



CODEN (USA): IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**Available online at: <http://www.iajps.com>

Research Article

**ANEMIA IN PATIENTS WITH TYPE 2 DIABETIC PATIENTS**<sup>1</sup>Dr. Mukhtiar Hussain Jaffery, <sup>1</sup>Dr. Majid Ali Soomro, <sup>1</sup>Dr. Salma Kadir,<sup>2</sup>Dr. Hamid Nawaz Ali Memon, <sup>3</sup>Dr. Samar Raza, <sup>3\*</sup>Dr. Asim Munir Memon<sup>1</sup>Liaquat University of Medical and Health Sciences (LUMHS) Jamshoro<sup>2</sup>General Practitioner MBBS, MRCGP [INT], Global Medical Solutions Zayed Military Hospital Abu Dhabi, United Arab Emirates<sup>3</sup>Liaquat University Hospital Hyderabad / Jamshoro**Abstract:****OBJECTIVE:** To determine the frequency of anemia in patients with type 2 diabetic patients.**PATIENTS AND METHODS:** The six months hospital based cross-sectional multidisciplinary and multicenter study (January 2017 to June 2017) was conducted at tertiary care hospitals and the data was also recruited from few private hospitals. All the patients presented with type 2 diabetes mellitus were recruited and studied. After taking clinical history, physical examination and routine investigations, the patients were explored for anemia by taking 2 cc venous blood sample and sent to laboratory for analysis to estimate the hematological parameters whereas the frequency / percentages (%) and means  $\pm$ SD computed for study variables.**RESULTS:** During two year study period total fifty patients were explored and study. The mean  $\pm$  SD for age (yrs) of population was 51.31 $\pm$ 6.21. Regarding gender male 17 (34%) and female 33 (66%), residence as urban 20 (40%) and rural 30 (60%), glycemic control as good 15 (30%) and poor 35 (70%), smoking as 30 (60%), alcohol as 18 (36%), hypertension as 32 (64%) and anemia as 34(68%) respectively.**CONCLUSION:** The study found anemia in diabetic patients with poorly controlled diabetes.**KEYWORDS:** Diabetes mellitus, Anemia and Type 2 Diabetes mellitus.

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Please cite this article in press as Asim Munir et al, **Anemia In Patients With Type 2 Diabetic Patients**, Indo Am. J. P. Sci, 2017; 4(05).

**INTRODUCTION:**

Diabetes is a highly disabling disease causes blindness, amputations, renal disease, anemia, and brain and cardiovascular complications and impaired the quality of life.<sup>1</sup> Diabetes is considered a major source of death, because of the increased risk for developing cardiovascular diseases due to disturbances in serum cholesterol and triglycerides.<sup>2</sup> Hyperglycemia has a direct relationship with the development of an inflammatory condition showed by the increased expression of proinflammatory cytokines such as IL-6 and TNF- $\alpha$ .<sup>3</sup> By increasing IL-6, antierythropoietic effect occurs, since this cytokine changes the sensitivity of progenitors to erythropoietin (erythroid growth factor) and also favours apoptosis of immature erythrocytes causing further decrease in the number of erythrocytes and consequently causing a reduction of hemoglobin.<sup>4</sup> Anemia represents an emerging global health problem that negatively impacts quality of life and requires an ever greater allocation of healthcare resources.<sup>5</sup> Thus, the present study determines the frequency of anemia in type 2 diabetes and explores its correlation with demographical and clinical profile of the diabetic patients.

**PATIENTS AND METHODS:**

The six months hospital based cross-sectional multidisciplinary and multicenter study (January 2017 to June 2017)) was conducted at tertiary care hospitals and the data was also recruited from few private hospitals. All the patients presented with type 2 diabetes mellitus were recruited and studied while the exclusion criteria were patients with type 1 diabetes mellitus, connective tissue and autoimmune disorders, hematological malignancies, pregnant and lactating women, already on anti-inflammatory medication, antibiotics, corticosteroids, immunosuppressive drugs and the subjects on iron, vitamin B12 and folic acid supplements. After taking clinical history, physical examination and routine investigations, the patients were explored for anemia by taking 2 cc venous blood sample and sent to laboratory for analysis to estimate the hematological parameters. The data was collected on pre-designed proforma and analyzed in SPSS to manipulate the mean  $\pm$  SD, frequencies and percentages.

**RESULTS:**

During two year study period total fifty patients were explored and study. The mean  $\pm$  SD for age (yrs) of population was 51.31 $\pm$ 6.21. The demographical and clinical profile of study population is presented in Table 1.

**TABLE 1: THE DEMOGRAPHICAL AND CLINICAL PROFILE OF STUDY POPULATION**

Parameter	Frequency (N=50)	Percentage (%)
<b>AGE (yrs)</b>		
20-29	02	4.0
30-39	10	20
40-49	15	30
50-59	13	26
60+	10	20
<b>GENDER</b>		
Male	17	34
Female	33	66
<b>RESIDENCE</b>		
Urban	20	40
Rural	30	60
<b>GLYCEMIC CONTROL</b>		
Good	15	30
Poor	35	70
<b>SMOKING</b>		
Yes	30	60
No	20	40
<b>ALCOHOL</b>		
Yes	18	36
No	32	64
<b>HYPERTENSION</b>		
Yes	32	64
No	18	36

<b>ANEMIA</b>		
Yes	34	68
No	16	32

### DISCUSSION:

Diabetes mellitus are twice more likely to be prone to anemia than non diabetic population. Identification of anemia as a risk factor for cardiovascular and end-stage renal diseases in diabetic patients is also reported by Bosman DR, et al<sup>6</sup> while Keane WF, et al proved that reduced hemoglobin level labeled diabetic patients at increased risk for hospitalization and mortality.<sup>7</sup> The prevalence of anemia in current study found to be 68% which is consistent with the prevalence reported by Sharif et al as 63%.<sup>8</sup> It has been observed that the prevalence of hypertension is higher in diabetic anemic patients and is of concern that hypertension in diabetes increases the risk of cardiovascular complications.<sup>9</sup> The possible reason for higher prevalence of anemia in females might be due to poor diet, less importance given to own health because of lack of empowerment and can be improved by educational interventions such as health awareness programs in the rural areas, provision of iron rich food supplements, prescription of vitamin and iron supplements and knowledge about the diabetes and its complications.<sup>10</sup>

### CONCLUSION:

The study found anemia in diabetic patients with poorly controlled diabetes, thus the awareness should be given to diabetic patients for the hematological disturbances in diabetes mellitus.

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