centrifuged at 2000

rpm for 20 min and plasma was separated. Hematological parameters such as hemoglobin, red blood cells and leukocyte types percents (white blood cells, neutrophils, lymphocytes, and basophils) were estimated with an automatic electronic blood count analyzer (Cell Dyne 3700, Abbott diag. USA). The biochemical parameters including serum cholesterol, blood glucose and serum protein were measured by the methods of Allain (1974), Tindler (1969) and Lowry et al. (1951), respectively.

## RESULTS AND DISCUSSION

Smokeless tobacco (Jharda) consumers and control group's erythrocyte parameters and leukocyte cell counts are listed in (Table 1). In Smokeless tobacco [Jharda] consumers, hemoglobin percentage was significantly lower than the control (Table 1). But this trend was reverse in case of white blood cell count (WBC). The WBC counts increased from 5.2 to 9.8 in ST consumers compare to the control (Table 1). The total leukocytes counts including neutrophils and lymphocytes counts also increased than control ST consumers (Table 1). Similar reports were observed by (Metin et al., 2004). According to these workers, due to consumption of smokeless tobacco, the total blood RBC, monocytes and platelets counts decreased. The lymphocytes counts also increased with ST consumers. With increasing age of ST consumers, RBC count also decreased (Table 1). Similar reports were made by Metin et al. (2004) who observed that Maras powder consumers (smokeless tobacco) have increased WBC counts, and decreased neutrophils lym-

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**Table 1.** Erythrocyte parameters in Jharda chewers. Jharda powder smokeless tobacco

Parameter	Age										
	Control	16	18	20	22	24	26	30	32	34	36
WBC (k/ $\mu$ l)	6.7	9.8	9.5	5.6	8.6	7.8	7.2	9.2	9.8	7.8	5.2
Neutrophil (%)	54.5	68	61	57	57	64	52	56	56	62	58
Lymphocyte (%)	33.5	29	25	30	41	37	30	35	41	35	34
Basophil (%)	1%	00	00	00	00	00	00	00	00	1%	00
RBC (M/ $\mu$ l)	4.5-5.0	3.0	4.6	3.6	4.1	3.5	4.0	5.0	4.9	2.8	4.1
Hgb (gm/dl)	15.08	8.9	13.4	10.4	13.2	10.4	12.0	10.0	9.2	8.4	11.5

Values represented in the table are the mean of duplicates.

**Table 2.** Effect of some biochemical parameters in blood samples of Jharada chewers.

Parameter	Age										
	Control	16	18	2	22	24	26	30	32	34	36
Serum protein (g/dl)	6.8-8.0	6.7	6.0	6.0	6.3	6.5	6.1	5.5	6.3	6.3	6.6
Blood glucose (mg/dl)	80	70	86	124	60	86	88	96	104	124	108
Cholesterol (mg/dl)	131.4	135	140	150	144	192	180	158	186	214	196

Values represented in the table are the mean of duplicates.

phocytes and basophils. Some other studies (Friedman et al., 1973; Sopori, 1998; Metin, 2004; Murat et al., 2006) reported that usage of ST, leukocytes counts were found significantly high.

The effect of ST on biochemical parameters studied is shown in Table 2. The higher level of serum cholesterol and blood glucose, low serum protein levels in ST consumers might be due to the smokeless tobacco. Effraim et al. (2000) reported that usage of nicotine like products caused adverse effects like hyperglycemia and hypho-cholesterol in blood system.

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