Modern cutting-edge technologies: endoscopic submucosal dissection (ESD) and peroral endoscopic myotomy (POEM)

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Advanced endoscopy recently includes new cutting-edge technologies such as endoscopic submucosal resection (ESD). ESD is now a well-established endoscopic procedure for treatment of premalignant and early-stage malignant lesions such as of the stomach, esophagus, and colorectum (large colorectal polyps removal and for treating early-stage colorectal neoplasms with a maximum tumor size of 2–5 cm) providing a complete, en bloc excision difficult to resect by conventional EMR with local recurrences. For Barret’s carcinoma E(M)R suck and cut with cap (16 mm) remains the gold standard compared with ESD with water-jet. Always, proper patient and lesion selection for ESD are essential. Improved techniques and devices have been developed to facilitate safer and more reliable ESDs. Other modern cutting edge technique is peroral endoscopic myotomy (POEM), a revolutionary treatment for achalasia. It involves creating a submucosal tunnel directly to the stomach side; creating it perpendicular to the inner annulus muscle. Novel combined techniques are under evaluation for the accurate extent of submucosal tunnel into the gastric cardia and the adequacy of myotomy, important determining factors to success of POEM. High rates of esophasitis after POEM procedure shown by Western PEOM experience. Results. Controlled trials are still awaiting and POEM may not be superior to Heller myotomy and pemunodillation.

A systemic evolutionary approach to cancer: hepatocarcinogenesis as a paradigm

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The systemic evolutionary theory of cancer pathogenesis posits that cancer is generated by the de-emergence of the eukaryotic cell system and by the re-emergence of its archaea (genetic material and cytoplasm) and prokaryotic (mitochondria) subsystems with an uncoordinated behavior. This decreased coordination can be caused by a change in the organization of the eukaryote environment (mainly chronic inflammation), damage to mitochondrial DNA and/or to its membrane composition by many agents (e.g., viruses, chemicals, hydrogenated fatty acids in foods) or damage to nuclear DNA that controls mitochondrial energy production or metabolic pathways, including glycolysis. Here, we postulate that the two subsystems (the evolutionarily inherited archaea and the prokaryote) in a eukaryotic differentiated cell are well integrated, and produce the amount of clean energy that is constantly required to maintain the differentiated status. Conversely, when protracted injuries impair cell or tissue organization, the amount of energy necessary to maintain cell differentiation can be restricted, and this may cause gradual de-differentiation of the eukaryotic cell over time. In cirrhotic liver, for example, this process can be favored by reduced oxygen availability to the organ due to an altered vasculature and the fibrotic barrier caused by the disease. Thus, hepatocarcinogenesis is an ideal example to support our hypothesis. When cancer arises, the pre-eukaryote subsystems become predominant, as shown by the metabolic alterations of cancer cells (anaerobic glycolysis and glutamine utilization), and by their capacity for proliferation and invasion, resembling the primitive symbiotic components of the eukaryotic cell.

The diagnostic and prognostic performance of transforming growth factor-β and survivin as non-invasive biomarkers for hepatitis C related hepatocellular carcinoma: a longitudinal study

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Background: To date, there are no reliable biomarkers for hepatocellular carcinoma (HCC). Tumor growth factor-β (TGF-β1) and survivin play a role in cancer cell proliferation, however, they are not adequately assessed in HCC. The current study evaluated TGF-β1 and Survivin as potential diagnostic and prognostic biomarkers for screening, early diagnosis and predicting outcome of hepatitis C (HCV) associated HCC.

Patient and Methods: Serial serum TGF-β1 and survivin were measured by (ELISA) in patients with proven HCC, cirrhosis and chronic HCV and correlated with intrahepatic TGF-β1 gene expression (RT-PCR), survivin (immunohistochemistry) and the percentage of apoptotic cells (apoptotic index; AI; TUNEL assay) as well as with clinical, pathologic data, prognosis and survival.

Results: A total of 75 patients (42 patients with HCC, 21 with cirrhosis and 24 with chronic hepatitis C virus (HCV) were enrolled ad prospectively followed. TGF-β1 levels were significantly higher in HCC patients (626.93 ± 34.90 pg/ml) compared to patients with cirrhosis (158.35 ± 22.1 pg/ml) and chronic HCV (63.67 ± 0.81 pg/ml) (p < 0.0001). Patients with HCC had baseline serum survivin levels > 90 pg/mL. Serum TGF-β1 and survivin levels significantly correlated with the intrahepatic TGF-β1 and Survivin expression (r = 0.873; p < 0.0001 and 0.9014; p < 0.0001 respectively). Early HCC was associated with elevation of TGF-β1 and surviving. Serial serum TGF-β1 and Survivin levels compared and correlated to histopathologic findings and fibrosis progression rates.

Results: The fibrosis progression rates were significantly higher in patients with chronic HCV and thalassemia (0.48 ± 0.29 compared to those with chronic HCV (0.13 ± 0.25) or thalassemia (0.28 ± 0.31) (P < .0001). A direct linear correlation was observed between the progression of fibrosis rate/year and the progression rates of TE (r = 0.899, P<.001), YKL-40 (r = 0.730, P<.001), TGF-β1 (r = 0.626, P<.001), CK-18 (0.573, P < 0.002) and PIINP (0.471, P=0.03). SF-36 showed statistically significant differences in physical component scale (PCS) between thalassemia patients with and without chronic HCV infection.

Conclusion: Liver fibrosis is significantly accelerated in patients with chronic HCV and thalassemia. Transient elastography and serum direct fibrosis can be used, alone or in combination, as reliable non-invasive markers for detecting the stage of hepatic fibrosis and evaluating disease progression and monitoring of thalassemic patients with and without chronic hepatitis C.
significantly increased in patients with accelerated HCC progression and predicted poor prognosis and decreased survival. **Conclusion:** Serum TGF-β1 and survivin could serve as promising predictive non-invasive biomarkers for early detection of hepatocellular carcinoma and prediction of HCC progression, prognosis, outcome and recurrence.

**Hepatic hemodynamics and serum markers of fibrosis in non-alcoholic fatty liver disease and non-alcoholic steatohepatitis**

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**Background/Aims:** Nonalcoholic fatty liver disease (NAFLD) is a major cause of chronic liver disease worldwide. Liver biopsy and histopathology are considered the gold standard for diagnosis of NAFLD. Liver biopsy is an invasive procedure that has several adverse events in addition to difficulty in performing serial liver biopsies for monitoring the progression of the disease. The current study assessed the diagnostic and prognostic performance of several panels for non-invasive serum markers and Duplex Doppler ultrasound in monitoring NAFLD and non-alcoholic steatohepatitis (NASH). **Methods:** This observational, cross-sectional study enrolled patients at different stages of NAFLD and NASH. NAFLD liver fat score (NAFLD-LFS), “Fatty Liver Index (FLI)” “Hepatic Steatosis Index (HSII), the risk score oxNASH, NASHTest, Tumor necrosis factor-alpha (TNF-α), tumor growth factor beta 1 (TGF beta ) caspase-generated CK18 fragment levels (CK-18), and YKL-40 (YKL-40) were measured in patients and control subjects. The peak systolic velocity and resistive index of the hepatic artery, peak systolic velocity and resistive index of the superior mesenteric artery, peak systolic velocity and resistive index of the splenic artery were assessed. **Results:** TNF alpha, CK-18, TGF-b and YKL-40 were significantly higher in patients with NAFLD compared to control subjects. CK-18, TGF-b and YKL-40 were highest among NASH patients with liver fibrosis. TGF-beta, CK-18, and YKL-40 had the highest sensitivity, specificity, PPV and NPV in predicting of liver disease. A direct correlation was observed between each of TGF-beta, CK-18, and YKL-40 with the NAFLD fibrosis score (r = 0.87, r = 0.63, r = 0.69 respectively). No significant statistical difference was found between HA RI in NAFLD and control group. Significantly higher SMA RI, HA PSV and SA RI values was noted in NAFLD patients compared to control group (P > 0.001). No significant statistical difference was found between the mean PV velocity in NAFLD patients and the control group. **Conclusion:** TGF-beta, TNF-alpha and cytokeratin-8 can be reliable non-invasive markers for detection of NAFLD and monitoring of NASH. NAFLD correlated positively with the following parameters, liver span, portal vein diameter, SA RI and SMA RI, PSV of the HA, SMA, and SA. No significant correlation could be seen between NAFLD and HA RI, or portal vein flow pattern.

**An overview study of malaria in military fever hospital; an Egyptian pilot study**

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**Aim of the Work:** To study the clinical presentations and outcomes of malarial infected cases attending Military Fever Hospital in Cairo. **Patients and Methods:** Fifty patients with malarial infection were selected from those admitted to Almaza Military Fever Hospital. The following investigations were done for all cases; CBC, liver and renal function tests, serological tests (rapid diagnostic test for serum malarial antigens & microscopic examination of peripheral blood film) and abdominal US. **Results:** The majority of cases (76%) was already diagnosed and was coming from Peace Keeping Mission Forces in Africa. Congo was the most malaria-infected place (36%), then Ivory Coast (26%). Most of cases (80%) had intermittent fever. Six patients (12%) were admitted at ICU. The thick film method was the most sensitive diagnostic test (98%). P.falciparum was the commonest species among cases (80%) then P.ovale (20%). The best response in studied cases was poly-therapy (84%) while monotherapy was effective in only 5 patients (10%), (82 %) of cases were cured, one patient died and one patient had a relapse while 2 patient (4%) had recrudescence. **Conclusions:** Thick film is the most sensitive and informative test among all diagnostic test modalities. Combined therapy (polytherapy) is preferable than monotherapy.

**Hepatopulmonary syndrome in Egyptian patients with HCVRelated chronic liver disease**

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**Background and Aim:** Hepatopulmonary syndrome (HPS) is defined as the presence of liver disease in association with intrapulmonary vascular dilatation and arterial hypoxemia. This work aimed at evaluation of hepatopulmonary syndrome in Egyptian patients with HCV-related chronic liver disease. **Patients and Methods:** This cross-sectional study included sixty patients with HCV-related chronic liver disease who underwent complete clinical evaluation, laboratory investigations, abdominal ultrasonography, plain chest x-ray, arterial blood gas analysis to assess partial pressure of arterial oxygen (PaO2), partial pressure of arterial carbon dioxide (PaCO2) and alveolar-arterial oxygen gradient (A-aDO2) in addition to pulmonary function tests. **Results:** The prevalence of HPS was 55% (33 out of the 60 patients). Thirteen cases of them were in Child B and 20 cases in Child C group. There was a highly significant difference between Child A & C and between Child B & C classes as regards PaO2. There was highly significant difference between the three