[Indian J Chest Dis Allied Sci 2013;55:239-242]

Abstracts' Service

Screening for Active Tuberculosis: Methodological Challenges in Implementation and Evaluation

J.E Golub, D.W. Dowdy

The International Jounal of Tuberculosis and Lung Disease 2013;17:856-65

As active screening strategies for tuberculosis (TB) continue to rise globally, it has become increasingly important to consider the methodological challenges in designing and implementing these strategies. The key challenges associated with TB screening can be summarized in terms of four continua or spectra, namely those of 1) TB disease and diagnostic yield, 2) TB risk and resource availability, 3) TB screening strategies, and 4) outcomes and impact measurements of screening programs. In this review, we provide a discussion of these challenges to help guide development of TB screening strategies that will be effective in a given epidemiological setting.

Salt in Health and Disease: A Delicate Balance

Theodore A. Kotchen, Allen W. Cowley, Jr, and Edward D. Frohlich

The New England Journal of Medicine 2013;368:1229-37

The fact that salt (sodium chloride) is essential for life has been recognized for millennia. Historically, the exchange value of salt played an important role in establishing trade routes, securing alliances,and provoking revolutions. Homer referred to salt as a divine substance and Plato described it as especially dear to the gods. Salt has been associated with sexual potency, fertitlity, and immortality.

In sodium-deficient states, salt consumption is driven by salt appetite – an innate and motivated behavioral response that drives a human or animal to seek and ingest salt-containing foods and fluids.[1] However, under usual circumstances, the ambient salt diet is in excess of physiological need, and in humans, it has been difficult to distinguish innate salt appetite and salt need from salt preference.[2] The hunger for salt is also influenced by taste, culture, social custom, the widespread availability of salt, and habit independent of the need for salt.[3] Despite its historical value and physiological importance, high salt consumption has been recognized as detrimental to health. In this article, we provide an overview of the current understanding of the relation of salt consumption to hypertension and cardiovascular disease.

Childhood Allergies Affect Health-Related Quality of Life

Corina Covaciu, Anna Bergstrom, Tomas Lind, Magnus Svartengren, and Inger Kull

Journal of Asthma 2013;50:522-8

Objective. The majority of studies investigating the effects of allergy on the children's health-related quality of life (HRQoL) address one particular allergic disease, using a disease-specific HRQoL instrument. This work aims to assess the comparative impact on HRQoL of several allergic conditions of childhood (asthma, rhinitis, eczema, and food hypersensitivity) in a large, population-based sample of Swedish 8-year-olds.

Methods. Data were obtained from a Swedish birth cohort (BAMSE). At the 8-year follow-up, parents of 3236 children completed the standardized generic HRQoL instrument EQ-5D and reported on the children's symptoms of asthma, rhinitis, eczema, and food hypersensitivity. Information on allergic sensitization and lung function was available for a sub-sample of the children (n = 2370 and 2425, respectively).

Results. Children in the study population had a median EQ visual analog scale (VAS) of 98 (Inter Quartile Range, IQR, 90-100). The median EQ VAS was significantly lower in children with allergic

diseases. Children with asthma had the lowest median EQ VAS (90, IQR 85-98) and reported the highest prevalence of problems of "pain or discomfort" (18.2%, compared to 5.5% in children without asthma). Frequent wheezing and effort-induced wheezing were associated with high prevalence of problems of "anxiety or depression" (23.3% and 15.4%, respectively).

Conclusions. Swedish 8-year-olds enjoy a good HRQoL, which though is significantly impacted by allergic diseases and particularly by asthma. Asthma symptoms are important determinants of HRQoL and symptom control should be a major goal in asthma management.

Visual Analog Scale as a Predictor of GINA-Defined Asthma Control: The SACRA Study in Japan

Ken Ohta, Philipee Jean Bousquet, Kazuo Akiyama, Mitsuru Adachi, Masakazu Ichinose, Motohiro Ebisawa, Gen Tamura, Atsushi Nagai, Sankei Nishima, Takeshi Fukuda, Akihiro Morikawa, Yoshitaka Okamoto, Yoichi Kohno, Hirohisa Saito, Hiroshi Takenada, Larry Grouse and Jean Bousquet

Journal of Asthma 2013;50:514-21

Objective. The assessment of asthma control is pivotal to treatment decisions. A questionnaire that assesses the Global Initiative for Asthma (GINA)-defined control requires four questions. A visual analog scale (VAS) to evaluate asthma control can be simply marked, but its correlation with GINA-defined control has been insufficiently evaluated. The purpose of this study is to evaluate whether VAS levels can predict GINA-defined asthma control with particular emphasis on the distinctions between "partly controlled" and "uncontrolled" and between "partly controlled" and "controlled" asthma,

Methods. A cross-sectional multicenter study was carried out throughout Japan (SACRA) from March to August 2009 among patients with a diagnosis and treatment of asthma. Asthma control was studied using the GINA questionnaire and a VAS measurement of asthma severity. Pulmonary function testing was not carried out.

Results. 1910 physicians enrolled 29,518 patients with asthma. 15,051 (51.0%) questionnaires were administered by physicians; patients filled out 14,076 (47.7%) questionnaires themselves. 28,225 (95.6%) of the patients were evaluable. VAS measurement of asthma symptoms was useful in predicting levels of GINA-defined control categories (the area under the receiver operating characteristic curve ranging from 0.704 to 0.837). Patients with "controlled," "partly controlled," and "uncontrolled" asthma were discriminated by VAS levels (1.50, 4.79, and 7.19). Similar results have been obtained with self- and physician-administered questionnaires showing the validity of results.

Conclusions. Measurement of VAS levels is able to discriminate between patients with "controlled," "partly controlled," and "uncontrolled" asthma.The VAS score could be a simple guide in clinical situations requiring daily or regular evaluation of asthma control.

Impact of Family History of Cancer on the Incidence of Mutation in Epidermal Growth Factor Receptor Gene in Non-Small Cell Lung Cancer Patients

Yayi He, Shuai Li, Shengxiang Ren, Weijing Cai, Xuefei Li, Chao Zhao, Jiayu Li, Xiaoxia Chen, Gaunghui Gao, Wei Li, Fei Zhou, Caicun Zhou

Lung Cancer 2013;81:162-166

Background. Epidermal growth factor receptor (EGFR) activating mutation is an important predictive biomarker of EGFR tyrosine kinase inhibitors (TKIs) in non-small cell lung cancer (NSCLC), while family history of cancer also plays an important role in the neoplasia of lung cancer. This study aimed to investigate the association between family history of cancer and EGFR mutation status in NSCLC population.

Methods. From February 2008 to May 2012, 538 consecutive NSCLC patients with known EGFR

mutation status were included into this study. Amplification refractory mutation system (ARMS) method was used to detect EGFR mutation. The associations between EGFR mutation and family history of cancer were evaluated using logistic regression models.

Results. EGFR activating mutation was found in 220 patients and 117 patients had family cancer histories among first-degree relatives. EGFR mutation was more frequently detected in adenocarcinoma patients ($p < 0.001$), never-smoker ($p < 0.001$) and with family history of cancer ($p = 0.031$), especially who had family history of lung cancer ($p = 0.008$). In multi-variate analysis, the association of EGFR mutation with family history of cancer also existed ($p = 0.027$).

Conclusions. NSCLC patients with family history of cancer, especially family history of lung cancer, might have a significantly higher incidence of EGFR activating mutation.

Proposal on Incorporating Blood Vessel Invasion into the T Classification Parts as a Practical Staging System for Stage I Non-Small Cell Lung Cancer

Yujin Kudo, Hisashi Saji, Yoshihia Shimada, Jun Matsubayasho, Toshitaka Nagao, Masatoshi Kakihana, Jitsuo Usuda, Naohiro Kajiwara, Tatsuo Ohira, Norihiko Ikeda

Lung Cancer 2013;81:187-193

Background. We investigated blood vessel invasion (BVI) as a possible negative prognostic factor in patients with stage I non-small cell lung cancer (NSCLC) according to the 7th edition of the TNM classification.

Methods. Between 1999 and 2007, a total of 694 consecutive patients with pathological stage I NSCLC underwent complete resection with systematic lymph node dissection at Tokyo Medical University Hospital. All sections of the specimens were stained by Elastica van Gieson to visualize elastic fibers and were examined to determine the prognostic symptoms of BVI. We statistically analyzed the association between BVI and clinicopathologic factors, as well as clinical outcomes.

Results. BVI was detected in 201 patients with stage I NSCLC (29.0%). The 5-year overall survival (OS) rates of the non-BVI and BVI patients were 90.5% and 66.0%, respectively ($p < 0.0001$). BVI was found to be a significant independent prognostic factor by multivariate survival analysis in stage IA and stage IB NSCLC (HR 2.591, $p < 0.001$; HR 2.347, $p = 0.009$, respectively). The 5-year OS rate of patients with BVI was significantly worse than that of patients without BVI in the T1a (94.5% vs 87.5%, $p < 0.0001$), T1b (82.7% vs 65.9%, $p < 0.0001$), and T2a (90.9% vs 61.8%, $p < 0.0001$) subgroups.

Conclusions. We identified the presence of BVI as an independent poor prognostic factor in patients with stage I NSCLC. In the future revision of the TNM staging system, the routine use of elastic fiber stains in pathological evaluations of lung cancer for BVI determination might be recommended, and tumors with BVI should be upstaged to the higher current T staging.

Involvement of Intermediate Filament Nestin in Cell Growth of Small-Cell Lung Cancer

Osamu Takakuwa, Ken Maeno, Eiji Kunii, Hiroaki Ozasa, Hisatoshi Hijikata, Takehiro Uemura, Daishi Kasai, Hirotsugu Ohkubo, Mikinori Miyazaki, Tetsuya Oguri, Akio Niimi

Lung Cancer 2013:81:174-179

Background. Nestin is a class VI intermediate filament protein expressed in stem / progenitor cells during the development of the central nervous system. Nestin is detected in various types of tumors and is involved in malignant processes. This study investigated the expression and function of nestin in small-cell lung cancer (SCLC).

Methods. Expression of nestin and achaete-scute homolog 1 (ASH1) was studied in 21 lung cancer cell lines. To assess the function of nestin, a short hairpin RNA (shRNA) targeting nestin was transfected into two SCLC cell lines (DMS53 and SBC3), and cloned cells that showed apparent down-regulation of nestin were obtained. Nestin expression was also studied

immunohistochemically in surgically resected SCLC primary tumors and metastatic SCLC tumors obtained from autopsy cases.

Results. Nestin was expressed in nine of 10 SCLC cell lines. The nestin expression level was significantly higher in SCLC cell lines than in NSCLC cell lines ($P < 0.01$). There was a statistically significant positive correlation between the expression levels of nestin and ASH1 in SCLC cell lines. Nestin knock-down cells created by transfection with shRNA exhibited decreased invasion and cell proliferation capabilities. Furthermore, nestin was detected in SCLC tumor cells and tumor vessels in all clinical tumor specimens.

Conclusions. Nestin is expressed in SCLC in association with neuroendocrine features and participates in malignant phenotypes, including cell growth. Therefore, nestin may be a novel therapeutic target for SCLC.