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DETERMINATION OF PATIENT IN THE SEVERE DISEASE AND DISORDERS ON COMPLETE BLOOD COUNT TEST AND BLOOD SUGAR ANALYSIS

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Abstract:

It is offered an update on the worldwide burden of disease caused by the environment. To demonstrate the potential health impact of environmental actions, the study focuses on modifiable risks. The patient database and samples were collected in and around Erode and analyzed at the KMCH Hospital's clinical lab (District). The current study focused on identifying patients with severe diseases and problems, whether they were female or male. In males, the standard deviation in WBC, HB, and platelet count is high (4539, 2.146, and 92409), but in females, it is low (3248, 3248&77080). The mean standard deviation error in female and male blood sugar analysis is reported. Female blood sugar tests are higher in comparison to male blood sugar tests, with fasting blood sugar of 55.08, the postprandial blood sugar of 90.71, and random blood sugar of 78.83 whereas for male blood sugar levels are 50.12 during fasting, 85.84 at postprandial, and 69.97 at random. Reduced environmental dangers could prevent nearly a quarter of the world's illness burden. This analysis reveals that removing hazards and decreasing environmental risks will have a significant positive impact on our health, will help to achieve the recently agreed-upon Sustainable Development Goals, and will necessitate intersectoral collaboration to be doing well.

Keywords: Environment; WBC; public health; fasting blood sugar and random blood sugar.

1. Introduction

Various environmental variables have been identified as affecting our health. The contribution of our contemporary environment to our total illness burden (morbidity and mortality) is likely decreased to a few percent due to better control of these environmental elements and stronger environmental regulations focused on safeguarding population health. Smoking, eating, alcohol, and exercise are all lifestyle factors that are thought to have a greater impact on health. DALYs are a measure of the number of (possible) healthy life years lost in a population due to premature mortality or morbidity, with the latter being weighted for the severity of symptoms. Murray and Lopez (1996) were the first to establish the notion as part of the World Bank's Global Burden of Disease study. Many variables influence environmental health, including economic expansion, population increase, and mobility (World Resources Institute, 1998). Transportation, manufacturing, energy, and agriculture are all seeing increased demand as a result of economic and demographic growth. As a result, the region's quality of life suffers from increased noise and air pollution (Knol AB and Staatsen BAM, 1980-2020).

Environmental difficulties are intimately linked to modern human common diseases such as cardiovascular disease, metabolic disease, neurodegenerative disease, and cancer. While new types of environmental disease, such as Sick Building Syndrome and antibiotic-resistant infections, are emerging, traditional environmental "enemies," such as air pollution, are becoming more challenging. Air pollutants, mostly originating from stationary and traffic-related combustion sources, have continuously been linked to elevated incidence of cardiovascular and metabolic disorders such as heart attack, stroke, and type-2 diabetes mellitus in epidemiological and animal model studies (Kezhong Zhang, 2016).

The diagnosis of an illness is the prognosis of the condition's likely outcome. Diagnoses might differ significantly between diseases and, of course, treatment can have an impact. As a result, while presenting a prognosis, it's important to know whether the condition is progressing normally or whether medical or surgical intervention is required.

We must identify the direct and indirect effects of various types of food on our communities, as well as the direct and indirect consequences for human health based on harm to physical and mental reasons (Susan Clayton Whitmore-Williams, 2017).

The link between disease and environmental dangers emphasizes the importance of environmental protection for people's health and can help prioritize environmental factors for targeted management. Household air pollution, contaminated drinking water, and poor sanitation, and personal hygiene are still common environmental concerns that lead to infectious diseases, particularly in children.

Other community risks; our analysis covers a broader range of environmental risks associated with poor housing, the recreational environment, water resource management, land use, and the built environment; other environmental risks associated with poor housing, the recreational environment, water resource management,

land use, and the built environment; other environmental risks associated with poor housing, the recreational environment, water resource management, land use, and This study took into account a large number of environmental risk factors and risk factor-disease linkages to indicate that lowering environmental exposures can considerably enhance human health and is crucial for achieving the diseases.

2. Materials and methods

The patient database and samples were collected in and around Erode and processed at the KMCH Hospital's clinical lab (District). The current study focused on identifying patients with severe diseases and problems in females or males.

Survey of Patient Details:

1. 315 patient data were collected in KMCH Hospital, Erode.
2. Register the patient details such as (Name, Age, Contact Number, Gender, and Test Details).
3. Analysis of biochemical test in prescription

The present study deals with the patient to diabetes mellitus, lipid profile, kidney function test, liver function test, and complete blood count test to analyze data format.

Requirements of Materials

- Syringe (2ml or 2.5ml)
- Cotton and spirit
- Tourniquet
- Sample container in blood

Figure: 2 Materials for Blood Collection

Table-1 Show the use of additive tubes

TUBE ADDITIVE	TUBE CAP COLOUR	SAMPLE	PURPOSE
None	Red	Serum	Clotting process using lipid profile test, kidney function test, Liver function test.
EDTA (Ethylenediaminetetraacetic acid as sodium or potassium salt)	Lavender	Plasma	Non-clotting process Using CBC test
Sodium fluoride/potassium Oxalate	Gray	Plasma	Using the blood sugar test

Phlebotomy

The blood sample is drawing from a blood vessel for clinical chemistry testing; blood is usually drawn from a vein.

Sample Collection

Blood (whole blood, serum, or plasma), in blood collection using tubes, are red, lavender, and gray color tubes.

Centrifugation Process

The blood is collected in a tube with no anticoagulant the blood will form a clot. The clotted blood was centrifuged at 2 minutes at 2000rpm.

Testing process

In blood sugar test was tested to the biochemical analyzer is fully automated machine EM200.

In complete blood, count tests were tested using an SYSMEX machine.

Collection of Data

The tested reports are collected from the **Sree Sasthaa Microlabs** in Kavindapadi.

Data's, statistically analyzed and stored in a structural format.

All the data were taken in 315 different replicates and the standard error mean (±) was calculated. Each data was checked for interpretation whether they were statistically significant are not. the data analyzed by using the statistical method like analysis of variance (ANOVA) and 0.05 differenced @-% level was calculated as shown in the table.

3. Results and discussion

After completion of 44 days following findings were observed. Data collection details, complete blood count analysis, and blood analysis were displayed in **Table 2, 3**, and **4** respectively.

Data Collection Details

The present study patient data collection was displayed in **Table 2**

Table-2 Shows the Data Collection Details

DATE	TESTS	NO OF PATIENT DATA COLLECTION
07-1-2021 to 15-2-2021	CBC Test	85
03-1-2021 to 15-2-2021	Blood Sugar Test	150

Estimation of complete blood count test

The amount of WBC, RBC, HB, PCV, MCV, MCH, MCHC, Platelet Count, RDW-CV, RDW-SD, MPV, P-LCR, PDW, PCT, Polymorphs, Lymphocytes, Monocytes, and Basophils was estimated in whole blood.

Table-3 Result of the complete blood count analysis

COMPLETE BLOOD COUNT TEST (Total number of patient-85)					
Parameters	Gender	No of Patients with Age (yrs)			Standard Deviation &Error
		Blow 25	26 - 45	Above 46	
WBC	Female	10	22	11	3248±495.4
	Male	12	15	13	4539±700.3
RBC	Female	10	14	17	6.367±0.9943
	Male	10	14	17	0.6799±0.1062
HB	Female	14	20	11	1.684±0.2511
	Male	12	15	13	2.146±0.3312
PCV	Female	10	14	17	5.988±0.9352
	Male	10	14	17	7.586±1.185
MCV	Female	10	14	17	9.179±1.434
	Male	12	15	13	8.533±1.349
MCH	Female	10	14	17	3.404±0.5317
	Male	10	14	17	3.594±0.5613
MCHC	Female	10	14	17	2.336±0.3648
	Male	10	14	17	1.629±0.2543
Platelet count	Female	14	20	11	77080±11490
	Male	12	15	13	92409±14259
RDW CV	Female	10	14	14	2.139±0.3470
	Male	12	15	10	2.636±0.4334
RDW SD	Female	11	18	10	3.499±0.5603
	Male	10	14	17	5.484±0.9016
MPV	Female	10	14	17	0.8999±0.1405

	Male	10	14	17	1.013±0.1581
P-LCR	Female	10	14	14	7.353±1.193
	Male	11	18	10	6.658±1.066
PDW	Female	12	15	10	2.552±0.4195
	Male	10	14	17	1.739±0.2717
PCT	Female	12	15	13	0.07400±0.01170
	Male	11	18	10	0.06741±0.01079
Polymorphs	Female	12	15	13	11.13±1.717
	Male	12	15	13	14.63±2.258
lymphocytes	Female	12	15	13	12.01±1.853
	Male	12	15	13	13.96±2.154
Monocytes	Female	12	15	13	0.9699±0.1497
	Male	12	15	13	1.668±0.2574
Eosinophil	Female	12	15	13	1.106±0.1706
	Male	12	15	13	3.549±0.5476
Basophils	Female	12	15	13	0
	Male	12	15	13	0

The given results show complete blood count test in WBC, HB, Platelet count is in male standard deviation is high in male (4539, 2.146 & 92409) and compared to female is low (3248, 3248&77080).

The outcome of an individual analysis will explain clearly the factors that led to the specific patient injury. In the event of patient safety concerns, statistics-based techniques applied to large datasets provide a generalized preview of risk indicators. When we talk about reporting structures, we should think about how they might provide useful data to help improve healthcare procedures while also guaranteeing that all users are protected by principles like privacy, anonymity, and data security. These are divided into two categories based on participation criteria: mandatory reporting systems and voluntary reporting systems. Compulsory systems are usually connected with government agencies and can result in incorrectly reported events (Rhoda Kainyu Munene *et al.*, 2018).

Blood Sugar Analysis

The amount of fasting blood sugar, postprandial blood sugar, and random blood sugar was estimated using a serum sample.

From the below figures the values of blood sugar test and complete blood count are given as standard deviation ± standard error.

The results were shown in table-4 and figure-3.

Table-4 Result of the blood sugar analysis details

SUGAR TEST (Total Number Of Patient-150)					
Parameters	**Gender**	**No of Patient with Age (yrs)**			**Standard Deviation &Error**
		Blow 25	**26 to 45**	**Above 46**	
Fasting blood sugar (70 - 120 mg/dl)	Female	13	18	15	55.08±6.820
	Male	10	24	20	50.12± 6.820
Postprandial Blood sugar(100 - 140mg/dl)	Female	11	29	5	90.71±12.46
	Male	09	28	17	85.84±9.311
Random blood sugar (70 - 130 mg/dl)	Female	5	7	5	78.83±19.12
	Male	4	9	11	69.97±18.70

The given results show higher in female blood sugar mean standard deviation ±error is given fasting blood sugar is 55.08, postprandial blood sugar is 90.71 and random blood sugar is 78.83 and then compared to male blood sugar test are lower in female blood sugar test is given fasting blood sugar is 50.12, postprandial blood sugar is 85.84 and random blood sugar is 69.97.

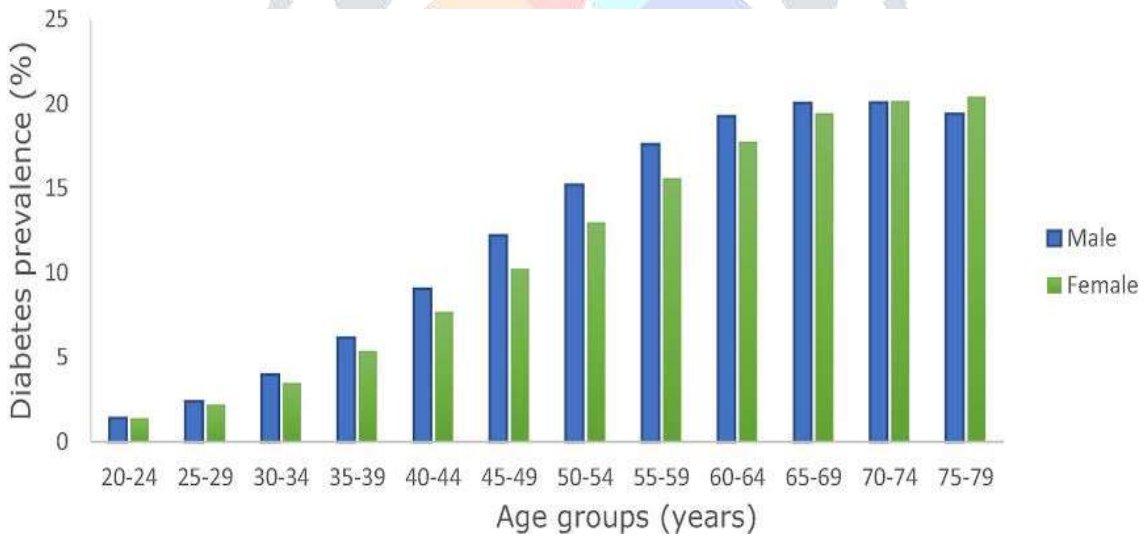

Fig 3: Estimation of fasting blood sugar, postprandial blood sugar, and random blood sugar

The world population continues to age rapidly, the trend of environmental risks predominantly affecting non-communicable diseases is expected to become more pronounced. In these high-evidence assessments, exposures are being assessed at country level or higher resolution, such as by age and gender to the extent possible and where appropriate, and the transferability of exposure-risk relationships to other population groups than where assessed are being verified or adjusted. The risks comprise unsafe water,

sanitation, and hygiene; air pollution (ambient particulate matter, ozone, and household air pollution); second-hand smoke; lead and residential radon exposure; and occupational risks (Prüss-Ustün J. Wolf *et al.,* 2016).

4. Summary and conclusion

Environmental health suffered most from health sector-specific functions such as monitoring, surveillance, maintain hygiene, controlled pollution, sanitation free zone but for the actual interventions, the health sector will have to create the enabling environment for intersecting oral action. Many interventions can be cost-effective and have welfares beyond improving people's health, benefits such as helping to ease lack and reducing gender variations.

Approximately an area of overall disease problem could be prevented by dropping environmental risks. This study survey and analysis confirms the eliminating hazards and reducing environmental risks will resolve our health, will contribute to attaining the recently agreed Sustainable. So the progress Goals and will systematically require intersectoral collaboration to be successful. Global partnerships need to be supported and reinforced, connecting the full range of policy tools, strategies, and technologies that are already available to achieve the interrelated goals of health, environmental sustainability, and development.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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