

A study of nail growth in diabetics

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Abstract

Background: It has been reported in many studies that nail growth is affected in Diabetes. A recent study was done in India which has postulated that the nail growth in Diabetes was more when compared to the normal subjects. This study puts in an effort to find the answers.

Aims and Objectives: To determine the nail growth rate in diabetics.

Materials and Methods: This study was started in Feb 2019 to Jan 2022 Mata Guruji Memorial Medical College and Hospital, Kishanganj, Bihar and Hind Institute of Medical Sciences, Mau, Ataria, Sitapur. Chitrapati Shahu Ji Maharaj University, Kanpur.

Total of 211 patients were studied and have been reported.

This study is a cross sectional study.

Two hundred eleven patients were studied. Out of this 100 were from Mata Guruji Memorial Medical College and Hospital, Kishanganj, Bihar and the rest of them were from Hind Institute of Medical Sciences, Mau, Ataria, Sitapur. Chitrapati Shahu Ji Maharaj University, Kanpur.

Results: The rates of the nail growth were found to be less when compared with normal rates of growth that has been given in the textbooks.

Conclusion: This can be considered as a useful tool in the hands of paramedical workers especially in the underprivileged areas.

Keywords: Nail growth, diabetes, rate, cases and controls

Introduction

It is a well-known fact that without checking the hands a clinical diagnosis would be incomplete. According to an author the hand gives more clinical information than any other organ in the body ^[1]. Cutaneous manifestations in diabetes has been reported world-wide and many authors have reported this ^[2]. The growth of any part of the body in physical proportions will depend on the nutrition and external environmental factors. The genetic background is also supposed to be mentioned in here. The normal growth of finger nails as documented by many researches is 0.5 mm per week and that roughly translates to 2 to 2.5mm per month. There are a lot of authors who have reported that the finger nails on all

fingers do not grow on similar scales and there is a minute yet different rate of growth [3, 4, 5, 7]. Some authors have reported that the growth rate of the nails was the same and is about 0.1mm per day [6]. So there is a lot of range to be considered about. There are reports that as the individuals grow old the rate of growth decreases [8]. Some also have reported that there is some individual personality type, in whom there is a nail growth sprout. The individuals who have very shy and nervous by nature and have a tendency to bite their nails have greater nail growth rates. People who live in low altitude, regions where temperatures are recorded higher and people who live towards the equator have high growth rates when compared to their counterparts [9]. Hyperaemias, pregnancy to name a few are known to have high growth rates and infections especially the viral infections have less nail growth rates when compared to others [10]. Other metabolic disorders have an inverse relation with the nail growth [9, 10]. Now why this is caused would be the question? There are no definite answers for this, as many theories have been postulated by various authors. The metabolism may be altered as hypothesised by one of the author [11]. Another noted hypothesis can be because of the leakage of the plasma proteins due to high capillary leakage which is very common in diabetes. This may cause an exponential growth in connective tissues [12]. This study puts in a sincere effort to find the rate at which the nail grows in the hand.

Aims and Objectives

To determine growth rate in the nails in the diabetics.

Materials and Methods

This study was started in Feb 2019 to Jan 2022 Mata Guruji Memorial Medical College and Hospital, Kishanganj, Bihar and Hind Institute of Medical Sciences, Mau, Ataria, Sitapur. Chitrapati Shahu Ji Maharaj University, Kanpur.

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Patients who were known diabetics and had no secondary complications were taken up for the study. These patients attended the OPDs in the Department of General Medicine.

Inclusion criteria

- Cases were selected who attended the OPD in the Department of General Medicine.

Exclusion criteria

- Those who did not consent.
- Those whose nails of index fingers were not anatomically correct.
- The diabetics who were having complications.
- Any complications of the nails, infections were excluded.
- Subjects who were immuno-compromised or on immune modulator drugs.

Procedure

First a line was marked at the base of the nail with a permanent marker or India ink. Then at

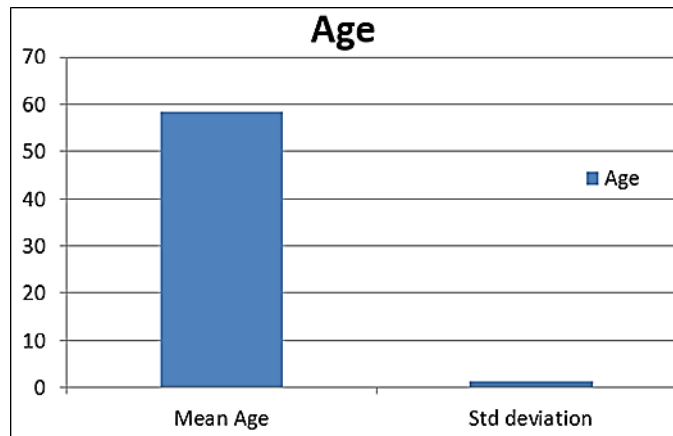
the end of one month the measurement was taken from the initial point and has been reported. The students who were posted were also allotted one case and the responsibility of the measurement was given to them.

All the measurements were compiled in an excel sheet.

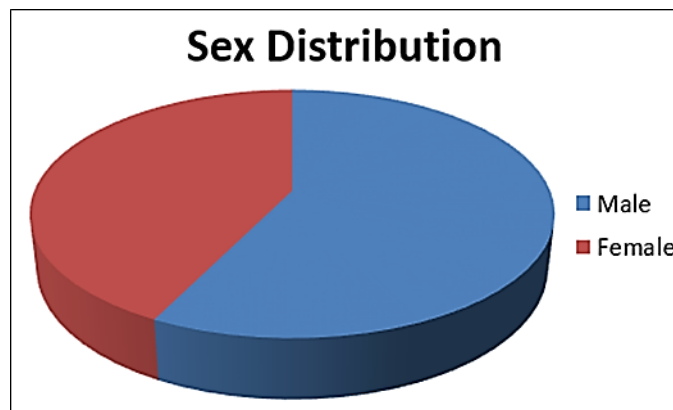
Statistical analysis

Descriptive statistics.

Results



Graph 1: Age Distribution



Graph 2: Sex Distribution

Table 1: Unpaired t test of the nail growth between the two groups

Finger nail growth rate (mean in mm/month)	Male	Female
3.58	3.48	3.68
Variance	0.221097	0.141127
Pooled Variance	0.18	
T test	Not Sig (>0.005)	

- No significant difference between the two sexes.

Discussion

Table 2: When compared to a study conducted by another author ^[13]

t-Test: Two-Sample Assuming Equal Variances		
	Group 1	Our group
Mean	3.590764	3.58
Variance	0.221097	0.18
Observations	314	211
Pooled Variance	0.18	
p-value	Not significant	

We are in absolute agreement with the study conducted by another author ^[13]. But the study did not try to find out the difference in the sexes which our study does and we found that there are no significant differences. Diabetes is a metabolic disorder and there are two types. Type 1 is associated with the lack of insulin production and the Type 2 is basically the receptors in the body will not be sensitive to insulin. There are a plethora of changes which are bound to happen due to this metabolic mismatch. But according to some studies it has been found that, by the time the patients reach the Doctor's office the complications may have already started and this complicates the treatment adding to the stress and strain of the disease. But is there a way to identify this metabolic disorder early? Is there any manifestation which points out towards this disease? It is a well-known fact that without checking the hands a clinical diagnosis would be incomplete. According to an author the hand gives more clinical information than any other organ in the body. The nails of the fingers as always thought by our clinical teachers should be looked at and it would give us a plethora of clinical information. The colour, shape, texture and some specific features have been constantly associated with diseases. This information in some has been lifesaving as it was associated in very early stages of the disease. It is known to reflect on the normal physiology of the body as well as the deep seated pathologies also. Some studies have been pointed out towards the more growth rate of the integument system. So this study puts in a novel effort to find, if there are any differences in the growth rate of the nails of fingers in diabetics.

Conclusion

This study gives us conclusive evidence that the nail growth in diabetics is higher when compared to the normal population. This knowledge can be used to save precious time in the overburdened health care workers office.

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