

## RINGKASAN

**Deteksi *Mycobacterium leprae*  
Menggunakan Teknik *POLYMERASE CHAIN REACTION (PCR)*  
pada Apusan Hidung Narakontak Serumah Penderita Kusta**

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Penyakit Kusta atau *Morbus Hansen* adalah penyakit kronis yang disebabkan oleh infeksi *Mycobacterium leprae* yang secara primer menyerang syaraf tepi, selanjutnya menyerang kulit, mukosa mulut, saluran nafas bagian atas, sistem retikuloendotel, mata, otot, tulang dan testis. Penyakit kusta masih merupakan masalah kesehatan masyarakat, disamping besarnya masalah di bidang medis juga masalah sosial yang ditimbulkan oleh penyakit ini memerlukan perhatian yang serius. Jumlah penderita kusta dari tahun ke tahun semakin mengalami peningkatan. Jawa Timur merupakan daerah dengan prevalensi kusta yang cukup tinggi dan kabupaten yang paling tinggi prevalensinya di Jawa Timur adalah kabupaten Sampang.

Selama ini penegakan diagnosis kusta di lapangan, cukup dengan pemeriksaan klinis dan deteksi basil kusta dengan teknik konvensional yaitu pemeriksaan BTA, namun dengan ditemukannya teknologi PCR dapat mempermudah deteksi *M. leprae*. Keterbatasan uji diagnostik pada masa lalu, saat ini dapat diatasi dengan metode ini.

Tujuan Penelitian ini adalah untuk mempelajari perbedaan insiden ditemukannya *Mycobacterium leprae* pada apusan mukosa hidung narakontak tipe Multibasiler (MB) dan Pausibasiler (PB) dengan teknik pemeriksaan PCR dan BTA di wilayah puskesmas Kedundung dan Kamoning kabupaten Sampang.

Rancangan Penelitian ini adalah penelitian yang bersifat analitik observasional dengan rancang bangun *cross sectional* atau potong lintang, sampel penelitian adalah semua narakontak serumah dari sebagian penderita kusta yang memenuhi syarat kriteria penerimaan sampel penelitian. Pengambilan sampel dilakukan secara *cluster random 2* tahap, dengan unit klusternya adalah penderita kusta baru dan keluarganya yang tinggal serumah (narakontak). Besar sampel seluruhnya sebanyak 69 sampel. Terdiri dari 36 sampel narakontak penderita kusta tipe MB dan 33 narakontak penderita kusta tipe PB dari wilayah puskesmas Kedundung dan Puskesmas Kamoning Kabupaten Sampang. Selanjutnya diambil spesimen apusan hidungnya dan dilakukan pemeriksaan PCR dan BTA. Data dianalisis dengan menggunakan Uji *Fisher's Exact Test*.

Dari 69 spesimen apusan hidung narakontak penderita kusta yang diperiksa di Laboratorium kusta *Tropical Disease Centre (TDC)* Surabaya didapatkan hasil sebagai berikut :

- ◆ Terdapat 6 spesimen (8.7 %) hasil PCR positif, 4 spesimen diantaranya adalah berasal dari spesimen apusan hidung narakontak penderita kusta MB dan sisanya sebanyak 2 spesimen berasal dari narakontak penderita kusta tipe PB.
- ◆ Tidak ada satupun spesimen Apusan Hidung narakontak kusta MB maupun PB mempunyai hasil positif pada pemeriksaan BTA
- ◆ Dari uji *Fisher's Exact Test* ( $p > 0.05$ ), didapatkan tidak ada perbedaan bermakna antara hasil pemeriksaan PCR pada narakontak penderita kusta tipe MB dan PB.

**SUMMARY**

**DETECTION OF *Mycobacterium leprae* FROM NASAL SWAB  
SPECIMENS OF LEPROSY HOUSEHOLD CONTACTS  
USING POLYMERASE CHAIN REACTION (PCR) TECHNIQUE**

A Comparative study the existence of *M.leprae* in nasal cavity between Household contacts of Multibacillary (MB) and Pausibacillary (PB) Leprosy In Kedundung and Kamoning District of Sampang Regency

Agus Mulyadi

Leprosy or Morbus Hansen is a chronic disease caused *Mycobacterium leprae*. This bacteria is first attack the periphere neural system, and then the involvement of skin, mucous mouth, upper respiratory system, reticuloendotelial system, eyes, bone and others. Leprosy until now still a problem in both medical and social, This disease is still prevalent in some areas, especially in closed and poor area or village. The Sampang District has the highest incidence of leprosy in East Java.

The unculturable *Mycobacterium leprae* is a great problem for bacteriological diagnosis, until recent development of PCR (Polymerase Chain Reaction), but the Acid fast staining still a first choice for diagnosis in the both primary health care and mostly referral hospital in Indonesia.

The aim of this study was to explore the capacity of PCR and Acid fast staining method for detection of *Mycobacterium leprae* from nose swab of household contact from patients with Multibacillary (MB) and Pausibacillary (PB) leprosy in Kedundung and Kamoning Health Center, Sampang District

This is an Observational study, using the cross sectional design to household leprosy contacts in 2 endemic areas in Sampang Regency : Kedundung and Kamoning Public Health Center. Samples obtained by cluster random sampling techniques and the result was analyzed by Fisher's exact test.

Nasal swab spesimens obtained from 69 leprosy household contacts (36 MB and 33 PB leprosy contacts) were examined using the Ziehl Neelsen (ZN) staining and PCR techniques, using the CD primer to detect *M.leprae*.

No Acid Fast Bacilli (AFB) was found in ZN staining but with PCR technique 6 (8.7 %) were positive, consist of 4 specimens from MB leprosy contacts compared to 2 specimens from PB leprosy contacts. By statistic test there is no significant difference ( $p>0.05$ ) between the positive of *M. leprae* in the specimens obtained from both household contacts groups.

This results was relatively low, compared to other previous studies in East Java. It might be due to previous unrecognized treatment or due to the different primer in PCR method. The other explanation why there is no difference between MB and PB leprosy contacts, could be to the environment *M.leprae* that enter the nasal cavity during breathing.

## ABSTRACT

### DETECTION OF *Mycobacterium leprae* FROM NASAL SWAB SPECIMENS OF LEPROSY HOUSEHOLD CONTACTS USING POLYMERASE CHAIN REACTION (PCR) TECHNIQUE

A Comparative study the existence of *M.leprae* in nasal cavity between Household contacts of Multibacillary (MB) and Pausibacillary (PB) Leprosy In Kedundung and Kamoning District of Sampang Regency

Agus Mulyadi

Leprosy is still a public health problem in Madura, where the prevalence of the disease still high compared with other areas in East Java. The aim of this study is to compare the existence of *M. leprae* in nasal cavity of household contacts of MB and PB Leprosy.

This is an Observational study, using the cross sectional design to household leprosy contacts in 2 endemic areas in Sampang Regency : Kedundung and Kamoning Public Health Center. Samples obtained by cluster random sampling techniques and the result was analyzed by Fisher's exact test.

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Keywords : *M. leprae*, Nasal swab, PCR, Household contacts leprosy