Distribution of Malassezia Species from Scales of Patient with Pityriasis Versicolor by Culture in Vietnam

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Abstract

BACKGROUND: The detection of pathogenic fungus is an important step and key to assessing the sensitivity of the antifungal drugs, and therefore choosing an effective treatment method.

AIM: To identify Malassezia species from scales of a patient with pityriasis versicolor.

METHODS: Three hundred patients with pityriasis versicolor who were positive with direct examination were isolated by culture.

RESULTS: Identification of Malassezia species by culture: the growth rate was 90.3%; the detection rate was 97.0%, including 11 species: M. globosa (42.4%), M. dermatitidis (17.3%), M. furfur (14.4%). M. globosa was the most prevalent species in the 20-29 group 36.5%, in hyphae and yeast cells (42.2%).

CONCLUSION: M. globosa is the main cause of pityriasis versicolor in Vietnam.

Introduction

Malassezia spp. Is lipophilic yeast which is of the normal cutaneous commensal flora on humans and animals. Malassezia includes 14 species in which M. globosa, M. furfur, M. sympodialis are the most common. Symptoms of Malassezia fungal diseases include pityriasis versicolor, seborrheic dermatitis, atopic dermatitis, Malassezia folliculitis, psoriasis, even skin cancer [1], [2] in all parts of the world, especially in tropical countries (18% of the population) [3].

In the world, depending on climate, geographic conditions, there is a difference between the distribution of Malassezia species in other areas.

Therefore, we carried out a study to identify Malassezia species that caused pityriasis versicolor (PV) by the culture at National Hospital of Dermatology and Venereology (NHDV), Viet Nam.

Methods

A cross-section study of 300 patients with PV who had a positive direct examination test at NHDV from January 2016 to December 2016. Skin scales samples: Identification culture. MDixon media culture, SDA, TABLE 20, Tween 40, Tween 60, Tween 80, Malassezia Chromatase. Data were collected by SPSS 23.0 software and statistical tests study, to determine the incidence of Malassezia species.
Results

On 271 cultured samples, 11 Malassezia species were identified: M. globosa, M. furfur, M. dermatis, M. sympodialis, M. restricta, M. obtusa, M. slooffiae, M. pachydermatis, M. japonica, M. equina, and M. cuniculi.

Table 1: Identification of Malassezia species by culture

<table>
<thead>
<tr>
<th>Species</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. globosa</td>
<td>115</td>
<td>42.4</td>
</tr>
<tr>
<td>M. furfur</td>
<td>39</td>
<td>14.4</td>
</tr>
<tr>
<td>M. dermatis</td>
<td>47</td>
<td>17.3</td>
</tr>
<tr>
<td>M. sympodialis</td>
<td>13</td>
<td>4.8</td>
</tr>
<tr>
<td>M. restricta</td>
<td>12</td>
<td>4.4</td>
</tr>
<tr>
<td>M. obtusa</td>
<td>16</td>
<td>5.9</td>
</tr>
<tr>
<td>M. slooffiae</td>
<td>5</td>
<td>1.8</td>
</tr>
<tr>
<td>M. pachydermatis</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>M. japonica</td>
<td>11</td>
<td>4.1</td>
</tr>
<tr>
<td>M. equina</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>M. cuniculi</td>
<td>8</td>
<td>3.0</td>
</tr>
<tr>
<td>Malassezia spp.</td>
<td>8</td>
<td>3.0</td>
</tr>
<tr>
<td>Total</td>
<td>271</td>
<td>100</td>
</tr>
</tbody>
</table>

We tested the development of M. pachydermatis on Sabouraud agar (SDA). M. restricta has a negative Catalase test. Then, proceeding with the reaction with Tween 20, Tween 40, Tween 60, Tween 80. Next, comparing with colony morphology and microscopic staining of three species including M. sympodialis, M. japonica, M. slooffiae. Some other species cultured in CHROM agar Malassezia, based on morphology, colour and colony characteristics, identified six species including M. furfur, M. dermatis, M. globosa, M. obtusa, M. cuniculi, and M. yamatoensis.

Fungus infection in the male is higher than female. In the study, we found that hyperpigmented was the most common with 58.3%, following Hypopigmented, Erythema and Both.

Discussion

Results in the study showed a higher method of Abbas Rasi vă cs (2009) [4], Kaneko Takamasa et al., (2011) [5], Rezvan Talae et al., (2014) [6], Nguyen Dinh Nga et al., (2007) [7]. However, in addition to the culture environment, climate and geography are also a major factor influencing the distribution of Malassezia species. Also, some new species have been discovered in recent years, such as M. equina, M. caprae (2007), M. cuniculi (2011), can increase the number of species discovered.

Results matched with Karakas et al., (2009) [8] with 47.7%. As such, M. globosa was found in the different area of the world and Vietnam. M. furfur was referred to as the most frequent species and most common disease, but in our study, only 14.4% was ranked third after M. globosa (42.4%) and M. dermatis.
In particular, *M. furred* grows well in mDixon agar, which is more easily indentified than other species. Our results are similar to those of other authors: Karakas et al., (2009) [8], Rezvb Talaee et al., (2014) [6].

A study by Nguyen Dinh Nga et al., (2007) conducted in Vietnam showed that the majority of species were *M. furred* (57.33%) and *M. globosa* [7]. Our results from Table 1 show that *M. globosa* is the common species (42.4%), *M. furred* (14.4%).

In comparable climates, our findings are similar with other authors: Talaee et al., (2014) [6] with hyperpigmented 50%; Karakas et al., (2009) [8] with 47.4%. We found that the hyperpigmented lesions were mainly related to *M. globosa* by Talaee et al., (2014), Karakas et al., (2009) *M. dermatis* is quite common in erythema lesions [6], [8]. *M. sympodialis* is mainly found in hyperpigmented [9].

In conclusion, using culture method, we identified 11 Malassezia species including *M. globosa* (42.4%); *M. dermatis* (17.3%); *M. furred* (14.4%). *M. globosa* is the main cause of pityriasis versicolor in Vietnam.

References


