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Infection and Tropical Disease

INF-PP-2-2-069

## Utility of tourniquet test, white blood cell count, and platelet count in identifying Dengue virus infection

Meiliza Madona, Erwina M Astuti, Leny Kartina, Dwiyanti Puspitasari, Dominicus Husada, Widodo Darmowandono, Parwati S Basuki, Ismoedijanto
Division of Infection and Tropical Pediatrics, Department of Child Health, Airlangga University Medical School/Soetomo Hospital, Surabaya, Indonesia

### Abstract

*Background* Dengue virus infection (DVI) often presents with non-specific clinical signs. There has been no published data on the utility of tourniqet test (TT), white blood cell count (WBC) and platelet count (PC) as a diagnostic tool in Surabaya.

Objective To validate the use of TT, WBC and PC as a diagnostic tool to identify DVI among acute febrile illness in children.

*Methods* This prospective study was conducted to 100 children presenting fever for 2–7 days without focal signs in the Pediatric Ward, Soetomo Hospital from January to April 2013. The study evaluated the sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and Positive Likelihood Ratio of positive TT, leukopenia (WBC $<5,000/mm^3$) and thrombocytopenia (PC $<150,000/mm^3$) in identifying DVI.

*Results* Among 100 patients with mean ot age 87.18 (range 6 -156) months, 83 were serologically confirmed as dengue infection based on positive IgM (ELISA). The sensitivity, specificity, PPV, NPV and positive likelihood ratio of positive TT, leukopenia and thrombocytopenia each serving as single indicators for the diagnosis of DVI were 57.3%, 82.3%, 94.1%, 28.5%, 3.06; 65.1%, 52.9%, 87.1%, 23.7%, 1.38; 80.7%, 23.5%, 83.8%, 20%, 1.06 respectively. A combination of positive TT and leukopenia had sensitivity, specificity, PPV, NPV and positive likelihood ratio of 42.2%, 88.2%, 94.5%, 23.8%, 3.32 respectively, while combination of positive TT, leukopenia and thrombocytopenia revealed 32.5%, 94.1%, 93.1%, 21.1%, 1.05 respectively.

*Conclusion* The presence of positive TT combined with leukopenia and thrombocytopenia are useful indicators to diagnose DVI.

*Keywords: Dengue virus infection, child, tourniquet pain test, leukopenia, thrombocytopenia*

INF-PP-2-2-070

## Congenital rubella syndrome: a case report

Anis Marfuah, Sri Lilijanti Widjaja, Rustam Siregar, Harsono Salimo
Department of Child Health, Sebelas Maret University Medical School/ Moewardi Hospital, Surakarta

### Abstract

Rubella is one of a mild disease, if it happened in pregnant women causing the congenital rubella syndrome (CRS), with the clinical spectrum of ophthalmic, auditory, cardiac and craniofacial defect. The estimated incidence is more than 100.000 infants were born with congenital rubella syndrome. This case report is to present a case of congenital rubella syndrome. We reported a case of 9-month old boy with congenital rubella syndrome in September 2011. There was history of dyspnea in activity, and showed no auditory response. The parents realized the symptoms on 3 months before admission. Physical examination showed microcephaly, normal jugular venous pressure, no cardiac enlargement on percussion, continous murmur gr 3/6 at II left parasternal border (LPSB). There were no involvements of ophthalmic defects. Laboratory results showed Ig G rubella (+) and IgM rubella (-). Sinus rhythm on electrocardiogram and echochardiogram showed patent ductus arteriosus. He has bilateral severe sensorineural hearing loss. He has done PDA ligation and wear hearing aids. Congenital rubella syndrome can be prevented with the MMR vaccination. Screening for TORCH is needed for women who are planning to have a conception. The screening is useful to reduce the incidence of CRS.

*Keywords: congenital rubella syndrome, MMR vaccination*

# UTILITY OF TOURNIQUET TEST, WHITE BLOOD CELL COUNT AND PLATELET COUNT IN IDENTIFYING DENGUE VIRUS INFECTION

Meiliza Madona, Erwina M Astuti, Leny Kartina, Dwiyanti Puspitasari, Dominicus Husada, Widodo Darmowandono, Parwati S Basuki, Ismoedijanto

Division of Infection and Tropical Pediatrics
Departement of Child Health, Medical School, Airlangga University
Dr. Soetomo Hospital, Surabaya, Indonesia

## Abstract

**Background:** Dengue virus infection (DVI) often presents with non-specific clinical signs. There has been no published data on the utility of tourniqet test, white blood cell count (WBC) and platelet count (PC) as a diagnostic tool in Surabaya.

**Objective:** To validate the use of TT, WBC and PC as a diagnostic tool to identify DVI among acute febrile illness in children.

**Methods:** This prospective study was conducted to 100 children presenting fever for 2–7 days without focal signs in the Pediatric Ward, Soetomo Hospital from January to April 2013. The study evaluated the sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and Positive Likelihood Ratio of positive TT, leukopenia (WBC <5,000/mm$^3$) and thrombocytopenia (PC <150,000/mm$^3$) in identifying DVI.

**Results:** Among 100 patients with mean of age 87.18 (range 6 -156) months, 83 were serologically confirmed as dengue infection based on positive IgM (ELISA). The sensitivity, specificity, PPV, NPV and positive likelihood ratio of positive TT, leukopenia and thrombocytopenia each serving as single indicators for the diagnosis of DVI were 57.3%, 82.3%, 94.1%, 28.5%, 3.06; 65.1%, 52.9%, 87.1%, 23.7%, 1.38; 80.7%, 23.5%, 83.8%, 20%, 1.06 respectively. A combination of positive TT and leukopenia had sensitivity, specificity, PPV, NPV and positive likelihood ratio of 42.2%, 88.2%, 94.5%, 23.8%, 3.32 respectively, while combination of positive TT, leukopenia and thrombocytopenia revealed 32.5%, 94.1%, 93.1%, 21.1%, 1.05 respectively.

**Conclusion:** The presence of positive TT combined with leukopenia and thrombocytopenia are useful indicators to diagnose DVI.

**Keywords:** *dengue virus infection, child, tourniquet test, leukopenia, thrombocytopenia*

## Introduction

Dengue is the most rapidly spreading mosquito-borne viral disease in the world. It is transmitted through the bite of an infected mosquito, usually Aedes aegypti or Aedes albopictus, and is endemic to tropical and subtropical regions. An estimated 50 million dengue infections occur annually and approximately 2.5 billion people live in dengue endemic countries. Globally, 500,000 patients with dengue, mostly children, require hospitalization and at least 12,500 die each year.[1]

Most of the laboratory-confirmed fatal cases had a delay in diagnosis and treatment initiation.[2] While morbidity and mortality has been linked to delayed provision of supportive treatment,[3] case fatality rates for severe dengue infections, including DHF and dengue shock syndrome (DSS), can be reduced from 10% to 20% to less than 1% with early diagnosis and proper treatment. However, there is no rapid, point-of-care diagnostic test available, and the clinical diagnosis of dengue may be challenging, as it usually presents with non-specific symptoms, including fever, headache and myalgia.[1,4]

## Materials and methods

A prospective study was conducted to children presenting fever for 2–7 days Pediatric Ward, Soetomo Hospital from January to April 2013. Patients with focal sign, bacterial infection confirmed and dengue shock syndrome were excluded from this study.

Clinical data that were recorded were duration of fever and hemorrhagic manifestation including positive tourniquet test. A TT was performed by trained study personnel. The standard TT was performed by inflating a blood pressure (BP) cuff on the upper arm of the patient to a point mid way between their systolic and diastolic pressure for 5 minutes, and then counting the number of petechiae in a 2.5 cm2 area on the volar aspect of the forearm just distal to the antecubital fossa 2 minutes after releasing the BP cuff. The TT was considered positive if 10 or more petechiae were identified.

Complete blood count and IgM-IgG anti Dengue (ELISA) were recorded as laboratory examination. Leucopenia was defined as a total white blood cell count (WBC) of <5,000/mm3. Thrombocytopenia was defined as platelet count (PC)< 150,000/$mm^3$. DVI confirmed by positive IgM anti Dengue.

The study evaluated the sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and Positive Likelihood Ratio of positive TT, leukopenia and thrombocytopenia in patients with DVI.

## Results

There were 100 patients with acute febrile ilness, 83 patients with positive IgM Dengue was enrolled to yhis study. Mean of age 87.18 (range 6 -156) months. The days of illness when admitted was varied with modus was four day of fever (range 2-7 days) (Figure1).

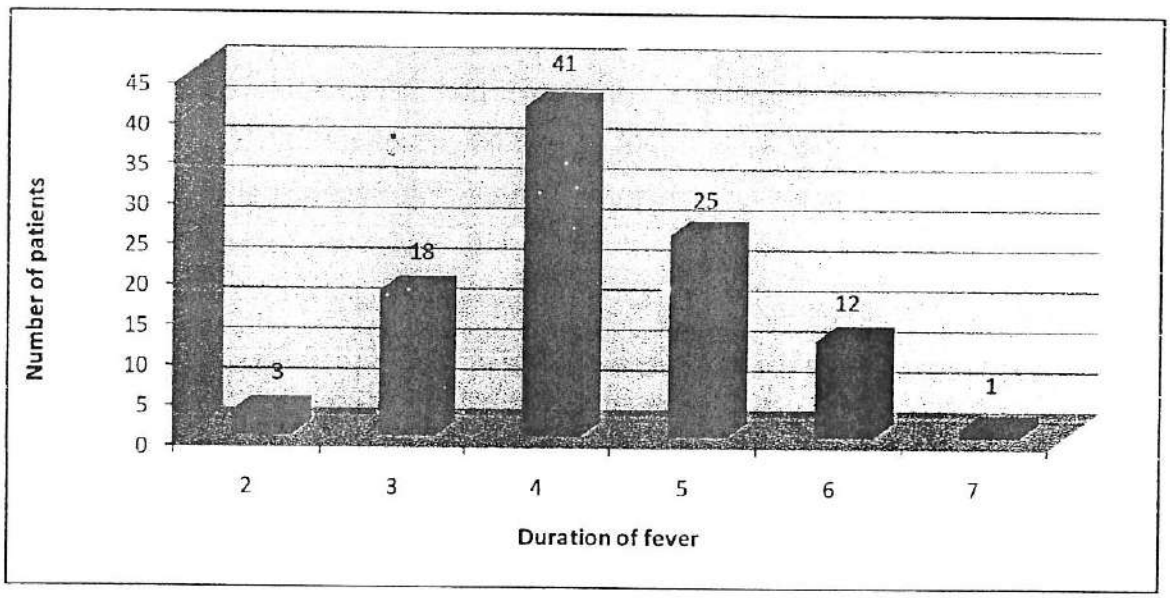


Figure 1. Duration of fever at presentation

Touniquet test (TT) and complete blood count (CBC) were done to all patients. Tourniquet test were positive in 48 (57%)patients, leucopenia in 54(68%) patients, thrombocytopenia in 67(80%). Positive TT and leucopenia were confirmed in 35(42%) patients and positive TT, leucopenia and thrombocytopenia were confirmed in 28(33%) patients (Figure 2).

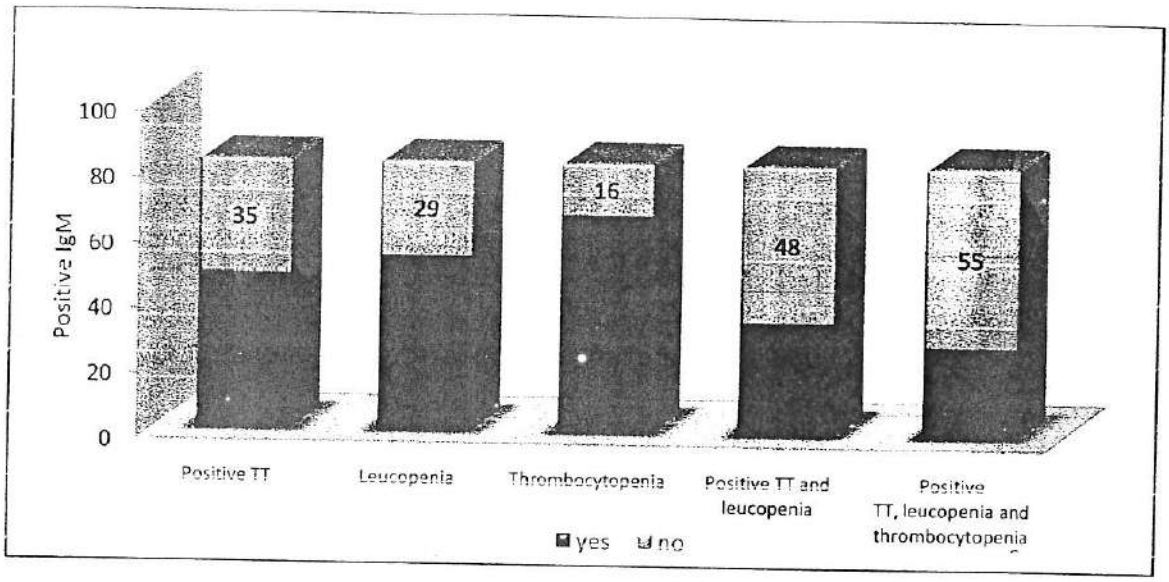


Figure 2. Tourniquet test, leucopenia and thrombocytopenia result among 83 DVI patients

The sensitivity, specificity, PPV, NPV and positive likelihood ratio of positive TT, leukopenia and thrombocytopenia each serving as single indicators for the diagnosis of DVI were 57.3%, 82.3%, 94.1%, 28.5%, 3.06; 65.1%, 52.9%, 87.1%, 23.7%, 1.38; 80.7%, 23.5%, 83.8%, 20%, 1.06 respectively. A combination of positive TT and leukopenia had sensitivity, specificity, PPV, NPV and positive likelihood ratio of 42.2%, 88.2%, 94.5%, 23.8%, 3.32 respectively, while combination of positive TT, leukopenia and thrombocytopenia revealed 32.5%, 94.1%, 93.1%, 21.1%, 1.05 respectively (Table 2).

Table 2. The sensitivity, specificity, Positive Predictive Value (PPV), Negative Predictive Value (NPV) and Positive Likelihood Ratio (PLR) of Positive Tourniquet Test (TT), Leucopenia and Thrombocytopenia for laboratory confirmed DVI

| Diagnostic test | Sensitivity | Spesificity | PPV | NPV | PLR |
|---|---|---|---|---|---|
| Positive TT | 57.3 | 82.3 | 94.1 | 28.5 | 3.06 |
| Leukopenia | 65.1 | 52.9 | 87.1 | 23.7 | 1.38 |
| Thrombocytopenia | 80.7 | 23.5 | 83.8 | 20 | 1.06 |
| Positive TT and leukopenia | 42.2 | 88.2 | 94.5 | 23.8 | 3.32 |
| Positive TT, leukopenia and thrombocytopenia | 32.5 | 94.1 | 93.1 | 21.1 | 1.05 |

## Discussion

This study evaluate the usefulness of a positive TT, leucopenia and thrombocytopenia alone and in combination in identifying children with dengue virus infection among children. Previous studies examining the use of these tests have primarily been performed in Asia among children suspected to have dengue and who required hospital admission[4-6] suggest that the TT may be useful in identifying dengue patients before a major decrease in platelet count, a group for whom dengue is often overlooked as a diagnostic possibility. As described in previous studies, we found that a positive TT alone was specific but not sensitive in distinguishing dengue from other AFI. This is especially true when the WHO cut off of 20 or more petechiae per 2.5 $cm^2$ is used.[7]

The presence a positive TT and leucopenia correctly identified 42% of patients who had dengue with highly PPV about 94%. The absence of a positive TT and leucopenia with a NPV 23.8%. The presence a positive TT, leucopenia and thrombocytopenia correctly identified 32% of patients who had dengue with highly PPV about 93%. The absence of a positive TT, leucopenia and thrombocytopenia have a NPV 21%. Compared with the data reported from Thailand on the combined performance of the TT and leucopenia in identifying dengue patients, our results showed a lower sensitivity (42.2% vs.74%)but similar specificity (88% vs. 86%). [5,8,9]

Our finding of lower sensitivity most likely reflects differences in study design. These previous studies primarily enrolled hospitalized patients who then received daily TTs until the day of defervescence. Our study participants had a single TT performed at initial presentation to the ED. Previous research has demonstrated that the sensitivity of the TT depends on repeated testing and the timing of the test with respect to the day of illness with sensitivity increasing as a patient nears defervescence.[8] We feel that using values solely from the time of initial patient contact is more useful, as it uses only information that is available to physicians at the time of initial triage.[10]

Our study has some important limitations. It was performed at an ED in a tertiary-level referral hospital with a large catchment area, and patients seeking care at this facility are more likely to have severe disease than patients who seek care at lower-level facilities.

Overall our study indicates that a combination of three rapid, widely available tests can assist clinicians in distinguishing dengue from other AFIs that have similar clinical signs and symptoms. Patients in our study population with AFI who had a negative TT, normal WBC and normal platelet count appear to be at low risk of having dengue.

## References


1. Kara NL. Comprehensive guidelines for prevention and control of dengue and dengue haemorrhagic fever: revised and expanded edition. New Delhi World Health Organization, Regional Office for South-East Asia; 2011.
2. Tomashek KM, Rivera A, Muñoz-Jordan JL, et al. Description of a large island-wide outbreak of dengue in Puerto Rico, 2007 Am J Trop Med Hyg 2009;81:467–74.
3. Malavige GN, Fernando S, Fernando DJ, Seneviratne SL. Dengue viral infections. Postgrad Med J 2004;80:588–601.
4. Gregory CJ, Santiago LM, Argüello DF, Hunsperger E, Tomashek KM. Clinical and laboratory features that differentiate dengue from other febrile illness in an endemic area-Puerto Rico, 2007-2008. Am J Trop Med Hyg 2010;82:922–9.
5. Sawasdivorn S, Vibulvattanakit S, Sasavatpakdee M, Iamsirithavorn aS. Efficacy of clinical diagnosis of dengue fever in paediatric age groups as determined by WHO case definition 1997 in Thailand. Dengue Bulletin 2001;25:56-64.
6. Phuong CXT, Nhan NT, Wills B, et al. Evaluation of the World Health Organization standard tourniquet test and a modified tourniquet test in the diagnosis of dengue infection in Viet Nam Trop Med Intern Health 2002;7 125–32.
7. MayfongMayxay, Phetsouvanh R, EMoore C, et al. Predictive diagnostic value of tourniquet test for the diagnosis of dengue infection in adults Trop Med Intern Health 2011 16 127–33.
8. Kalayanarooj S, Nimmannitya S, Suntayakorn S, et al. Can doctors make an accurate diagnosis of dengue infections at an early stage? Dengue Bulletin 1999;23:1-9.
9. Chairulfatah A, Setiabudi D, Agoes R, Colebunders R. Thrombocytopenia and platelet transfusions in dengue haemorrhagic fever and dengue shock syndrome. Dengue Bulletin 2003;27.
10. Gregory CJ, Lorenzi OD, Colo´n L, et al. Utility of the tourniquet test and the white blood cell count to differentiate dengue among acute febrile illnesses in the emergency room Plos Negl Trop Dis 2011;5:e1400.

# CERTIFICATE

This is to certify that

Dominicus Husada

Has attended in

THE 6th CHILD HEALTH ANNUAL
SCIENTIFIC MEETING
OF INDONESIAN PEDIATRIC SOCIETY

ORAL PRESENTATION

October 7-9, 2013 in Solo, Central Java, Indonesia

Badriul Hegar, dr., Sp.A(K), PhD
*President of Indonesian Pediatric Society*

Prof. Dr. Harsono Salimo, dr., Sp.A(K)
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to Kegiatan PIT IKA 6 Solo yang diselengarakan pada tanggal 5-9 Oktober 2013, dengan topik acara "Acceleration of DGs 2015 Achievement with Comprehensive Management of Pediatric Problems".

**orkshop Badan Penerbit "Pemantapan Mutu Publikasi Guna Mencapai Akreditasi Prima"**

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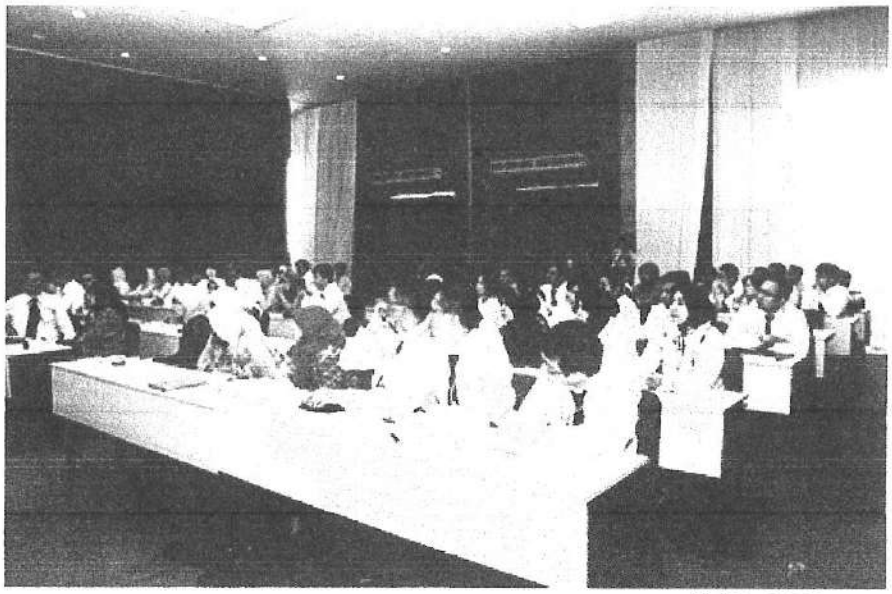

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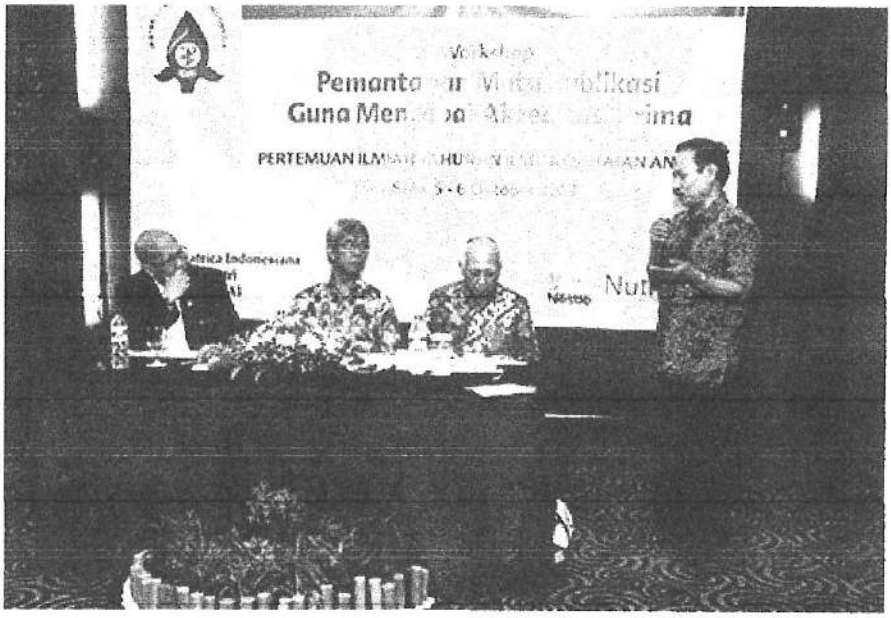


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*Chairman of the Committee*

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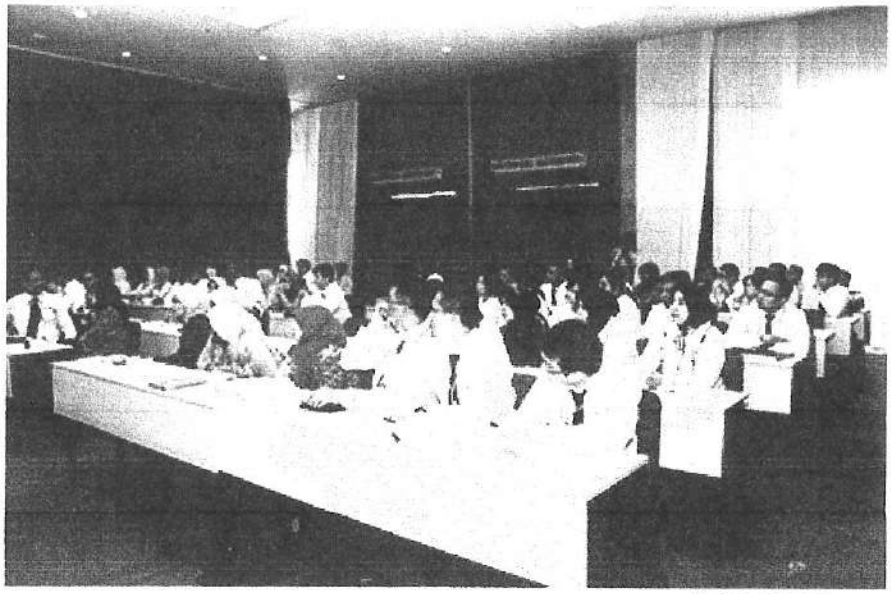

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