

HEALTH SCIENCES

1. ANTITUBERCULARS FROM PHILIPPINE PLANTS*

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For years, the Philippines has been plagued with tuberculosis. Separate studies by Filipino researchers on Philippine plants screened for antimicrobial activity had been wanting in terms of antitubercular promise. In these studies, screening had been conducted using a surrogate, nonpathogenic, rapid growing *Mycobacterium*. *Mycobacterium tuberculosis* is a unique slow growing organism with specific susceptibilities to drugs; thus, it is necessary to screen against the actual etiologic agent.

In this study, Philippine plants with reported antitubercular properties were extracted with alcohol. The concentrated extracts were assayed for inhibitory activity against *Mycobacterium tuberculosis* H37Rv at two concentrations using radiorespirometric techniques. Results showed an interesting antitubercular profile for the plants tested. Of the 52 plant extracts studied, 32 extracts inhibited the growth of *Mycobacterium tuberculosis* H37Rv at concentrations of 100 µg/mL and 1000 µg/mL. Those exhibiting significant inhibitory activity of >50% at 100 µg/mL are extracts of the leaves of *Abutilon indicum*, *Morus alba*, *Calophyllum inophyllum*, *Momordica charantia*, *Bixa orellana*, and *Morinda citrifolia*. Bioassay-guided fractionation is currently being done to identify the active constituents.

*Best poster paper award in the Health Sciences Division.

2. LIVER ABSCESS IN CHILDREN: A REVIEW OF CASES AT THE PHILIPPINE GENERAL HOSPITAL

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A review of pediatric liver abscesses during a 7-year period (January 1987-July 1994) at UP-PGH was done. Twenty five out of 45 cases were available for review. Mean age was 4.8 years with a M:F ratio of 2:1. Most common symptoms were fever (84%) and abdominal pain (72%). Other prominent symptoms were anorexia (52%), abdominal distention (52%), weight loss (36%), diarrhea (40%), and vomiting (28%). Hepatomegaly, RUQ tenderness, mass anemia, and jaundice were the most common signs. Prothrombin time was normal in 60%, while WBC in 72%, total bilirubin (mean = 25.9 $\mu\text{mol/L}$) in 30%, alkaline phosphatase (mean = 192 U/L) in 52%, and AST (Mean = 46.3 U/L) in 77% were elevated. Eighty percent were diagnosed by ultrasonography. Solitary abscess was found in 65% of the cases. Of the 14 organisms isolated from the aspirates, 9 (64%) were *Staphylococcus*, 2 (14%) *E. coli*, 1 (7%) *Pseudomonas*, 1 (7%) *Salmonella*, 1 (7%) *Proteus*, and no growth in 2 (25%). Treatment was by ultrasound-guided aspiration (88%), exploratory laparotomy with debridement and drainage (12%) combined with broad-spectrum antibiotics for 4-6 weeks, 36% were on medical therapy alone. Eighty percent were discharged, improved with an average length of hospitalization of 3.4 weeks. There were 4 mortalities: 3 were diagnosed only at autopsy while the fourth died due to multiple liver abscesses, perinephric abscess, and pericardial effusion.

3. BLOODY DIARRHEA AMONG FILIPINO CHILDREN: ETIOLOGY AND OUTCOME OF THERAPY USING WHO CASE MANAGEMENT

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A descriptive, prospective study was conducted to determine etiology and outcome of bloody diarrhea in children according to WHO guidelines. Forty pa-

tients aged 3 months to 14 years with bloody diarrhea (mean 17.5. mo) were included. M:F ratio was 30:10. The associated symptoms observed were fever (47.5%), vomiting (27.5%), convulsions (2.5%), and abdominal pain (32.5%). The mean weight was 8.53 kg and only one was 70% of the weight for height standard. Majority, 29 (72.5%), came in with no signs of dehydration while 10 (25.0%) with some dehydration, and only 1 (2.5%) with severe signs. On stool microscopy 57.5% had > 5-10 wbc/hpf and all had RBCs in the stool. Enteropathogens isolated in pure culture were *E. histolytica* (5), *Salmonella* (3), *Shigella* (2), *EPEC* (2), *Vibrio cholera* (2), *ETEC* (1), *Aeromonas* (1), and *Rotavirus* (1). Mixed cultures were seen in 22.5% cases. Treatment with cotrimoxazole alone showed improvement in 31/36, and of those who did not improve, 1 improved with nalidixic acid and 4 with metronidazole given subsequently. Four patients given metronidazole initially due to documented *E. histolytica* on admission improved within 48 h. Thus, it is important to consider treatment of *E. histolytica* in patients with bloody diarrhea who do not respond within 48 h to cotrimoxazole therapy.

4. DIURETIC STUDIES OF FIVE *Pandanus* SPECIES

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Some *Pandanus* species are reputedly used for their diuretic properties. Diuretic studies have been done to validate the reputed medicinal use of these *Pandanus* species. Crude alcoholic extracts of the leaves of five *Pandanus* species namely, *P. veitchii*, *P. dubious*, *P. tectorius*, *P. luzonensis*, and *P. amaryllifolius* were studied for diuretic properties. Following the administration of three different doses of crude extracts, the following parameters were measured from the urine of experimental animals: volume, Na⁺, K⁺, and titratable acidity. *Pandanus* species which appear to exhibit diuretic potential are *P. luzonensis*, *P. amaryllifolius*, and *P. tectorius*.

5. EFFICACY OF SOME BOTANICAL EXTRACTS AGAINST MEDICALLY IMPORTANT MOSQUITOES IN THE PHILIPPINES

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Ten Philippine plant extracts were tested for activity against the different life stages of important mosquitoes in the country.

The skin repellency test done in human subjects showed that extracts of the leaves of *Gliciridia sepium* (Jacq.) Stend., "kakawati", and *Anona squamosa* L., "atis", applied as skin lotion provided good protection time under rural and urban settings. The results are favorably comparable with those obtained using a popular imported product.

The only plant extract exhibiting larvicidal property was that of the fruit of *Piper nigrum* L., "paminta", tested in bodies of water as a treated sawdust material. This activity was shown in the following ways: (1) the young larvae emerging from the egg stage were shortly eliminated; (2) laying of eggs by adults was inhibited; (3) the old larvae population was held in check resulting in depletion of mosquito immatures. It was noted that *P. nigrum* is nontoxic to nontarget species and therefore has another advantage.

The lotions prepared are washable and nongreasy. The products are devoid of objectionable odor and color.

6. DISTRIBUTION PROFILE OF URINARY HUMAN CHORIONIC GONADOTROPIN SUBUNITS: ASSAY DEVELOPMENT FOR LUNG AND BREAST CANCER

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The α and β subunits of human chorionic gonadotropin (hCG) from 117 urine samples of patients clinically diagnosed to have lung and breast cancers and 37 urine samples of normal and pregnant subjects were separated using ion-exchange chromatography. Determination of the autocrine hormone in the urine samples from non-small cell lung carcinoma cases revealed that 57% had significantly elevated α

subunits ($p < 0.05$). Of the 12 small cell lung cancer cases screened, 25% showed elevated α peaks. Of the 42 breast cancer cases screened, 69% had significantly elevated α peaks ($p < 0.05$). In normal, non-pregnant, and pregnant urine samples, 75% and 83% respectively, elevated β peaks were observed.

The distribution profiles of hCG subunits in established cancer cell lines were likewise investigated for comparison. A marked increase in α subunit was observed in supernate from SL-6 (large cell carcinoma). A moderate increase in the α subunit was obtained in both A-549 (lung adenocarcinoma) and SLNI-52 (tracheo-bronchial carcinoma). The supernate from primary culture of mammary cancer explant exhibited an elevated α subunit as well.

7. PSYCHOSOCIAL NEEDS OF HOSPITALIZED AND NON-HOSPITALIZED FILIPINO CANCER PATIENTS

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The total understanding of the needs of a patient in his social and cultural milieu is the basic and foremost purpose of an organized health care program.

This study hopes to contribute to the body of scientific knowledge on the psychosocial needs of Filipino cancer patients. The findings of this study will equip nurses specializing in cancer nursing with the knowledge and understanding of the specific psychosocial needs of cancer patients, thereby enabling them to formulate a realistic, adequate, and effective nursing care plan. The cancer patients will be most benefited. Hopefully they will receive the kind of care they expect/deserve.

The study was conducted at the Philippine General Hospital and administered to one hundred hospitalized and non-hospitalized cancer patients selected at random. Research instruments consisted of an interview schedule and checklist. Utilizing Maslow's hierarchy of needs as a model, the questionnaire gathered data on the specific psychosocial needs of cancer patients. Statistical analysis of the data was done through the use of chi-square, the contingency coefficient, and McNemar test.

Findings showed various similarities in the psychosocial needs of cancer patients. However, there appeared differences in the magnitude of psychosocial needs between hospitalized and non-hospitalized cancer patients. Hospitalized cancer patients have increased psychosocial needs in terms of safety and security, love and belonging, self-esteem, and recognition compared to non-hospitalized cancer patients. The magnitude of difference ranged from 0.216-0.691. Other findings revealed that socio-demographic variables such as age, sex, educational attainment,

religion, closeness of family ties, have no significant relationships with the psychosocial needs of hospitalized and non-hospitalized cancer patients. The knowledge of diagnosis of the respondents was found to be significantly related to safety and security needs ($p < .01$).

In terms of the perception of care received by the hospitalized group, majority of the patients felt that they were provided with only a "slight" degree of care in their physical and emotional needs. Hospitalized cancer patients were treated with respect by hospital personnel.

The findings of the study imply a need for health workers, specially nurses, to identify psychosocial needs of patients and to formulate a plan of care relevant to such needs. On top of this, care planning must be carried out to effect quality care considering that the patient is a biopsychosocial being.

8. IN VITRO CULTIVATION OF UROTHELIAL CELLS FOR TISSUE GRAFT

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An in vitro cultivation of urothelial cells and a urothelial tissue graft were developed. Urothelial cells were isolated from 30 tissue samples obtained from the urinary bladders of six adult New Zealand rabbits that underwent partial cystectomy. The cells from 15 tissue samples were grown in serum-free M-199 culture medium supplemented with growth factors. Those from the remaining 15 tissue samples were grown over human placental membrane in the same medium. All cultures were incubated at 37°C in 5% CO₂ and fed three times a week.

Confluent growth of monolayer cells was observed within seven days in all the cultures. Phase-contrast microscopy revealed the epithelioid morphology of the cultured cells. Histochemical analyses on the smeared harvested cells confirmed the growth of urothelial cells. The same type of cells was observed to have grown over the human placental tissue after seven days of in vitro cultivation.