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ORAL PRESENTATIONS

O1
Bezoars as a cause of acute small bowel obstruction
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BMC Proceedings 2013, 7(Suppl 1):O1

Background: Acute small bowel obstruction caused by bezoars is rare and, therefore, this problem is not well known by a community of doctors worldwide. Hence, there is high frequency of diagnostic and tactical errors and often probability of late operations. The aim of this research is to study possible reasons for the bezoar formation, clinical course and treatment of intestinal obstruction caused by bezoars.

Methods: The present report is based on a retrospective analysis of medical records of 15 patients suffered from this form of intestinal obstruction, who were treated at the Moscow Clinical Hospital № 71 over the last 20 years. The mean age of the patients was 67.2 ± 3.4. The diagnosis was established on the basis of complaints of patients, anamnesis, results of physical examination and x-ray. 8 patients had previously undergone a gastric resection for ulcer, 1 had undergone selective proximal vagotomy and 1 had undergone stem vagotomy with pyloroplasty.

Results: Acute small bowel obstruction caused by bezoar occurred in all 10 patients, who were operated earlier. It is associated with the fact that the above mentioned operations violate secretory and motor functions of the stomach causing the movement of poorly digested pieces of food to the small intestine and bezoar formation. Formation of bezoar is promoted by such factors as poor dental health, which does not provide proper chewing of plant products (persimmons, grapes and grapefruit) and animal products (meat), and quick swallowing, too. In the majority of patients, the course of small bowel obstruction was intermittent. All the patients were operated with diagnosis of acute intestinal obstruction. The assumption about the true nature of obstruction appeared in only 3 cases. In 10 cases bezoars were located in the ileum, and in 5 - in the jejunum. Bezoars were removed with enterotomy in 13 patients, in 2 - with fragmentation and transposition in the cecum. All operated patients have recovered.

Conclusions: Timely diagnosis of small bowel obstruction caused by bezoar is possible by a thorough analysis of anamnetic data (information about the previous operations on the stomach, food, dental health, and character of food chewing) as well as the particular features of its clinical course, which should be intermittent. Bezoar shall be removed from enterotomy made below the obstruction, where the bowel wall microcirculatory disorders are minimal.

O2
Clinical audit: crisis in the communication of abnormal blood test results in the wards
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BMC Proceedings 2013, 7(Suppl 1):O2

Background: Strict adherence to the established standards1 is expected in the communication of abnormal laboratory results between the laboratory and the ward. Upon receiving abnormal laboratory results, the laboratory personnel will phone and inform the ward about the results. The receiver will take the necessary actions and then transfer the abnormal results into the patient’s charts. In a three-week audit conducted, we compared the compliance of all wards in SVUH in acting upon and transferring the abnormal laboratory results into the charts against the standards set by Joint Commission International (JCI), whereby 100% compliance towards the process is expected.

Methods: Retrospective, random data collection of 100 abnormal laboratory results (50-biochemistry and 50-haematology) were compared to the details found in the corresponding patients charts using a data collection form consisting of three questions.

Results: Out of 100 cases, 39% of abnormal laboratory results were not written down, the team was not told and there was no action taken (all YES). In 32% of cases, the results were written down, the team was told and action was taken (all NO). In 27% of cases, the results were written down and team was told but there was no action (27% NO). There was no indication that team was told but action was not taken. Out of 13 wards, 2 reported high rates of compliance (3/3 and 6/8 cases with all YES) and 2 exhibited high rates of non-compliance (6/13 and 6/7 cases with all NO). One ward quoted a ‘different nursing care plan’ for their non-compliance.

Conclusions: Our study discovered a worryingly high non-compliance rate among medical ward staff towards the process of transferring the abnormal laboratory results into patients’ charts, while full compliance rate is low at 32%. There are inconsistencies between the different nursing care plans and the delay in the timely follow-up of patients’ abnormal laboratory results raises a safety concern. We propose the use of detachable stickers that could be peeled off and pasted into patients’ charts to increase compliance.
Role of synthetic retinoic acid derivatives in Chronic Lymphocytic Leukemia and Multiple Myeloma

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Background: B-cell Chronic Lymphocytic Leukemia (CLL) is the most common leukemia diagnosed in adults in the western world. Multiple Myeloma (MM), a plasma cell neoplasm based in bone-marrow, comprises about 1% of all malignant tumours. These are two incurable disorders with treatments that focus on controlling the disease and symptoms rather than eradicating it. Synthetic analogues of Retinoic Acid (RA) are currently used extensively for the treatment of skin disorders such as acne vulgaris and psoriasis, as well certain forms of cancer namely Acute Promyelocytic Leukemia. Preclinical studies have also garnered support for their chemopreventive potential in many more cancers, especially haematological malignancies.

The purpose of this study was to illustrate the roles of Fenretinide (4HPR) and Acitretin in CLL and MM and establish whether the two retinoic acid derivatives may prove to be prospective treatments for these malignancies. Fenretinide (4HPR) is a drug studied in a variety of cancers and has shown to induce apoptosis through increased levels of Reactive Oxygen Species (ROS) and activation of caspase-8, 9 and 3. Acitretin is currently used to treat psoriasis but little is known about its effect on cancer. Therefore, its mechanism of action is unknown.

Results: For the purpose of this study, 5 MM cell lines (RPMI-8226, NCI-H929, MM1s, KMS-BM-12, U-266) and primary cells isolated from whole blood of CLL patients were used. 4HPR significantly decreased cell viability in 4 out of 5 MM cell lines tested at 5, 10, 20µM, whereas Acitretin only had an effect at concentrations higher than 50µM in 2 MM cell lines. CLL cells were highly sensitive to 4HPR at all concentrations used, but were only sensitive to Acitretin up until 10µM. 4HPR and Acitretin also significantly decreased NCI-H929 and CLL cells migration capabilities. Additionally, western blot analysis on RPMI-8226 cells showed that 4HPR and Acitretin negatively affected the expression of the cell cycle markers cyclin D2 and phospho-Rb, the anti-apoptosis marker Mcl-1, and increased cleavage and therefore activation of the pro-apoptotic marker PARP. This suggests that the two inhibitors could affect both cell proliferation and apoptosis.

Conclusions: Having conveyed promising cytotoxic and chemotherapeutic properties with both CLL and MM cells, 4HPR and Acitretin have proven to be promising therapeutic candidates for MM and CLL treatment.

A novel assay of thrombotic risk

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BMC Proceedings 2013, 7(Suppl 1):O4

Introduction: It is widely believed that platelet responsiveness can be used as a marker for assessing thrombotic risk in patients. Therefore, there have been many attempts to develop suitable assays for quantifying platelet responses in clinical samples. Platelet aggregometry is widely used, but is limited in its ability to assess platelet hyper-responsiveness. In order to develop a better assay of thrombotic risk, we use a novel assay to evaluate platelet secretion of adenosine triphosphate & diphosphate (ATP/ADP) in response to various agonists. This assay measures both the maximal amount of adenine nucleotides released by a range of platelet activators and the potency of each activator.

Methods: To determine the reproducibility of this assay, we assessed 4 healthy female subjects on 3 separate occasions. 10mls of blood was drawn from subjects who had abstained from medication for the previous 12 days. Platelet ATP/ADP secretion was assessed in a 96 well assays as previously described. Briefly, platelet secretion is assessed in response to increasing doses of platelet agonists (Thrombin receptor activating peptide: TRAP 0.1-32µM; Collagen related peptide: CRP 0.05-100µg/ml). Released ATP/ADP is measured using firefly luciferase (Chronolume Corp). Data are expressed as nmoles ATP/ADP secreted per 10¹⁰ platelets. Dose-response curves are constructed and analysed using GraphPad Prism 5.0.

Results: The maximal amount of ATP/ADP released is similar for both agonists tested (1.94±0.25 and 2.12±0.28 nmoles per 10¹⁰ platelets in response to TRAP and CRP, respectively). However, the potency of responses, measured as EC₅₀ values, differed for the two agonists. For TRAP, the EC₅₀ values were equivalent in all 4 donors (mean EC₅₀ value is 4.84 ± 0.30µM; range 4.38-5.57µM). In response to CRP, the potency of the responses were nearly similar for all the donors (EC₅₀ range from 0.37µg/ml to 1.08µg/ml). Nonetheless, there is a high degree of concordance within all samples from any one donor.

Conclusions: Our data demonstrate that individual donors display unique response-parameters which may be used to assess thrombotic risk. In addition, we can conclude that the dose of agonist that causes a half-maximal response is a reliable index of platelet responsiveness.

References
Results: Findings: 6,019 patients underwent triple-assessment at the SBU in this time-period, 1,959 patients were referred with mastalgia, of whom 1,022 (52.2%) reported mastalgia as their only symptom. The incidence of breast cancer in patients presenting with mastalgia alone was 0.8%; all patients diagnosed with breast cancer in this cohort were over 40 years of age. There was no breast cancer diagnosed in patients under 35yrs referred to SBU with mastalgia, and the majority of these patients had a normal breast examination (52) (82.57%).

Conclusion: The incidence of breast cancer in patients referred to SBU with mastalgia as an isolated symptom is extremely low. Patients under 35yrs, with mastalgia as an isolated symptom do not require breast imaging and have a sufficiently low risk of breast cancer that they may be suitable for management in the primary-care setting.

O7 Targeting mutant BRAF in colorectal cancer
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Background: Mutations in BRAF V600E oncogene (BRAFMT) occurs in 8-15% of colorectal cancer (CRC) patients1. This mutation constitutively activates MAPK signalling, resulting in a proliferative and survival advantage for the tumour cells and oncogenic BRAF status has been linked with poor prognosis2. Despite introduction of the BRAFMT specific inhibitor Vemurafenib in metastatic melanoma3, there is no effective strategy for BRAFMT CRC patients. This study aimed to assess the effectiveness of Ganetespib (HSP90 inhibitor), the multi-kinase inhibitor (CRAF/VEGFR/PDGFR) Sorafenib and the BRAFMT inhibitor Vemurafenib in BRAFMT CRC cell line models.

Methods: BRAF MT RKO F6-8 (MT/WT) and isogenic wild-type T29 (null/WT) cell lines were treated with the blockers of the above-mentioned channels. We activated lymphocytes. The inhibition of these channels leads to reduced activation of lymphocytes, and, therefore, to a decrease of the autoimmune reaction. In our investigations we aimed to observe the differences in lymphocyte activation upon the inhibition of the above channels in the Th1, Th2, CD4 and CD8 subsets in MS compared to healthy individuals. Furthermore, we aimed to assess whether inhibition of lymphocyte potassium channels may be a possible target for the future therapy of MS.

Results: In MS, the reactivity of lymphocytes is increased compared to healthy controls. In MS there was no difference revealed between the investigated subsets upon blocking the IKCa1 channels. The inhibition of Kv1.3 channels in MS decreased the activation of CD8 cells to a higher extent than that of CD4 cells, but such a difference was not detectable between Th1 and Th2 cells.

Conclusions: Our findings suggest that the activation of lymphocytes can be decreased in MS by blocking the investigated channels. Although limited selectivity can be reached in MS, accordingly, further investigations are needed to assess how the inhibition of lymphocyte potassium channels modulates the whole immune response in MS.

O8 Breast clinic referrals – should mastalgia be managed in primary care?
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Background: Following centralisation of breast cancer services in Ireland, the number of patients attending symptomatic breast units (SBU) has increased significantly. A considerable proportion of patients referred to SBU present with non-suspicious symptoms and fall into a “low-risk” category for breast cancer. It has been proposed that consideration be given to a GP-delivered service for these patients. Aim: To evaluate SBU attendances and incidence of breast cancer. It has been proposed that consideration be given to a GP-delivered service for these patients. Aim: To evaluate SBU attendances and incidence of breast cancer.

Methods: Data was collected from a prospectively maintained database on patients attending SBU at Beaumont Hospital from January 2011 – May 2012. Reasons for attendance, outcome of triple-assessment and incidence of malignancy were analysed.

Results: Reasons for attendance, outcome of triple-assessment and incidence of malignancy were analysed.

Conclusions: Despite the number of compounds which could target BRAFMT cell lines through inhibition of mutant BRAF directly or indirectly through inhibition of other pathways, our studies have shown that Vemurafenib is the most effective treatment strategy in the cell line model tested. Effects of Ganetespib or Sorafenib treatment did not display specificity towards BRAFMT cells alone nor an effect on mutant BRAF. Vemurafenib has shown selectivity towards BRAFMT cells in which a reduction in MAPK signaling is achieved along with induction of apoptosis. Evidence of the emergence of a potential resistance mechanism via STAT3 following Vemurafenib treatment was also found giving insight into the kinome reprogramming event which takes place following treatment.

References
**POSTER PRESENTATIONS**

**P1**

Correlation of regional surveillance system with changes in epidemiology of HIV infection in Nizhny Novgorod Region, Russia from 2006-2010

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**BMC Proceedings 2013, 7(Suppl 1):1** P1

**Background:** According to UNAIDS 2011, annual new HIV infections fell by 21% between 1997 and 2010 and improving globally. However, since 2001, HIV prevalence in Russia, Eastern Europe and Central Asia has increased by 250 percent, making the region home to the world’s most rapidly expanding epidemic. It has been widely discussed in Russian National Infectious Disease meetings that the surveillance system of HIV here sometimes is not sufficient.

**Methods:** (a) Peer-reviewed articles, conference proceedings and technical reports published from 2006-2010 were reviewed for information regarding inadequate surveillance system in Russian Federation. (b) Information regarding incidence and prevalence rate (per 100000 population), modes of transmission (percentage,%) and distribution by sex (percentage,%) of HIV infection from 2006-2010 for Nizhny Novgorod Region (NNR), Volga Federal Region (VFR) and Russian Federation (RF) is obtained from Centers for Disease Control and Prevention of Nizhny Novgorod Region. (c) Comparative statistical analysis is made using Programs EpiInfo 7 and Microsoft Excel 2007.

**Results:** (a) Based on review of articles and journals, HIV surveillance system in the Russian Federation has some disadvantages, for example: sentinel serosurveillance and behavioral surveillance are not conducted regularly etc. (b) From 2006-2010, incidence rates of HIV in NNR increased from 12.4 to 33.8 per 100000 population (p<0.001) and in RF from 31.1 to 46.8 (p<0.001). In VFR, incidence rate during 2006-2009 increased from 31.5-41.5 (p<0.001) but decreased to 34.1 in 2010. (c) Prevalence rates of HIV infection in NNR increased from 125.6 to 225.8 per 100000 population (p<0.001), more drastically in RF from 244.4 to 453.4 (p<0.001) and in Volga FR from 283.6 to 421.2 (p<0.001). (d) Analysis showed that there are increases in placental (*2.3%-3.8%) and sexual pathway (*35.4% to 42.3%) of transmission whereas a decrease in parenteral pathway (*62.3% to 53.9%). *p<0.001 (e) Number of infected males increased from 56.3% to 60.1% (p<0.001) and infected females decreased from 43.7% to 39.9% (p<0.001).

**Conclusions:** Insufficient surveillance system can result in high number of HIV infections in NNR and RF. The disadvantages in surveillance system can also be related to increases in placental and sexual modes of transmission and infected male sex distribution.

**P2**

Oxidative and nitrative stress as a pathogenic factor in multiple sclerosis

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**BMC Proceedings 2013, 7(Suppl 1):2** P2

**Background:** Multiple sclerosis (MS) is an autoimmune disease of central nervous system, which unknown etiology, but recent studies suggest important role of oxidative stress in its pathogenesis. The aim of our study was to analyze various markers of oxidative and nitrative damage, their mutual correlations and correlations with the state of the blood-brain barrier (BBB) in multiple sclerosis patients. We also monitored the level of uric acid, an antioxidant.

**Methods:** 58 samples of blood plasma from patients with suspect MS and 43 ones from healthy people were analyzed. The function of BBB in tested group was evaluated using the QA index that indicated its damage in 7 males and 3 females. We estimated total antioxidant status, liperoxidation, 3-nitrotyrosine and protein carbonyls.

**Results:** After 1 year since the administration of antiresorptive drugs, was realized through osteodensitometry (BMD), that showed that there are increases in bone fragility. Compliance and adherence to osteoporosis treatment is very important, therefore, we are paying more attention to their reduction in the therapeutic process.

**Conclusions:** Our study confirms earlier findings of decreased total antioxidative status in patients with MS and also increased liperoxidation, which positively correlated with the state of BBB. This finding induces role of lipid peroxidation by deterioration in the quality of blood-brain barrier. Elevated levels of protein carbonyls confirmed oxidative damage of plasma proteins, which are also attacked by nitrative stress, as evidenced by increased level of 3-nitrotyrosine and a positive correlation between 3-nitrotyrosine and protein carbonyls. Uric acid, which level was physiological, negatively correlated with protein carbonyls, what suggests its role in protection of proteins against oxidative stress, confirmed by the positive correlation with TAS.

**P3**

Effect of antiresorptive administration on the level of bone metabolism in osteoporosis

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**BMC Proceedings 2013, 7(Suppl 1):3** P3

**Background:** Not long ago, osteoporosis was considered a normal condition specific to old age; presently, osteoporosis is an affection characterized through the reduction of the mineral bone density associated with the impairment of the trabecular bone structure and implicitly with the increase of the bone fragility. Compliance and adherence to osteoporosis management are of high priority, having a significant effect on the cost effectiveness of therapy 1.

**Methods:** The evaluation of the phosphocalcium metabolism for the female patients with osteoporosis, before and after 1 year since the administration of antiresorptive drugs, was realized through osteodensitometry (BMD), that was the most conclusive paraclinical exam used in the diagnosis of osteoporosis, the evaluation of the clinical factors and the analysis of the bone turnover through the determination of the biochemical turn-over markers (BMT- bone formation and resorption, pre and post-therapy).

**Results:** After 1 year since the administration of antiresorptive drugs wasn’t noticed important modifications at the BMD and biochemical markers, could contribute to the creation of a pathogenic profile of the patient that led to a therapeutic decision as correct as possible. BMT changes can also be used for understanding the mechanism of action of drugs in development and identifying the correct dose 2. Instead, at 2% of female patients could be noticed small decreases of the serum concentrations of calcium, as well as

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**Table 1 (abstract P2)**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>MS patients</th>
<th>Control group</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td>number</td>
<td>58</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>age [years]</td>
<td>36.52 ± 10.56</td>
<td>39.22 ± 14.88</td>
<td>p&lt;0.01</td>
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<tr>
<td>TAS [mmol/l]</td>
<td>1.41 ± 0.47</td>
<td>1.91 ± 0.74</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>liperoxidation</td>
<td>79.17 ± 50.70</td>
<td>46.62 ± 27.36</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>3-nitrotyrosine [nmol/l]</td>
<td>104.51 ± 38.43</td>
<td>21.57 ± 3.67</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Protein carbonyls [nmol/mg P]</td>
<td>0.44 ± 0.08</td>
<td>0.31 ± 0.01</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>UA males [µmol/l]</td>
<td>380.41 ± 86.57</td>
<td>320 ± 101.6</td>
<td>physiological</td>
</tr>
<tr>
<td>UA females [µmol/l]</td>
<td>298.86 ± 56.11</td>
<td>240 ± 101.6</td>
<td>physiological</td>
</tr>
</tbody>
</table>
increases of the blood concentrations of the total activity of the alkaline phosphatase, without noticeable clinical consequences. Long-term alendronate administration may inhibit normal repair of microdamage arising from severe suppression of bone turnover (SSBT), which, in turn, results in accumulation of microdamage.  

Conclusions: The pharmacological therapy must be extended under periodical medical control in order to maximize the benefits and to avoid side effects since, depending on the results of the exams, it could be necessary to vary the doses or the type of used drug. The study of the hard support tissues is rendered difficult by the fact that the bone is one of the most unstable tissues from the organism.  

References  

P4  
Investigation of host and pathogen responses to estrogen in cystic fibrosis  
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BMC Proceedings 2013, 7(Suppl 1):P4  
Introduction: A ‘gender gap’ exists in Cystic Fibrosis (CF). Females acquire earlier microbial infections; have worse lung function and poorer survival rates [1]. The sex-hormone estrogen (estradiol, E2) has recently been highlighted as a key molecule responsible for the CF gender dichotomy [2]. Pseudomonas aeruginosa which colonises the CF lung and dominates at end stage disease undergoes mucoid conversion in response to E2 [2,3]. The aim of this project was to study other roles of E2 in host and pathogen responses by investigating its effects on the growth rate of Ps. aeruginosa and the expression of catalase and superoxide dismutase (SOD) in CF bronchial epithelial cells.  
Methods: Growth rate of Ps. aeruginosa (PA01) in the presence or absence of E2 was measured by recording optical density (OD600nm) at different time points and by calculating cfu/ml. Measurements of catalase and SOD gene expression in E2-treated CFBE410- airway epithelial cells were carried out using real time qRT-PCR. Results were analysed using Graphpad PRISM 5.0.  
Results: E2 had no effect on the growth of Ps. aeruginosa when compared to control. The expression of catalase mRNA in CFBE410- cells in response to E2 was not altered however, there was two-fold increase in SOD gene expression in response to 10 nM E2, 24hr (p= 0.0057).  
Conclusion: Estradiol has no effect on the growth of Ps. aeruginosa in vitro. In CF bronchial epithelial cells although catalase gene expression remains unchanged, E2 increases SOD expression, potentially increasing hydrogen peroxide levels and contributing to Ps. aeruginosa mucoid conversion.  
References  

P5  
Hybrid procedures in treatment of multilevel lesions of the brachiocephalic arteries  
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Background: Multilevel significant atherosclerotic disease involving the carotid bifurcation and the proximal ipsilateral common carotid or brachiocephalic arteries presents an uncommon and difficult management problem. Axial (aortic-carotid bypass) or extra-anatomic procedures (subclavian–carotid bypass, carotid–carotid bypass, carotid–subclavian transposition) and variations in the performance of thomboendarterectomies are all possibilities in treatment of tandem brachiocephalic arteries stenosis. Although extra-anatomic procedures have excellent patency (90% at 5 years) and durability and avoid the morbidity of median sternotomy, they are usually performed in patients with significant cardiovascular comorbidities who may be detrimentally affected because of the use of general anesthesia and the possible need of prosthetic devices and multiple incisions. The desire to avoid the need for intrathoracic and extra-anatomic reconstructions has fostered the use of transulminal angioplasty and primary stenting of the supra-aortic vessels. Combined or hybrid carotid procedures can offer an easier solution to a sometimes difficult technical problem.  
Methods: The aim of this study was to review the existing literature on such hybrid procedures. An electronic search of the pertinent literature was undertaken.  
Results: Grego et al, treated 16 patients with CEA and retrograde angioplasty and stenting for tandem lesions. The procedure was successful in 14, and there was no neurologic morbidity or mortality at 30 days. At 1-year follow-up, all treated vessels were patent and patients were free of focal cerebrovascular symptoms 1- In 2011 Karpenko AA et al. shared their experience with hybrid surgical interventions for multilevel lesions of the brachiocephalic arteries (stenting and an open operation) in a total of 11 patients presenting with cerebrovascular insufficiency. No intraoperative complications were encountered . In 2011 a meta-analysis of all studies reporting on simultaneous carotid endarterectomy and retrograde angioplasty for the treatment of tandem internal carotid and proximal common carotid or innominate artery lesions was performed. 13 studies, including 133 patients were identified. Reported technical success of the procedure was 97%. This meta-analysis reports the largest collection of patients having undergone hybrid treatment of tandem disease of the arch vessels and carotid bifurcation. Results from this study show that the combined stroke and death rate with this approach is equal to or better than that for isolated endarterectomy 3.  
Conclusions: We have demonstrated that CEA combined with proximal stenting seems a simple and convenient alternative to conventional surgery for symptomatic multilevel disease of the extra-cranial vessels. We suggest this procedures will become the treatment of choice for this subset of patients.  
References  

P6  
Exploring the views of healthcare professionals on increasing smoking cessation advice for patients  
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BMC Proceedings 2013, 7(Suppl 1):P6  
Background: Smoking cessation advice provided by healthcare professionals can be effective in increasing smoking cessation among patients. Any successful intervention will require staff knowledge of local barriers to implementation. However, the views of Irish healthcare professionals in increasing provision of smoking cessation advice and these barriers are unknown. The aim of this qualitative study is to explore the views of Irish healthcare professionals on barriers in increasing smoking cessation advice for patients in a large Irish teaching university hospital.
**Methods:** Semi-structured interviews were conducted with 16 healthcare professionals recruited in Beaumont Hospital. 

**Results:** The main barriers identified are patient and staff attitude, time and service constraints, information not readily available and issues on smoke-free campus policy.

**Conclusions:** Our results identified barriers expressed by Irish healthcare professionals in providing smoking cessation advice to patients. This supports the need to implement a multi-component hospital-based intervention to increase the rate of provision of smoking cessation advice in patients by healthcare professionals.

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**P7**  
 **Alpha-1 antitrypsin regulates neutrophil reactive oxygen species production via inhibition of key players of the respiratory burst oxidase system**

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**Background:** Activation of neutrophils sequestered in the alveolar milieu can cause the release of reactive oxygen species (ROS), increasingly regarded as key substances modulating epithelial dysfunction and disruption. These oxidants are generated by the neutrophil respiratory burst oxidase system that reduces molecular oxygen (O2) to superoxide (O2-). Alpha-1 antitrypsin (AAT) deficiency (AATD) provides us with the most definitive evidence for the physiological and clinical importance of AAT and in this study we examined the immunomodulatory activity of AAT and investigated whether neutrophil ROS production was regulated by AAT.

**Methods:** Neutrophil O2- production in response to fMLP (10-6M) and IL-8 (10ng) was measured by a cytochrome C reduction assays respectively. Analysis of ERK phosphorylation in response to fMLP ± AAT was carried via Western blot analysis of neutrophil whole cell lysates. To verify fMLP’s interaction with its cognate receptors fMLP R1 (FPR1) and fMLP R2 (FPR2), flow cytometry was used to measure levels of FITC labeled fMLP binding to the membranes of neutrophil.

**Results:** In this study we demonstrate using in vitro models that AAT modulates neutrophil O2- production elicited by fMLP and IL-8 in a dose dependant manner (P<0.05). Mechanisms of inhibition were investigated and in vitro studies revealed that AAT functions to inhibit fMLP signaling through inhibiting its interaction with its receptors FPR1 and FPR2 on the neutrophil plasma membrane.

**Conclusions:** The potential of AAT as a regulator of neutrophil ROS production adds a new understanding to the role of AAT in health and disease.