CORRELATION BETWEEN DENGUE VIRUS SEROTYPE AND HUMORAL IMMUNE RESPONSE IN PEDIATRIC DENGUE HEMORRHAGIC FEVER
(Aryati, Ely Retno Setyowati, Agung Dwi Wahyu W)

MODULATION OF IMMUNOGLOBULIN G (IgG) AND CORTISOL RESPONSES IN BREATHING EXERCISE
(Elyana Suherartono Asmar, Harjanto, Siswantojo)

PREDICTION OF DISTRIBUTION PATTERNS OF Aedes aegypti AS DHF MAIN VECTOR IN JEMBER
(Yulida Nuridian, Asmoro Lelono)

DIFFERENCE OF INTERFERON GAMMA LEVEL (RELEASE ASSAY) IN NURSES EXPOSED TO MYCOBACTERIUM TUBERCULOSIS AND ACTIVE TUBERCULOUS PATIENTS
(Endang Retnowati, Soedarsono, Novi T)

MOLECULAR EXPRESSION OF ESTROGEN RECEPTOR ALPHA (ERα) AND INTERLEUKIN 6 (IL-6) ON ACCELERATION OF HEALING PROCESS OF LONG BONE SHAFT FRACTURE BY IMMEDIATE REPETITIVE AXIAL COMPRESSION TENSION STABILIZATION (IREAT)
(Achmad Sjarwadi)

IL-4 IN PERIPHERAL BLOOD MONONUCLEAR CELLS AND BRONCHOALVEOLAR LAVAGE PATIENTS WITH PULMONARY TUBERCULOSIS BEFORE AND AFTER TREATMENT WITH ORAL ANTI-TUBERCULOSIS DRUGS
(IF Pellingan)

EFFECT OF ORAL CURCUMIN AND IMMobilIZATION ON THE DIAMETER OF SKELETAL MUSCLE FIBER IN Rattus norvegicus
(Ratna Darmantini Hayadi Soebadi, I Putu Alit Pawana)

CONTRALATERAL RENAL FIBROBLAST AND TUBULAR CELL APOPTOSIS AND PROLIFERATION IN ARTIFICIAL UNILATERAL TOTAL URETHRAL OBSTRUCTION IN RABBITS
(Pijaribodo Tjeturendi, Soebajo)

POLYMORPHISM C3435T OF THE MDR-1 GENE PREDICTS RESPONSE TO PREOPERATIVE CHEMOTHERAPY IN LOCALY ADVANCED BREAST CANCER WITH HER2/Neu EXPRESSION
(Ahari Astariadi)

Review Article:
CHALLENGE OF ENVIRONMENTAL TOXICOLOGY IN REFORMATION ERA
(Titiek Berniyanti)

BONE MORPHOGENETIC PROTEIN 4 (BMP4) AND PROSTAGLANDIN ALPHA (PGE2/α) MOLECULAR EXPRESSION IN HEALING PROCESS ACCELERATION OF LONG BONE SHAFT FRACTURE USING IMMEDIATE REPETITIVE AXIAL COMPRESSION TENSION STABILIZATION (IREAT)
(Achmad Sjarwadi)

TREATMENT RESPONSE OF CHRONIC MYELOGENIC LEUKEMIA IN DR. SOETOMO HOSPITAL
(Ugroemo)

Review Article and Clinical Experience:
THE OBESEITY PANDEMIC: THE "TIME-BOMB DISEASE" IN THE FUTURE?
Where Have We Been? And What Should We Do?
(Askandar tickropriwiro)

International Online Distribution by ProQuest™
www.proquest.com

<p>| Folia Medica Indonesiana | Vol. 44 | No. 1 | Page 1-66 | Surabaya | Jan-Mar 2008 | ISSN 0303-7932 |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Correlation between Dengue Virus Serotype and Humoral Immune Response in Pediatric Dengue Hemorrhagic Fever</td>
<td>1 - 5</td>
</tr>
<tr>
<td>2</td>
<td>MODULATION of IMMUNOGLOBULIN G (IgG) and CORTISOL RESPONSES in BREATHING EXERCISE</td>
<td>6 - 10</td>
</tr>
<tr>
<td>3</td>
<td>Prediction of Distribution Pattern of Aedes Aegypti as Dhf Main Vector in Jember</td>
<td>11 - 14</td>
</tr>
<tr>
<td>4</td>
<td>Difference of Interferon Gamma level (Release Assay) in Nurses Exposed to Mycobacterium Tuberculosis and Active Tuberculous Patients</td>
<td>15 - 20</td>
</tr>
<tr>
<td>5</td>
<td>MOLECULAR EXPRESSION OF ESTROGEN RECEPTOR ALPHA (ERα) AND INTERLEUKIN 6 (IL-6) ON ACCELERATION OF HEALING PROCESS OF LONG BONE SHAFT FRACTURE BY IMMEDIATE REPETITIVE AXIAL COMPRESSION TENSION STABILIZATION (IREACT)</td>
<td>21 - 23</td>
</tr>
<tr>
<td>6</td>
<td>IL-4 in Peripheral Blood Mononuclear Cells and Bronchoalveolar Lavage Patients with Pulmonary Tuberculosis Before and After Treatment with Oral Anti-Tuberculosis Drugs</td>
<td>24 - 29</td>
</tr>
<tr>
<td>7</td>
<td>Effect of Oral Curcumin and Immobilization on the Diameter of Skeletal Muscle Fiber in Rattus Norvegicus</td>
<td>30 - 34</td>
</tr>
<tr>
<td>8</td>
<td>Contralateral Renal Fibroblast and Tubular Cell Apoptosis and Proliferation in Artificial Unilateral Total Urethral Obstruction in Rabbits</td>
<td>35 - 40</td>
</tr>
<tr>
<td>9</td>
<td>POLYMORPHISM C3435T OF THE MDR-1 GENE PREDICTS RESPONSE TO PREOPERATIVE CHEMOTHERAPY IN LOCALLY ADVANCED BREAST CANCER WITH HER2/Neu EXPRESSION</td>
<td>41 - 46</td>
</tr>
<tr>
<td>10</td>
<td>Review Article: Challenge of Environmental Toxicology in Reformation Era</td>
<td>47 - 51</td>
</tr>
<tr>
<td>11</td>
<td>BONE MORPHOGENETIC PROTEIN 4 (BMP4) AND PROSTAGLANDIN ALPHA (PGE2α) MOLECULAR EXPRESSION IN HEALING PROCESS ACCELERATION OF LONG BONE SHAFT FRACTURE USING IMMEDIATE REPETITIVE AXIAL COMPRESSION TENSION STABILIZATION (IREACT)</td>
<td>52 - 55</td>
</tr>
<tr>
<td>12</td>
<td>Treatment Response of Chronic Myelogenic Leukemia in Dr. Soetomo Hospital</td>
<td>56 - 59</td>
</tr>
</tbody>
</table>
MODULATION of IMMUNOGLOBULIN G (IgG) and CORTISOL RESPONSES in BREATHING EXERCISE

MODULATION of IMMUNOGLOBULIN G (IgG) and CORTISOL RESPONSES in BREATHING EXERCISE

1. Elyana Suhartono Asnar --> Department of Physiology, Airlangga University School of Medicine, Surabaya
2. Harjanto --> Department of Physiology, Airlangga University School of Medicine, Surabaya
3. Siswantoyo --> Yogyakarta State University School of Sport Sciences, Yogyakarta

Abstract

Indonesians have various types of breathing exercise believed to be able to improve immunity and prevent illnesses, particularly those resulting from stress. This study was aimed to prove the presence of immunoglobulin G (IgG) and cortisol modulation resulting from breathing exercise. This experimental study used randomized pretest-posttest control group design. Total sample involved in this study, both in treatment and control group, was 15 males from SMU Mualimin Yogyakarta. Treatment, which was presenting as breathing exercise, comprising of stances, breathing, and concentration (dzikir) for 7 weeks, three times a week. Laboratory examination was carried out using ELISA. Data were analyzed with t test, using SPSS program for Windows, and a highly significant increase (p = 0.000) of IgG level in treatment group as much as 41.80 ng/ml, while control group had a decrease of 30.89 ng/ml. The analysis of cortisol level showed significant reduction (p = 0.010) in treatment group of 4.09 ng/ml and 2.17 ng/ml in control group. In conclusion, the increase of IgG level does result from breathing exercise. The reduction of cortisol level in breathing exercise was found in treatment group that employed breath control and dzikir, so that this group is more composed and relaxed as compared to control group. Relatively low cortisol level provides an opportunity to lymphocyte T to produce interleukin-2 that stimulates the activity of plasma cells to produce immunoglobulins, one of which is IgG. Therefore, cortisol reduction due to breathing exercise has positive effect on IgG increase, so that breathing exercise can be used as one alternative of cost-saving and effective exercise to enhance immunity by reducing cortisol level and increase immunoglobulin G.

Keyword : breathing, exercise, IgG, modulation, cortisol,

Daftar Pustaka :