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AWARENESS ON MANAGEMENT OF BASAL CELL CARCINOMA OF FACE AMONG DENTAL STUDENTS- A QUESTIONNAIRE STUDY

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ABSTRACT:

Basal cell carcinomas are locally destructive malignancies of skin mostly affecting white population. The site of BCCs are mostly in sun exposed areas such as the head and neck, occasionally on the trunk and limbs, and rarely on palms, soles, mucous membranes and genitals. The aim of this questionnaire study is to estimate the awareness on management of basal cell carcinoma of face among dental school students. An online questionnaire consisting of 10 questions eliciting the information regarding awareness on management of osteosarcoma of jaws were formulated and circulated among the dental students in a University setting. Data collected were tabulated and assessed using SPSS software. The study showed that most of the participants answered not sure for most of the questions. As dentists it is important to know about various treatment options and their complication of basal cell carcinoma of face to manage these patients. In this study we could see that the participants' knowledge about management of basal cell carcinoma of face was less adequate.

Many participants were not aware about the treatment modalities. Proper training and conferences should be conducted to elicit their knowledge.

INTRODUCTION

Basal cell carcinoma accounts for 75% of all skin cancers and it is the most common malignant tumor in white population. In asians it's seen only in 2 to 4% of the population and in blacks 1 to 2% while in caucasians it is 35 to 40% (1). Although the incidence of skin cancers in India is low, it may be due to a large population.

Basal cell carcinoma is a non melanocytic skin lesion caused mainly due to sun exposure and genetic predisposition (2). Due to the etiology around 74% occurs in the head and neck region (3), occasionally in the trunk and limbs, and rarely on palms, soles, mucous membranes and genitals (4). BCC most frequently occurs in adults, and male to female population in 2:1 (5). Few forms of BCC based on clinical recognition are superficial, nodular, morphic, ulcerated. However , BCC are highly polymorphic and are difficult to classify within these subtypes. Destructive growth or invasion of surrounding tissue occurs if the cancer is longstanding and left untreated or incase of multiple relapses after ablation or surgeries. Advanced BCC is used when there is a long history without treatment or repeated failures of surgery and recurrences, when there is extensive tissue destruction or when it becomes impossible to cure through standard surgery or radiotherapy (6).

BCC are also classified based on their recurrence risk into high risk and low risk. Easy to treat BCCs are considered as low risk BCC and difficult to treat are considered as high risk based on their difficulty in management. A recurrence in areas like eyelids, nose, lips and ears cause significantly higher consequences while the recurrence of superficial BCCs in the back are easy to manage.

Diagnostic tool that is widely used for diagnosis of BCC is dermatoscopy. A systematic review compared the test performance of naked eye examination and dermatoscopy which showed that the sensitivity improved from 66.9% to 855 and specificity from 97.2% to 98.2% (7). Another non-invasive tool for diagnosis of BCC is reflectance confocal microscopy. It has high diagnostic value but are not widely used and are available only in specialised skin centres(8). Optical coherence tomography also has a role in diagnosis of BCC (9).

Most primary BCCs are treated either by surgery or nonsurgical methods. BCCs with high recurrence rates should be managed aggressively. Risk of recurrence is incred based on the tumor size, previous recurrences, poorly defined margins and aggressive histological subtypes. Surgical excision is the effective treatment for management of primary BCC. Scalpel excision can be performed either in a standard (2D) excision with safety margins or a microscopically controlled stepwise procedure (3D excision). Based on the current guidelines, for standard excision, a range of peripheral margins between 2 mm and 5 mm in low-risk tumours and between 5 mm and 15 mm

in high-risk lesions should be excised (10). For low risk BCCs, surgical excision by destructive treatment or nonsurgical modalities such as topical managements or photodynamic therapy either alone or combined can be done when surgery is contraindicated. Radiotherapy can be considered when surgery is not expected to provide optimal results including tumors present in deeper tissues. Guidelines addressing the deep margins recommended that an excision down to the deep level such as fat and incase of head, down to the facia, perichondrium and periosteum should be excised (10). In aggressive tumors with high recurrence rates, re treatment is advised. Mohns surgery is advised if there is deep tissue involvement.

Topical therapies are considered in selected low risk BCCs. imiquimod is an immune response modifier used in management of small sBCCs. It is represented as an alternative for surgery in treatment of low risk, single or multiple sBCC and may have a role in management of low risk nBCC(11)(12). Combination therapy with curettage or cryotherapy has also been reported. Topical 5% 5- fluorouracil is also an effective treatment for sBCC(12). Destructive therapies such as curettage, electrosurgery, laser ablation and cryotherapy are recommended for non facial low risk BCCs.

PDT with 5-aminolevulinic acid (ALA) or its methyl ester (methyl-5-amino-4-oxopentanoate, MAL) can be considered in patients with non-aggressive, low-risk BCC, i.e. small superficial and nodular types, not exceeding 2 mm tumour thickness, where surgery is not suitable or contraindicated because of patient-related limitations (13). It is also a good treatment of choice for recurrent small and large sBCC. Combined therapies are advised in patients in whom surgical outcome is either difiguring or with low expected curative rate. Combination therapies are based on the principle that their mechanisms of action are complementary or synergistic.

Previously our department has published extensive research on various aspects of prosthetic dentistry(14–24), this vast research experience has inspired us to research about the awareness on management of basal cell carcinoma of face.

MATERIALS AND METHODS:

The setting was an online University setting. The advantage of this questionnaire study was versatile distribution, rapid collection of response and the disadvantage was dishonest answers from few participants. Ethical approval was obtained from the institution's ethical committee. The number of people involved in this study includes guide, reviewer and principle investigator.

A structured self assessed online questionnaire having 10 questions on awareness of management of basal cell carcinoma of face was prepared with the aim to assess the awareness among dental students. Sampling was done by convenient sampling. Undergraduate dental students with clinical exposure in a single university setting were included in this study. Students without clinical exposure were excluded from the study.

The questionnaires were distributed to the 100 dental students who have clinical exposure including 3rd BDS, final BDS, interns. The questionnaire was validated and reviewed before circulating to the participants. The study was done in a university setting. It was circulated using an online search software, survey planet and the response was collected through it. The results were transferred to SPSS. Response for each question was represented in the pie chart.

Statistical analysis was done using SPSS software (IBM SPSS Statistics 26.0). Descriptive statistics such as frequency distribution was used in data analysis. Frequency distribution of each response among the dental students was done.

QUESTIONNAIRE:

1. Year of study
2. Mohs micrographic surgery advantages
3. Mohs micrographic surgery is preferred mostly for treatment of which risks BCC?
4. Why curettage or electrocautery are not considered first line treatment of face
5. Cryosurgery is preferred mostly for treatment of which risks BCC?
6. Which one can be followed in areas where surgery would either be technically difficult or would result in unacceptable amounts of tissue destruction?
7. Side effects of radiotherapy?
8. Topical management of superficial basal cell carcinoma?
9. For which BCC photodynamic therapy is advised?
10. Carbon dioxide laser ablation can be used to treat BCC along with?

RESULTS AND DISCUSSION:

This study was conducted among 100 dental students. Out of 100, 34% were 3rd year undergraduate students, 25% were 4th year undergraduate students and 41% were interns (figure 1).

46% answered that histological accuracy was the advantage of Mohs microsurgery, 25% answered aesthetics and 29% answered not sure (figure 2). 53% participants answered that Mohs surgery was preferred mostly for treatment of high risk BCC while 13% answered low risk and 34% were not sure (figure 3). In Mohs surgery the entire excised tissue is frozen and sectioned horizontally and the entire margin is histologically examined intraoperatively. Further excision can be done after examination if needed. This surgery provides greater histological accuracy and increased tissue conservation (25). Due to the cost and time limitations Mohs surgery is preferred for high risk primary or recurrent BCC on face.

49% responded that high recurrence rate was the reason for curettage or electrocautery to not be considered as the first line of treatment for BCC, 11% responded as healing time, 14% as cost and 26% as not sure (figure 4).

Kuijpers et al reported in his study by comparing a double freeze thaw cycle of cryosurgery after curettage with standard excision for nonaggressive BCC of the head and neck that the recurrence rates was 17.6% and 8.2%, respectively (26).
39% responded that cryosurgery was recommended mostly for low risk BCC, 12% responded as high risk and 49% responded as not sure (figure 5). Cryosurgery has provided good outcomes in high risk lesions as well either as a separate treatment or as combination therapy. However it is considered to be most useful in the treatment of low risk BCC. Recurrence rate can be as low as 1% if done by experts (27).

44% of the participants responded that radiotherapy should be advised where surgery would either be technically difficult or would result in unacceptable amounts of tissue destruction, 23% responded as photodynamic therapy and 33% as not sure (figure 6). The cure rates of radiotherapy is over 90% for most of the skin lesions (28). BCC present in inaccessible areas or where the surgical outcome is poor such as lower eyelid, inner canthus, lip, nose, and ear can be persuaded by radiotherapy (29).
48% answered that atrophy and radionecrosis were the disadvantages of radiation therapy while 11% responded as radionecrosis, 13% responded as atrophy and 28% responded as not sure (figure 7). Side effects of radiotherapy include radionecrosis, atrophy of skin and telangiectasia. Surgical excision has provided better cosmetic results over radiotherapy.

30% answered that Imiquimod is used for topical management of sBCC, 13% answered as 5% 5- Fluorouracil and 57% answered as not sure (figure 8). Imiquimod is an immune modifier. It islicenced for the use in treatment of sBCC. Effective treatment is based on tissue penetration. Hence it is not advisable in nodular BCC due to increased depth. Topical 5% imiquimod has shown better results in management of sBCC. Topical 5% 5- fluorouracil is also considered as an effective treatment for sBCC. (30)(12)
37% answered that photodynamic therapy was advised for superficial BCC while 14% responded as recurrent BCC, 15% responded as nodular BCC and 34% responded as not sure (figure 9). sBCC have shown to achieve 87% clearance with photodynamic therapy (31). Due to lower clearance rate it is not advised for management of nBCC.
42% of the respondents answered that carbon dioxide laser ablation can be used along with curettage while 17% responded as Mohs microsurgery, 19% as cryosurgery and 22% as not sure (figure 10). (25)

Limitations of the study includes dishonest answers in questionnaires by respondents and usage of a single online survey platform in a single university setting. Future study should aim at conducting surveys using multiple online survey platforms to include more participants in different university settings.

CONCLUSION:

There are a number of treatment options for management of Basal cell carcinoma. However, the lesions on face are considered high risk therefore treatment planning is important and is necessary to know about the knowledge

of various available treatments. In this study we can conclude that the awareness on management of basal cell carcinoma of face is less adequate among undergraduate dental students. It is important to know about the various treatment modalities of BCC to manage these patients.

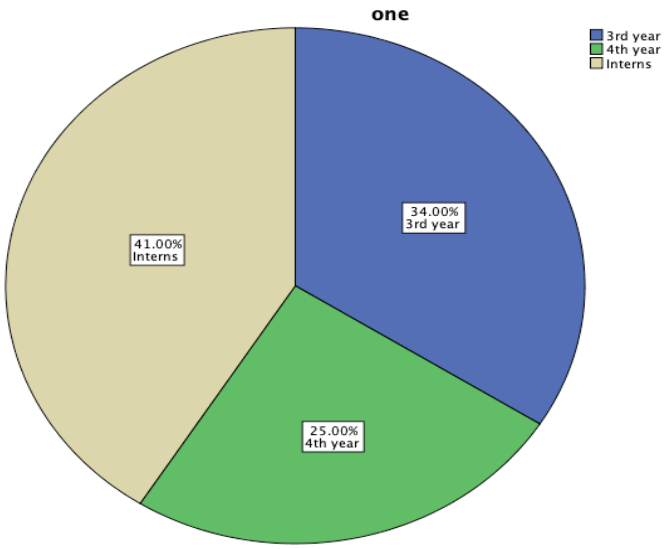

Figure 1 reveals the year of study of the students who responded to the questionnaire study. 34% of the participants **were 3rd years, 25% were 4th years and 41% were interns.**

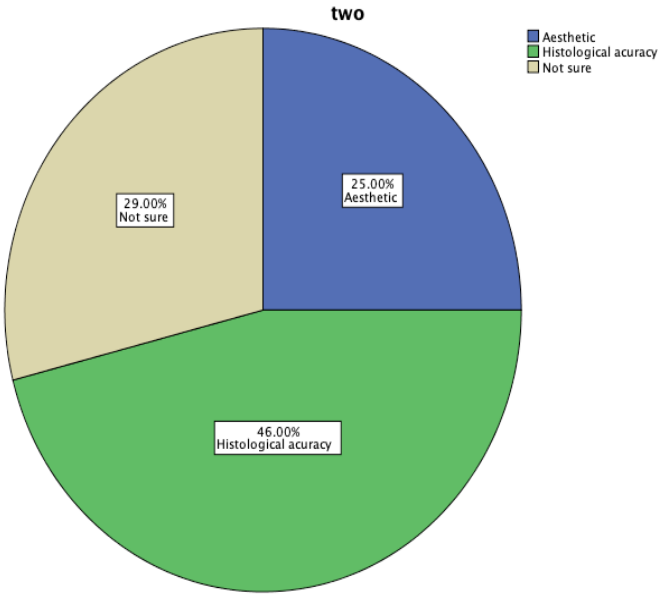

Figure 2 reveals the responses **received from participants for the question, Mohs micrographic surgery advantages. 46% answered histological accuracy which is the correct answer.**

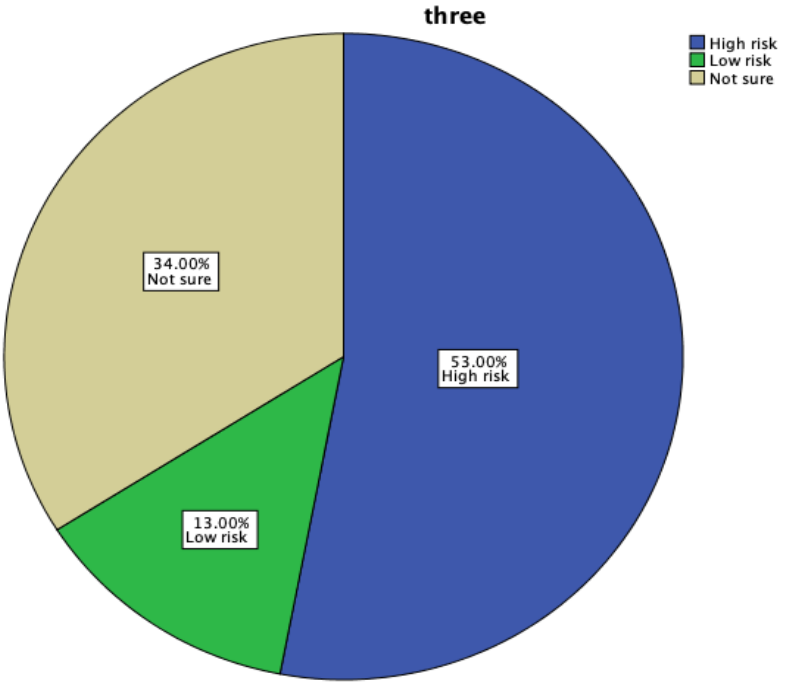

Figure 3 reveals the responses received from participants for the question, Mohs micrographic surgery is preferred mostly for treatment of which risks BCC? 45% answered high risk which **is the correct answer.**

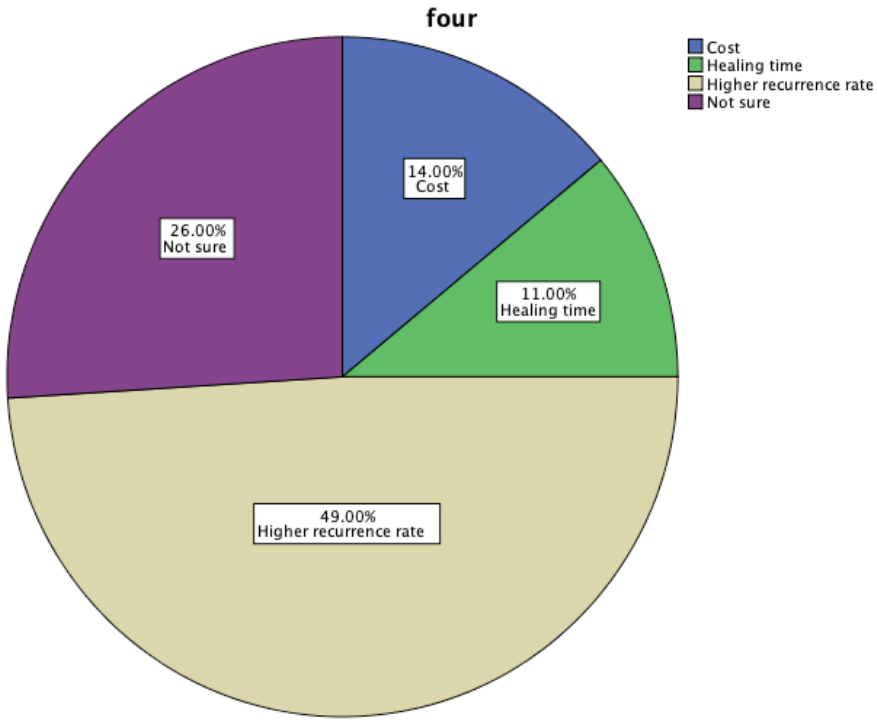

Figure 4 reveals the responses received from participants for the question, Why curettage or electrocautery are not considered first line treatment of face? 49% answered high recurrence rate which is the correct answer.

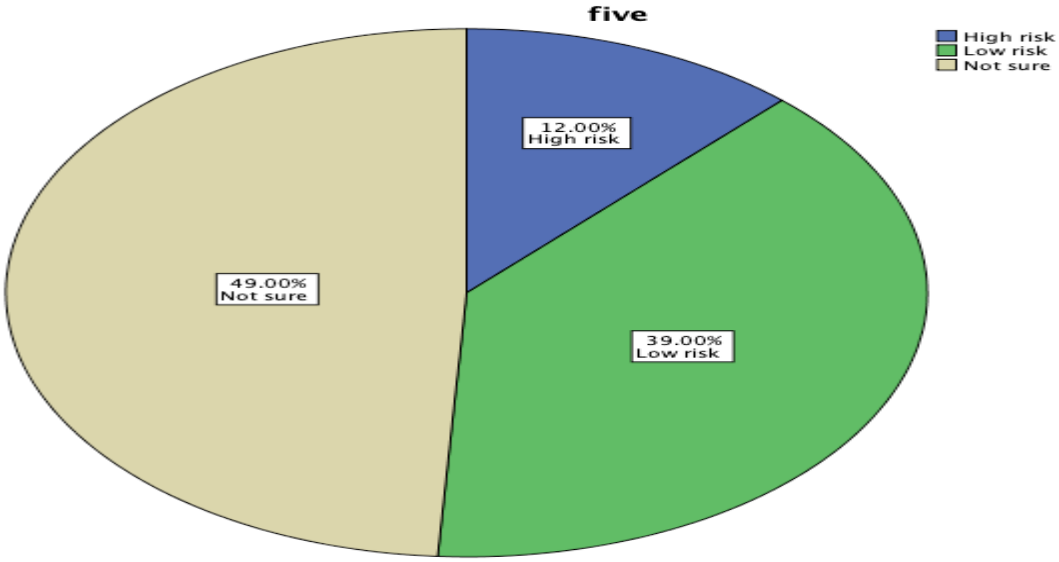

Figure 5 reveals the responses received from participants for the question, Cryosurgery is preferred mostly for treatment of which risks BCC? 39% answered low risk which is the correct answer**.**

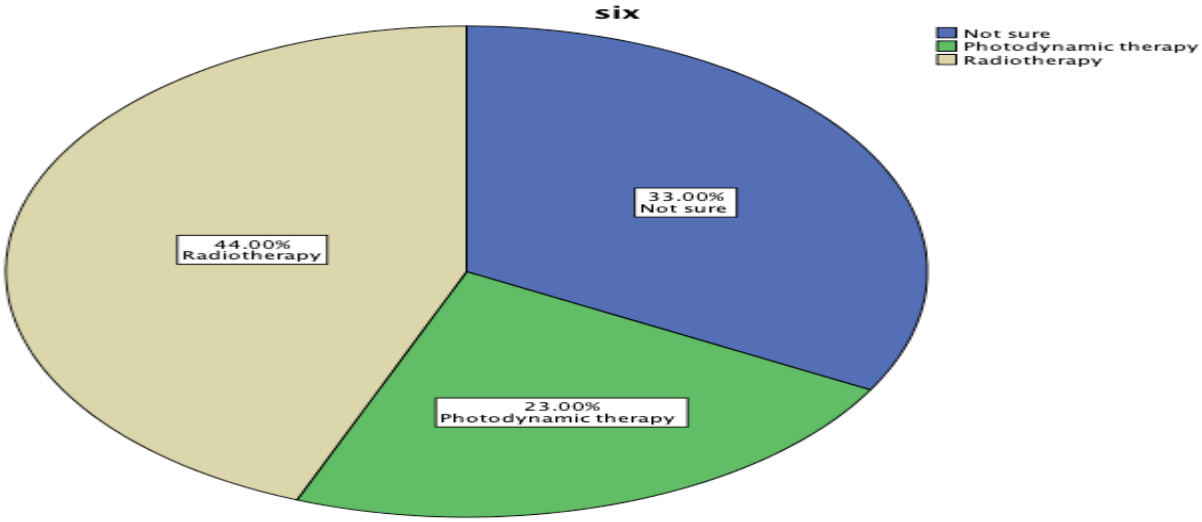

Figure 6 reveals the responses received from participants for the question, Which one can be followed in **areas where surgery would either be technically difficult or would result in unacceptable amounts of tissue destruction? 44% answered radiotherapy and 23% answered photodynamic therapy.**

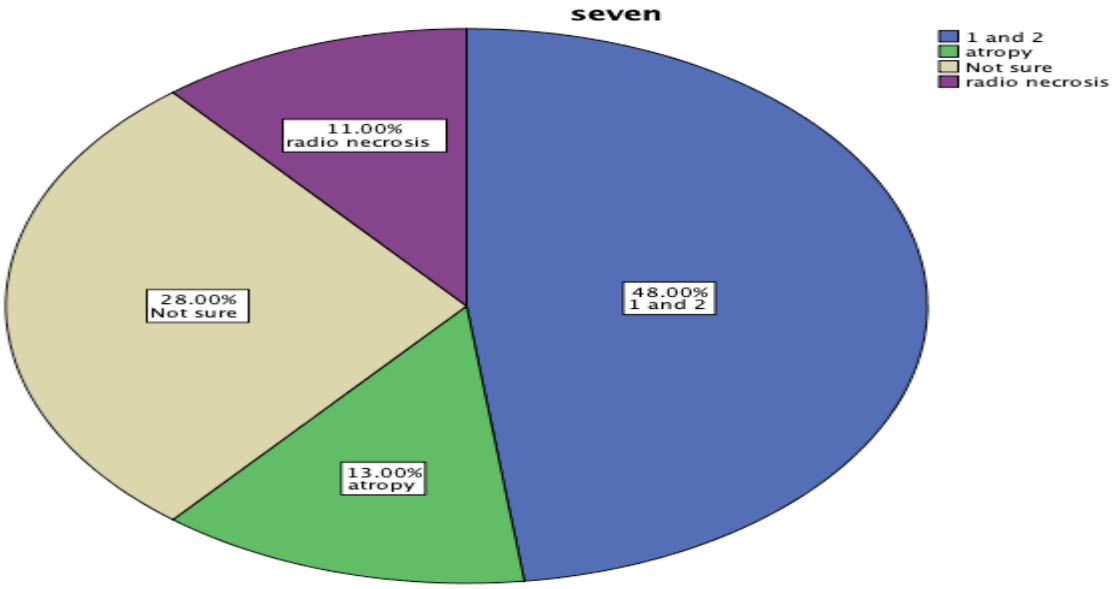

Figure 7 reveals the responses received from participants for the question, Side effects of radiotherapy**? 48% answered 1 and 2 which is atrophy and radionecrosis which is the correct answer.**

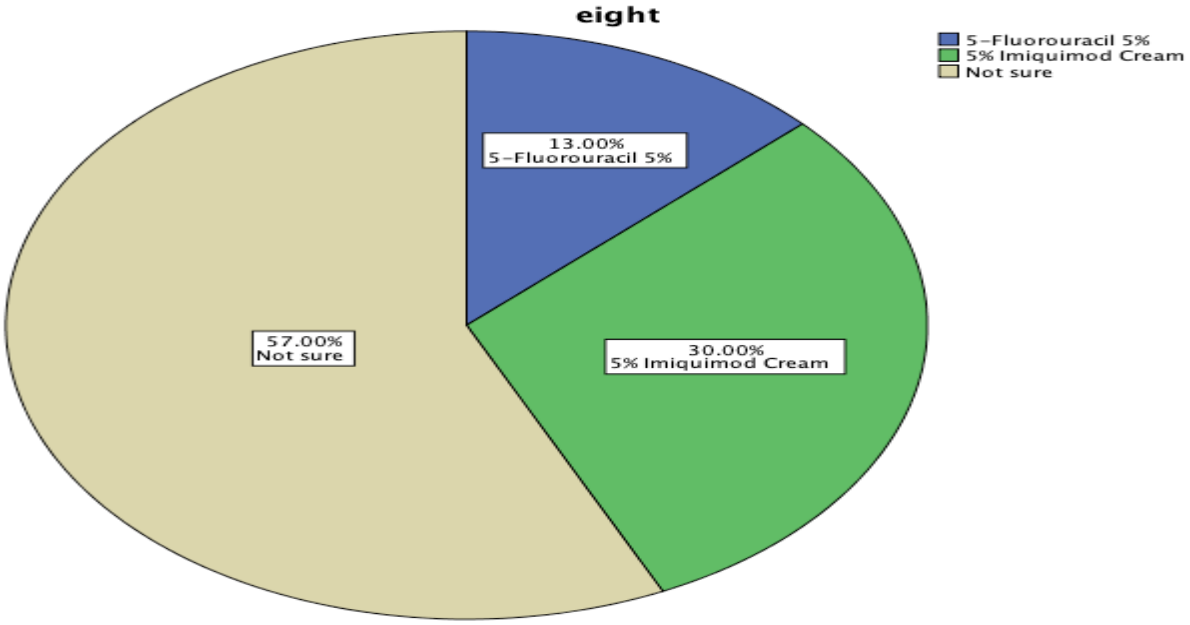

Figure 8 reveals the responses received from participants for the question, Topical management of superficial basal cell carcinoma? 30% answered Imiquimod and 13% answered **5% 5- Fluorouracil.**

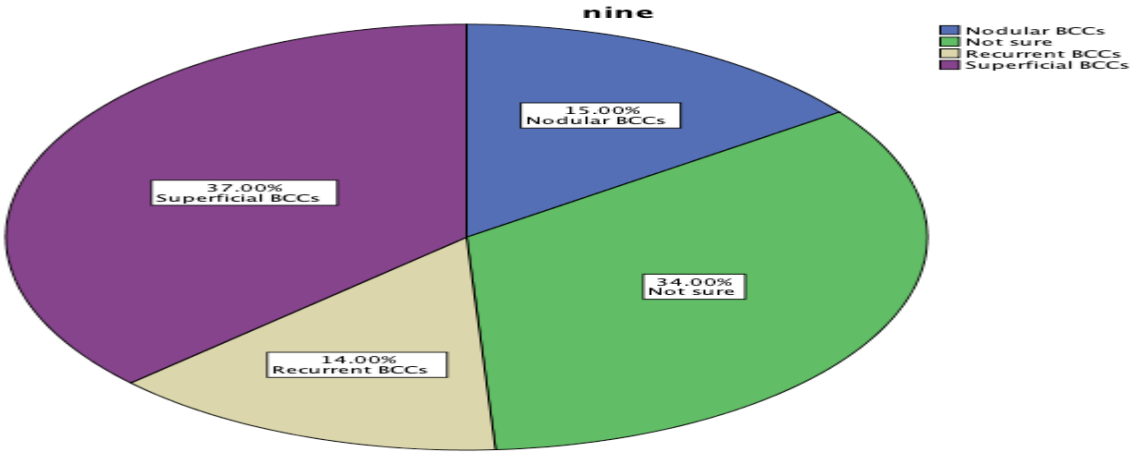

Figure 9 reveals the responses received from participants for the question, For which BCC photodynamic therapy is advised? 37% answered superficial BCC which is the correct answer.

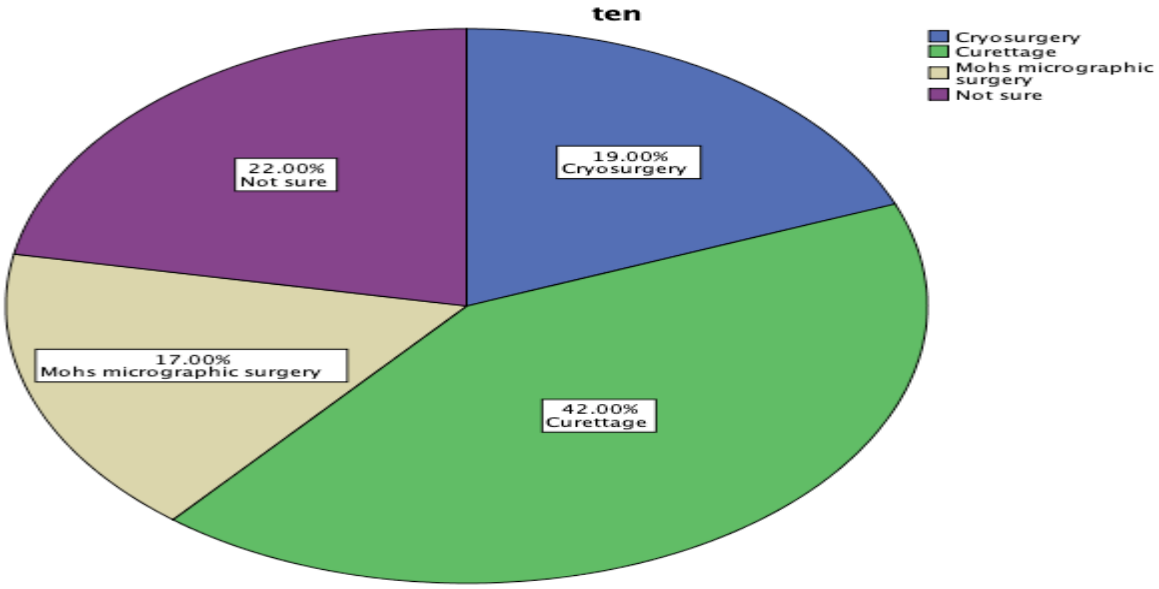

Figure 10 reveals the responses received from participants for the question, Carbon dioxide laser **ablation can be used to treat BCC along with? 42% answered curettage which is the correct answer.**

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