**INTRODUCTION**

Age determination of a person involved in judicial or legal proceedings is crucial information that helps to identify the culprit. Oral exfoliative cytology is a non-invasive, inexpensive, painless technique for the collection of intact cells from the epithelial strata. In the past, normal exfoliated cells from healthy individuals have been subjected to cytometric analysis. Hence, exfoliative cytology is an **upcoming relevant tool** for age estimation in forensic science.

**MATERIALS & METHOD**

A literature search was performed in PubMed, Scopus, and Google Scholar from 1st January 2000 to 5th September 2021 using the key words “age determination and oral exfoliative cytology/cells” and “forensics and/or healthy individuals.” A total of 7 original studies fulfilled the inclusion and exclusion criteria and are included.

<table>
<thead>
<tr>
<th>Author/ Yr</th>
<th>Sample size</th>
<th>Sample and Area of collection</th>
<th>Stain used</th>
<th>Parameters</th>
<th>Method of parameter estimation</th>
<th>Results</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anuradha A/ 2007¹</td>
<td>320 (8 groups)</td>
<td>Wet wooden spatula Attached gingiva</td>
<td>PAP staining</td>
<td>Cell &amp; nuclear diameter and N/C ratio</td>
<td>Not mentioned</td>
<td>ND, CD and N.C increased from 0-20 age to 20-40 age group.</td>
<td>No mention about the method of parameter estimation</td>
</tr>
<tr>
<td>Patel PV/ 2011²</td>
<td>80 (4 groups)</td>
<td>Interproximal brush Attached gingiva</td>
<td>PAP staining</td>
<td>Cell &amp; nuclear area and N/C ratio</td>
<td>4 smears per 50 cells per smear</td>
<td>Significant difference in NA, CA, and N/C with age</td>
<td>Small sample size</td>
</tr>
<tr>
<td>Shetty DC/ 2015³</td>
<td>100 (5 groups)</td>
<td>Wet wooden spatula Buccal mucosa</td>
<td>PAP staining</td>
<td>Cell sizes measured</td>
<td>20 cells per smear</td>
<td>Significant decrease in average cell size with advancing age</td>
<td>Did not clarify the parameter used for cell size estimation</td>
</tr>
<tr>
<td>Ilayaraja V/ 2018⁴</td>
<td>100 (5 groups)</td>
<td>Wet wooden spatula Buccal mucosa</td>
<td>PAP staining</td>
<td>Cell &amp; nuclear diameter and N/C ratio</td>
<td>25 cells per smear</td>
<td>Significant decrease in CD and ND with increasing age</td>
<td></td>
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<tr>
<td>Chaudhary R/2018⁵</td>
<td>50 (5 groups)</td>
<td>Wet wooden spatula Buccal mucosa</td>
<td>PAP staining</td>
<td>Cell and nuclear perimeter</td>
<td>20 cells per smear</td>
<td>Significant reduction in the size of the cell with the age</td>
<td>Small sample size</td>
</tr>
<tr>
<td>Radhika T 2019⁶</td>
<td>100 (5 groups)</td>
<td>Wet wooden spatula Buccal mucosa</td>
<td>PAP staining</td>
<td>Cell sizes measured</td>
<td>20 cells per smear</td>
<td>Cytomorphometry revealed a decrease in the average cell size as age advances</td>
<td></td>
</tr>
<tr>
<td>RadhaKrishnan S/2019⁷</td>
<td>35 (7 groups)</td>
<td>Wet wooden spatula Buccal mucosa</td>
<td>H&amp;E staining</td>
<td>Cell sizes measured</td>
<td>20 cells per smear</td>
<td>Cytomorphometry revealed a decrease in the average cell size as age advances</td>
<td></td>
</tr>
</tbody>
</table>

**AIM** To evaluate the data available on age estimation by oral exfoliative cytology using cytometric analysis in published literature from 2000-2021.

**INCLUSION CRITERIA:**
- Exfoliated cells from buccal mucosa, gingiva, other parts of oral cavity
- Systemically healthy individuals
- Cytomorphometry using software
- Original studies
- Studies in English language

**EXCLUSION CRITERIA:**
- Smears from other parts of body like vagina, cervix, esophagus.
- Studies combining exfoliative cytology with other methods of age estimation (Radiovisiography)
- Cytomorphometry using ocular micrometer
- Any reviews, short communications except original studies
- Other foreign languages

**CONCLUSION**

The above-mentioned studies have shown that there was a **statistically significant reduction in the size of the cell with the age** which correlates with the chronological age of the individual. There are other parameters which also change with age, but results are variable. Hence, **cell size is a more reliable parameter of age estimation** and can be used as a tool in forensics.

**Future perspectives**

There is need of studies on age estimation by oral exfoliative cytology using a **large sample size** which can provide more significant results because small sample size is a limitation in the above-mentioned studies. Also, there is a need for studies in the future relating the **cell size with gender** as only two of the above-mentioned studies relate these two parameters.

**REFERENCES**