The comparative study of skin sebum content in twaksara-asarta

Nikhate Sunil P*1, Sant Sampada S2

1. Assistant Professor, Smt. Vimaladevi Ayu. Medical College, Chandrapur.
2. Professor & H.O.D., Government Ayurved College, Nanded

Department of Kriyasharir

*Corresponding Author- dr.spnikhate@gmail.com; Mob. No- 07709894762

ABSTRACT:-

In this study, we have tried to interpret this ancient concept of Twaksara in term of modern physiology. Characteristics of Twaksara mentioned in Ayurveda Samhita related to healthy skin and hair. Sebum is also important for maintenance of healthy physiological state of skin.

In the present work, 100 volunteers are selected. They were between the age group of 20 – 30 yrs & irrespective of sex. Twaksara Parikshana of an individual is done by sing the standard Proforma of characteristics described in Ayurved samhita. Categorization of volunteers is done in two groups i.e. 50 volunteers of Twaksara (Pravara) and 50 volunteers of Twak-Asara (Avara). Skin sebum is the main objective parameter of the study. So that skin sebum content of forehead in each individual is measured with the help of skin sebum application module. Statistical analysis of skin sebum content in Twaksara-Asarata group is made and significance is experienced by using ‘Z’ test.

In Twaksara individual range of skin sebum content is 93.014% ±7.67%, whereas in Twak Asara individuals it is 57.542 ±14.14%. Statistically, there is significantly difference in skin sebum content due to Twaksara-Asarata. There is positive correlation between Skin sebum content and characteristics of Twaksara-Asarata.

So, here an effort is made to find relation between Twaksara and skin sebum content. Hence skin sebum content of forehead skin can be used as one of the parameter for Twaksarata Parikshana.
KEYWORDS: Dhatu, Rasadhatu, Skin, Skin sebum, Twaksara,

INTRODUCTION:-

Ayurveda is an old science of health which emphasize on the health than cure. Ayu (life) is the conjunction of the body, soul, mind and senses. Each has been given appropriate importance in the maintenance of health, along with prevention and cure of the disease.

_Dosha-Dhatu-Mala_ is the fundamental concept of Ayurveda as the prime constituents of the human body. The physiology and pathology of Ayurveda revolves around these three, as these are considered as base of the body like root for the plant. Although each and every person is made of the same fundamental entities as mentioned above, there are individual variations in the functions as well as structural components of Sharira. The state of _Dosha Dhatu Mala_ is dynamic. If there is any disturbance in this equilibrium state, it will lead to development of diseases.

Among these entities _Dhatu_ are very important, which perform functions of _Dharana_ and _Poshana_. In order to evaluate _Bala_ of these _Dhatu_, Charakacharya mentioned tenfold examination of individual. Out of these, _Sara parikshana_ is one. By examining the state of _Dhatusarata_, we can assess _Dhatu_ for its qualitative and quantitative state. Due to the fact, function of _Rasadhatu_ is best manifested by _Twacha_. The main function of _Rasadhatu_ is _Prinana_ (gratifying the body) that is maintaining nutritional healthy state of the body.

_Twaksara Purusha_ is characterized by unctuous, smooth, soft, fresh, thin, naturally glow skin, and skin free from diseases. _Loma_ are numerous, fine, deeply rooted, soft, silky and lustrous. Such individual endowed with happiness, good fortune, prosperity, enjoyment, intelligence, knowledge, skin health and freshness. All these characteristics of skin reflect the healthy physiological state of the body.

Sebum is an oily secretion of sebaceous gland which is mixture of free fatty acids, wax ester, Squalene, cholesterol, and organic salts. It plays important role in reduction of water loss from skin surface. It keeps skin soft, pliable and contributes to body odour. It protects skin from the infection of bacteria and fungi. Thus, we can say that skin sebum is one of the most important factors to maintain healthy skin.

Now a day’s people are coming back to the nature from synthetic. In last decade only female was conscious about their skin health. Now male also became conscious for the same. We found that multiple cosmetic products are coming in the market, and advertisement attracts people toward them. People use those products by ignorance, without knowing quality that products and status of skin.
these factors lead to several skin related problem.

By the knowledge of skin sebum and Twak sarata we know which type of foods and drinks are beneficial for skin, what kind of cosmetics are appropriate to maintain healthy skin. Knowledge of Twaksarata is also helpful in observation of health status, diseases susceptibility, and preventing and promoting Asara state of skin.

The principles of Ayurveda are based on firm experimental studies of several years. These principles have been placed in Ayurved Samhita. Its unique principles that have remain unchanged till date. The amazing journey of Ayurveda from its divine origin to the present day has left us wondering about the enormous. Ayurveda classics always emphasized the need of advancement in the science to keep pace with need of the time. Characteristics of Twak Sara mentioned in our literature are qualitative. So there is need to adopt such a method which measures quantitative and co-inside with our ancient concept of Twak Sarata.

The present work entitle “The comparative study of skin sebum content in Twaksara- Asarta” was conducted to observe the physiological variation of skin sebum content in modern terms, which according to Ayurveda exist in the individuals of Twaksa. Skin sebum content was examined in this study by using Derma lab sebum application module. It is an attempt in the present work to develop an objective parameter for evolution of Twaksarata and to prove our fundamental concept of Twaksara in the term of modern science without disturbing basic principles.

AIM

- To evaluate the skin sebum content in Twaksara and Twak-Asara individuals.

OBJECTIVES:

- Find out normal range of the Skin sebum content in Twaksara and Twak-Asara.
- Establish relationship between the skin sebum content & Characteristics of Twaksarata

MATERIALS & METHODS:

1. Selection of volunteers:

a. Field of selection:-

The volunteers are selected from OPD and IPD of Government Ayurved hospital, Nanded. Some volunteers are also participated from the outside.

b. Inclusive criteria:-

- 100 healthy volunteers,
- Irrespective of sex,
- Between the ages group of 20-30 yrs
- Pravara Twaksarata & Avara Twaksarata individuals.

c. **Exclusive criteria:**
   - Individuals of Madhyam Twakasarata are avoided.
   - Persons with any systemic diseases or Skin diseases e.g. Psoriasis, Dermatitis etc. are avoided because of affecting the skin sebum. Skin diseases change the normal physiology of skin.
   - Pregnant and lactating females were avoided as progesterone level increased in pregnancy, increases sebum level.
   - Volunteer taking Bahya and Abhyantar Sneha for Shamana or Shodhana purpose was avoided as oil secretion increases.

2. **Steps of study:**

   Ethics committee’s approval was taken. Span period required for this study was from 2010 to 2012. The present work has been planned in the following steps.

1. Randomly Selection and categorization of subject is done into two group i.e. Twaksara (Pravara) and Twak-Asara (Avara) on the basis of Physical and other characteristics of Twaksara.

2. Measurement of skin sebum contents in these groups of Twaksara.

3. Comparison of skin sebum content between these groups of Twaksara.

4. Establishment of objective parameters for the determination of Twaksarata.

3. **Parameters for comparative study:**

   1. Physical and other characteristics of Twaksarata are considered as Subjective parameters for evaluation of Twaksarata-Asarata. Characteristics of Twaksarata are compiled from the various Samhita. Each characteristic of Twaksarata is examined by preparing the questionsary. With the help of Standard proforma and different examination methods, individuals are examined thoroughly for both physical and psychological characteristics of Twaksarata.

2. Skin sebum content of forehead is measured by Sebum application module/Sebum modulator of DermaLab Company.

**Procedure of the skin sebum measurement** -

1) DualTape strip was picked up an unused and inserted it into the DualTape Reader slotted with the green side facing down. The device automatically detects the presence of
the strip and performs an offset calibration before it prompts the user to perform the next step.

2) The strip was taken out and put it on the Forehead skin. Applied firm pressure and made sure that the entire sensitive area was in contact with the skin by “rolling” a finger over the back side of the sensitive area for a few seconds.

3) Re-inserted the exposed end of the strip into the reader; reading was to automatically appear on the screen. That was recorded.

**OBSERVATIONS & RESULTS:**

**Table showing means and standard deviations of skin sebum content of forehead:**

<table>
<thead>
<tr>
<th>SARATA</th>
<th>Twaksara</th>
<th>Twak Asara</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>93.014</td>
<td>57.542</td>
</tr>
<tr>
<td>S.D.</td>
<td>7.67</td>
<td>14.44</td>
</tr>
<tr>
<td>Range</td>
<td>93.014 ± 7.67</td>
<td>57.542 ± 14.44</td>
</tr>
</tbody>
</table>

From the statistical analysis of the above table it is observed that

1. In Twaksara individual, range of skin sebum content of forehead is $93.014 \pm 7.67\%$.

2. In Twak-Asara individual, range of skin sebum content of forehead is $57.542 \pm 14.44\%$.

Amount of skin sebum content of forehead in Twaksarata is high than Twak-Asarata.

**Analysis of ‘Z’ test:**

**Table showing analysis of ‘Z’ test:**

<table>
<thead>
<tr>
<th>SARATA</th>
<th>Mean</th>
<th>S.D.</th>
<th>Comb. S.E.</th>
<th>P</th>
<th>Observed ‘Z’ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twaksara</td>
<td>93.014</td>
<td>7.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Pravara)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twaka-Asara</td>
<td>57.559</td>
<td>14.44</td>
<td>2.312</td>
<td>P &lt; 0.05</td>
<td>15.33</td>
</tr>
<tr>
<td>(Avara)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

H0 = Skin sebum content is independent on Twaksara-Asarata.

H1 = Skin sebum content is dependent on Twaksara-Asarata. According to Sample size i.e. 100; ‘Z’ test is applied to determine the significance of skin sebum content in Twaksara-Asarata. The level of significance was set at 5%, $P < 0.05$. 

71
Above table show, as expected ‘z’ value for 100 volunteers at P < 0.05 is 2.05 and the observed value is 15.33.

\[ Z_{\text{calculated}} > Z_{\text{table}}, \]

So null hypothesis (H0) is rejected and Alternative hypothesis (H1) of significance difference between the mean of skin sebum content is accepted. Hence skin sebum content and Twaksara Asarata are dependent and there is significant difference of skin sebum content in Twaksara Asarata.

**Analysis of correlation:**

By studying Twaksara Asarata and skin sebum content of forehead, a correlation test is applied to prove whether there are actual changes in skin sebum content due the characteristics of Twaksara Asarata.

Table showing Correlation of Characteristics of Twaksara with skin sebum content of forehead:-

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation coefficient (r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics of Twaksara (x₁)</td>
<td>0.6397</td>
</tr>
<tr>
<td>Skin sebum content (y₁)</td>
<td></td>
</tr>
</tbody>
</table>

In the above table, Correlation coefficient (r) = 0.6397.

As the ‘r’ value is in between 0 to 1 i.e. 0 < r < 1, it is moderately positive i.e. there is positive correlation between the characteristics of Twaksara and skin sebum content of forehead.

Table showing Correlation of Characteristics of Twaka Asara with skin sebum content of forehead:-

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation coefficient (r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics of Twaka Asara (x₂)</td>
<td>0.6616</td>
</tr>
<tr>
<td>Skin sebum content (y₂)</td>
<td></td>
</tr>
</tbody>
</table>

In the above table, Correlation coefficient (r) = 0.6616.

As the ‘r’ value is in between 0 to 1 i.e. 0 < r < 1, it is moderately positive i.e. there is positive correlation between the characteristics of Twaka Asara and skin sebum content of forehead.

**DISCUSSION:**

The review of Ayurvedic literature reveals that characteristics of Twaksara show healthy status of body in the form of healthy skin, as skin is mirror of our body. Sebum is an oily secretion of sebaceous gland, composed of fat, cholesterol, protein and organic salts. Sebum also plays an important role in keeping the skin soft and elastic.

Examination of skin sebum content was selected for the study. It was hypothesized that skin sebum content is
more in Twaksara (Pravara) than in Twak-asara (Avara). For analysis this hypothesis skin sebum content in Twaksara Asarta was studied.

Skin sebum is measured with the help of skin sebum application module and reading is obtained in percentage. For measurement, middle point of forehead is selected because of cosmetic importance and convenience.

The facts which have emerged from the conceptual and experimental (applied) study have been discussed now.

Discussion of results obtained from the observation-

Age:- In this study, There is no significant variation in Twak Sarata due to the age, because of selection of volunteers from limited age groups. Sex hormone plays an important role in sebum secretion at puberty [5]. As the age enhances, skin becomes drier and losses its elasticity.

Sex:- There is no significant variation in Twak Sarata due to sex. This may be due to random sampling and small sample size.

Habitat:-There is significant variation in Twak Sarata due to Habitat, because the centre of explore work is the urban area and peoples of urban area are more aware about the good looks than in rural area.

Economic status:-There is significant variation in Twak Sarata due to economic status. It may be due to the fact that upper class population can afford the nutritious diet & Rasayana to maintain the Twak Sarata, whereas lower class population cannot afford it.

Exercise:-There is significant variation in Twak Sarata due to exercise. Exercise increases glow of the body and secretion of sweat. It also increases micro-circulation and stimulates sebaceous gland to secrete sebum.

Sleep: - There is no significant variation in Twak Sarata due to Sleep. This may be due to random sampling and small sample size. Sound sleep creates oiliness in the body.

Ahara (Diet):- There is no significant variation in Twak Sarata due to diet, because in research area, majority of mixed diet population is found.

Rasabhiruchi:- There is no significant variation in Twak Sarata due to Rasabhiruchi. But Twaksarata is commonly seen in Madhur Rasabhiruchi individuals, as it causes Sapta Dhatu Vardhana.

Addiction:- There is significant variation in Twak Sarata due to addiction, It was found that Twak Sarata is common in non addicted person, whereas Twak Asarata is common in addicted person. It may be due to Addiction constricts the blood vessels and decreases the flow of nutrients to the epidermis. It also alters sebum secretion.

Statistical analysis:-
In this study skin sebum content is main objective parameter. After statistical analysis, the present study has recognized that, there is significant difference in skin sebum content due to Twaksara Asarat. In Twaksara individuals Mean of skin sebum content is 93.014% with S.D. 7.67% whereas in Twak Asara individuals Mean of skin sebum content is 57.542% with S.D. 14.44%. After comparison of these two groups for their skin sebum content Twaksara (Pravara) > Twak-Asara (Avara)

According to Sample size i.e. 100 ‘Z’ test is used to compare two groups. To test whether the means of skin sebum content of two groups of Twaksara are differs significantly or not, ‘Z’ test is applied. As Z_calculated is greater than Z_Table at P<0.05 i.e. the present study show significantly variation in skin sebum content due to Twaksara Asarat.

In this study, Characteristics of Twaksara and Twak Asara are correlated with skin sebum content of forehead. As the ‘r’ value of the skin sebum content and Twaksara is found in between 0 to 1 i.e. 0.6397, it is moderately positive i.e. there is positive correlation between the characteristics of Twaksara and skin sebum content of forehead. As the ‘r’ value of the skin sebum content and Twak Asara is found in between 0 to 1 i.e. 0.6616, it is moderately positive i.e. there is positive correlation between the characteristics of Twak Asara and skin sebum content of forehead.

This variation in skin sebum content of two groups of Twakasara (Pravara and Avara) due to following reason:-

According to Ayurveda, Sara is the Vishuddhatar State of Dhatu i.e. excellence state of Dhatu that provide strength to the body. Healthy skin reflects the optimal nutritional state of the body. Rasasarat is best manifested by the skin. This is the only reason because of which Rasasarat is described with the name of Twak Sarata [6]. Rasa Dhatu is Aapya. The main function of Rasadhatus is Priyana (pleasing the body) i.e. maintain nutritional healthy state of the body. Sebum is oily secretion of sebaceous gland, plays important role in maintenance of skin softness and pliability. In Twaksara person, function of Rasa Dhatu and Sebum are at the best level. By considering all these things, we may assume that skin sebum content is high in Twaksara than in Twak-Asara.

CONCLUSION:

Twaksarata is seen more common in female population, whereas Twak Asarata is commonly seen in male population. Twaksarata is seen more common in urban people, while Twak Asarata is common in rural people. Twaksarata is found more common in peoples who do regular exercise, whereas Twak Asarata is commonly found in non-exercised persons. Twaksarata is
seen more common in sound sleep persons, while Twak Asarata is commonly seen in disturbed sleep persons. Twaksarata is seen more common Madhura Rasabhiruchi person, whereas Twak Asarata commonly seen in Katu Rasabhiruchi person. Twak Sarata is found more common in non-addicted person, whereas Twak Asarata is commonly found in addicted person.

Twaksara (Pravara) individuals show high skin sebum content i.e. mean 93.014 % with standard deviation 7.67 %. Twak Asara (Avara) showed low skin sebum content i.e. mean 57.542 % with standard deviation 14.44%. There is significant difference in skin sebum content of forehead due to Twaksara-Asarata. Skin sebum content of forehead is influenced by Twak Sarata.

Range of skin sebum content which is found may be use as an objective parameter for Twak Sarata Parikshana. There is positive correlation between skin sebum content of forehead and characteristics of Twaksarata and Twak Asarata.

ACKNOWLEDEMENT:

I am very grateful to Dr.Mrs.Sampada S.Sant, Professor & H.O.D., Department of Kriyasharir, Government Ayurved College, Nanded for their precious & valuable guidance. I am also very thankful to Dr. Ramesh Bansode and Dr. Jatved Pawar, Associate Professor; Department of Kriyasharir; GAC, Nanded for their support.

REFERENCES:

4. ‘Principles of Anatomy and Physiology’ by Dr. Gerard, J. Tortora and Dr. Sandra Reynolds, Chapter-, page-158,
