

# Characteristic of Basal Cell Carcinoma in Tertiary Health Care

Radema Maradong, Yulia Farida Yahya, and Theresia Lumban Toruan

Department of Dermatology and Venereology Faculty of Medicine Sriwijaya University/ Dr. Moh. Hoesin General Hospital Palembang, Indonesia

**Keywords:** nail changes, Characteristic, BCC, risk factor sun exposure, occupation farmer

**Abstract:** Basal cell carcinoma (BCC) is cutaneous non melanoma cancer usually found in Caucasian with incidence rate 70%-80% from all cutaneous malignant, in Asia 10-100x lower than Europe and America. The purpose of this study is to know the characteristic of BCC such as incidence, sex, age, occupation, location and clinicohistopathology feature. Study method is retrospective descriptive study, the data was taken from medical record of BCC patient in Department of Dermatology and Venereology, Department of Surgery, Department of Ophthalmology and Department of Ear, Nose, and Throat in Dr. Mohammad Hoesin General Hospital from January 2014 – December 2016. The result from 193 medical records of four Departments found 104 cases (53.9%) affected in male and 89 cases (46.1%) in female. Male to female ratio is 1.2:1, mostly occur in age 55-64 years old (37.8%). We found 92 cases (47.7%) in a farmer, which 98 cases (50.8%) occur on the nasal region, and 172 cases (89.2%) are nodular type. In conclusion, male are often affected than female in elderly, with the nasal region is the most common site of BCC and mostly occupation as a farmer. The Sun exposure to UV radiation is undoubtedly of great factor. The clinicohistopathology features are nodular type. These characteristics of BCC were similar to other Asian studies.

## 1 INTRODUCTION

Basal cell carcinoma (BCC) or Rodent ulcer is the most common skin cancer, derived from immature pluripotent cell of interfollicular epidermis (Kumar et al., 2004; Saldanha & Upadhaya, 2015). The population of BCC between 70-80% from all types of skin cancer (Saldanha & Upadhaya, 2015; LeBoit et al., 2006). The etiology of BCC is still unclear, some investigator believe that the main risk factor associated with UV radiation exposure. There is a correlation between an outdoor occupational especially a farmer (Kumar et al., 2004; Saldanha & Upadhaya, 2015; LeBoit et al., 2006). Basal cell carcinoma usually found in chronic UV expose area such as face and neck (LeBoit et al., 2006; Verkouteren et al., 2017). Male more often affected than female (Verkouteren et al., 2017; Yahya et al., 2011). The incidence of BCC increase with age, especially in elderly between 50-80 years old (Kumar et al., 2004; Saldanha & Upadhaya, 2015).

## 2 METHODS

This is a descriptive retrospective study in General Hospital of Dr. Moh. Hoesin Palembang, between January 2014 and December 2016 based on demographic and clinicohistopathology data of BCC patients. The statistical analysis were done using software package (SPSS) 22.0 version.

## 3 RESULTS

In this study, we found 193 cases of BCC (0,02%) from January 2014 - December 2016 (Figure 1). Predominantly affected male in 104 cases (53.9%) and 89 cases (46.1%) in female (Figure 2). In this study, we found 73 cases (37,8%) with age 55-64 years old, ≥ 65 years old in 59 cases (30.6%), 45-54 years old in 34 cases (17.6%), 35-44 years old in 9 cases (9.8%), 25-34 years old in 6 cases (3.1%), 18-24 years old in 2 cases (1%) (Table 1).

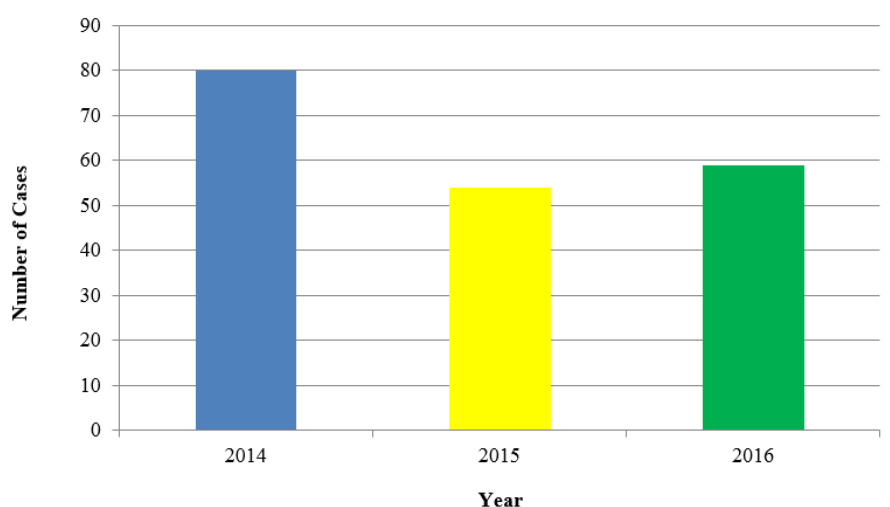


Figure 1: Total of BCC patients from January 2014 and December 2016.

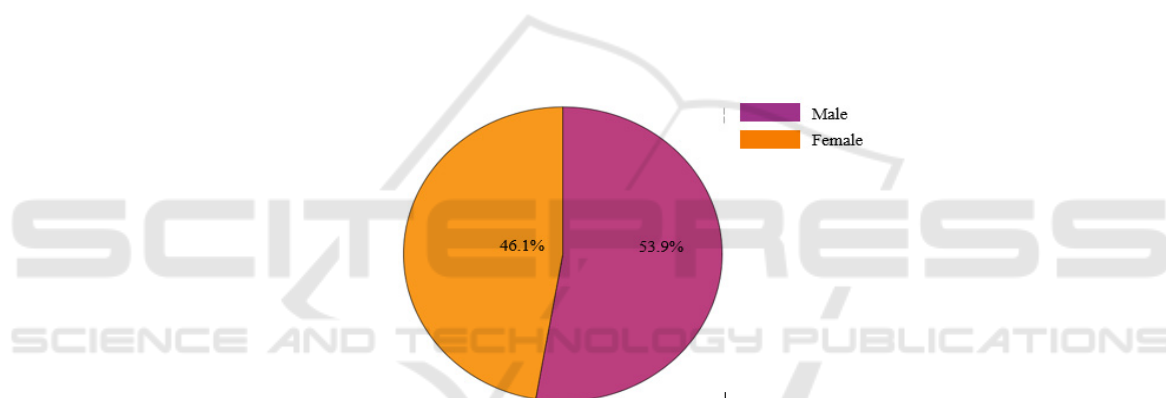


Figure 2: Sex distribution of BCC patients

The mean age of BCC is 61.74±11.76 (mean±SD). Occupations are farmer in 92 cases (47.7%), 52 cases (27%) of housewives, 40 cases (20.6%) of civil servant, and 9 cases (4.6%) of retired (Table 1). Distribution of location respectively are facialis predominantly on nasalis region around 98 cases (50.8%), 11 cases (5.7%) on the *colli*, 2 cases (1%) on the *truncus*, and 3 cases (1.5%) on extremities (Table 1). Clinicohistopathology features are nodular around 172 cases (89.1%), 10 cases (5.2%) micronodular, 9 cases (4.7%) infiltrative, 1 case (0.5%) superficial, and 1 case (0.5%) basosquamous.

#### 4 DISCUSSION

In this tertiary health care study (2016), incidence of BCC is 0,02%. BCC more often occur in male than female, with ratio 1,2:1. Toruan, *et al.* (2000) found incidence of BCC in Palembang was 0,042%. Yahya, *et al.*(2011) found the incidence of BCC in Palembang was 0,3% with the ratio of male:female is 1:1. Lomas, *et al.* (2012) in England found the incidence of BCC was increased approximately 5% over recent decades. Rogers, *et al.* (2015) in the

Table 1. Characteristic features of BCC patients

Characteristics	Male	Female
Age		
• 18-24	1 (0.5%)	1 (0.5%)
• 25-34	3 (1.6%)	3 (1.6%)
• 35-44	6 (3.1%)	13 (6.7%)

<ul style="list-style-type: none"> <li>• 45-54</li> <li>• 55-64</li> <li>• &gt; 65</li> </ul>	16 (8.3%) 42 (21.7%) 36 (18.7%)	18 (9.3%) 31 (16.1%) 23 (11.9%)
Occupation <ul style="list-style-type: none"> <li>• Farmer</li> <li>• Housewives</li> <li>• Civil servants</li> <li>• Retired</li> </ul>	65 (33.7%) 0 (0%) 30 (15.5%) 9 (4.7%)	27 (14%) 52 (27%) 10 (5.1%) 0 (0%)
Location <ul style="list-style-type: none"> <li>• Facialis</li> <li>• Colli</li> <li>• Truncus</li> <li>• Extremities</li> </ul>	91(47.2%) 9 (4.7%) 2 (1%) 2 (1%)	86 (44.6%) 2 (1%) 0 (0%) 1 (0.5%)
Clinicohistopathology <ul style="list-style-type: none"> <li>• Nodular</li> <li>• Micronodular</li> <li>• Infiltratives</li> <li>• Superficial</li> <li>• Basosquamous</li> </ul>	94 (48.7%) 4 (2.1%) 5 (2.6%) 0 (0%) 1 (0.5%)	78 (40.4%) 6 (3.1%) 4 (2.1%) 1 (0.5%) 0 (0%)

United States reported the incidence of BCC was increased 2% every year (Rogers et al., 2015). The percentage of skin cancer in Asia about 2-4%.<sup>2</sup> We found incidence of BCC in this study is lower than the Caucasian population about 35 -40%. This study is a hospital based study, and others are population based study.

In this study, the mean age is 61.74±11.76 (mean± SD) with onset of BCC often occur in age 55-64 years old in 73 cases (37,8%) followed by ≥ 65 years old in 59 cases (30.6%), 45-54 years old in 34 cases (17.6%), 35-44 years old in 9 cases (9.8%), 25-34 years old in 6 cases (3.1%), and 18-24 years old in 2 cases (1%). This study is similar with Goldenberg, *et al.* (2016) in United States and Trakatelli, *et al.* (2016) in Europe which reported the mean age are 60 and 66,5 years old respectively, especially in fifth decade (Goldenberg et al., 2016; Trakatelli et al., 2016). The reason of this findings related to the accumulation of UV exposure and decreasing the ability of DNA repair in elderly people (Verkouteren et al., 2017).

The location of BCC commonly on the face, predominantly on the nasalis region 98 cases (50.8%), followed by 11 cases (5.7%) on the *colli*, 2 cases (1%) on the *truncus*, and 3 cases (1.5%) on the extremities. This findings is similar with study by Tan, *et al.* (2014) in Singapore and Kumar, *et al.* (2014) in India which reported the most common location of BCC is the nasalis region (Tan et al., 2015). The nasalis region is an area that often exposed to UV radiation and sometimes it lack of any UV protection (Trakatelli et al., 2016).

We found 92 cases (47.7%) are farmer and followed by housewives 52 cases (27%), 40 cases

(20.6%) of civil servants, and 9 cases (4.6%) of retired. This study is similar with Kumar, *et al.* (2014) in India, where outdoor occupation have a correlation with prolonged exposure which an intermitten or intense sun exposure increase the risk of BCC (Verkouteren et al., 2017). Corona *et al.* (2001) showed a tendency of increased incidence of BCC only if an outdoor occupation had been carried out for more than 8 years (Corona et al., 2001). Vlajinac *et al.* (2000) found this correlation only for outdoor work during summer time (Vlajinac et al., 2000). Zak Perlich *et al.* (2004) suggested that occupational factor have been connected with development of BCC. They include organic and nonorganic solvent and organophosphatic compounds (Zak Perlich et al., 2004)

In this study, the most common clinicohistopathology features is nodular (89,1%), then micronodular (5,2%), infiltrative (4,7%), basosquamous (0,5%), and superficial (0,5%). These result is similar with other studies in Asia such as Tan, *et al.* (2014) in Singapore, and Kumar, *et al.* (2014) in India, both reported that nodular type are the most common clinicohistopathology features BCC (Kumar et al., 2014; Tan et al., 2015). These results could indicate that could indicate that the different types of clinicohistopathology features related to UV exposure and the interaction between constitutional characteristics and other environmental risk factors (Verkouteren et al., 2017).

## 5 CONCLUSIONS

Male are often affected than female, age 55-64 years old often suffer BCC which a farmer is the most common occupation related to BCC development. The nasal region is the main site of BCC. There is correlation an outdoor working, occupational factor with sun exposure of development BCC. The clinicohistopathology features are nodular type. These characteristics of BCC were similar to other Asian studies.

## ACKNOWLEDGEMENT

We are grateful to Pathology Anatomy Department of Dr. Mohammad Hoesin General Hospital Palembang, for submitting pathology examination data of BCC.

## REFERENCES

- Corona, R., Dogliotti, E., D'errico, M., Sera, F., Iavarone, I., Baliva, G., Chinni, L., Gobello, T., Mazzanti, C., Puddu, P., & Pasquini, P., 2001. Risk factors for basal cell carcinoma in a Mediterranean population: role of recreational sun exposure early in life. *Archives of dermatology*, 137(9), pp. 1162-1168.
- Goldenberg, G., Karagiannis, T., Palmer, J. B., Lotya, J., O'Neill, C., Kisa, R., Herrera, V., & Siegel, D. M., 2016. Incidence and prevalence of basal cell carcinoma (BCC) and locally advanced BCC (LABCC) in a large commercially insured population in the United States: A retrospective cohort study. *Journal of the American Academy of Dermatology*, 75(5), pp. 957-966.
- Kumar, S., Mahajan, B. B., Kaur, S., Yadav, A., Singh, N., & Singh, A., 2014. A study of Basal Cell Carcinoma in South Asians for risk factor and clinicopathological characterization: A hospital based study. *Journal of skin cancer*, 1, pp. 1-10.
- LeBoit, P.E., Burg, G., Weedon, D., Sarasin, A., 2006 editors. *Pathology and Genetics: Skin tumours*. WHO class, D'ification of tumours. 3rd ed. Lyon: IARC Press, 6, pp. 13-19.
- Lomas, A., Leonardi-Bee, J., & Bath-Hextall, F., 2012. A systematic review of worldwide incidence of nonmelanoma skin cancer. *British Journal of Dermatology*, 166(5), pp. 1069-1080.
- Rogers, H. W., Weinstock, M. A., Feldman, S. R., & Coldiron, B. M., 2015. Incidence estimate of nonmelanoma skin cancer (keratinocyte carcinomas) in the US population, 2012. *JAMA dermatology*, 151(10), pp. 1081-1086.
- Saldanha, P., Shanthala, P. R., & Upadhaya, K., 2015. Cutaneous basal cell carcinoma: A morphological spectrum. *Archives of Medicine and Health Sciences*, 3(1), pp. 24-28.
- Tan, E. S., Ee, M., Shen, L., Chua, H., Chan, Y. H., & Tan, S. H., 2015. Basal cell carcinoma in Singapore: A prospective study on epidemiology and clinicopathological characteristics with a secondary comparative analysis between Singaporean Chinese and Caucasian patients. *Australasian Journal of Dermatology*, 56(3), pp. 175-179.
- Trakatelli, M., Barkitzi, K., Apap, C., Majewski, S., De Vries, E., EPIDERM group, ... & Kalokasidis, K., 2016. Skin cancer risk in outdoor workers: a European multicenter case-control study. *Journal of the European Academy of Dermatology and Venereology*, 30, pp. 5-11.
- Verkouteren, J. A. C., Ramdas, K. H. R., Wakkee, M., & Nijsten, T., 2017. Epidemiology of basal cell carcinoma: scholarly review. *British Journal of Dermatology*, 63(5), pp. 1-14.
- Vlajinac, H. D., Adanja, B. J., Lazar, Z. F., Bogavac, A. N., Bjekić, M. D., Marinkovic, J. M., & Kocev, N. I., 2000. Risk factors for basal cell carcinoma. *Acta oncologica (Stockholm, Sweden)*, 39(5), pp. 611-616.
- Yahya, D. R., Farida, Y., Krisnaputri, S., & Harianti, T., 2011. Profil Karsinoma Sel Basal Primer Di RSUP M. Hoesin Palembang. *Media Dermato-Venereologica Indonesia*, 38(2), pp. 78-83.
- Zak-Prelich, M., Narbutt, J., & Sysa-Jedrzejowska, A., 2004. Environmental risk factors predisposing to the development of basal cell carcinoma. *Dermatologic surgery*, 30, pp. 248-252.