(p = 0.04), whereas in Estonian one there was an increase from 60.8% in 2006/2007 to 67.4% in 2011/2012, although it was not statistically significant (p = 0.15).
Also the number of patients taking less than 25% of the expected DDDs slightly increased in Latvia, whereas the opposite trend could be seen in Estonia, but the numbers didn't reach statistical significance.
Conclusions: The previously described influence of patient co-payments to the medication adherence was also observed in this small sample. It seems reasonable to conclude that the decision in Latvia to increase the patient's co-payments from 25% to 50% has influenced, if not caused, a decrease in adherence to mesalazine. In Estonia, where the co-payments have remained the same throughout the years, the adherence rates show a tendency to improve.

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P582

Remission induction therapy with infliximab in patients with ulcerative colitis: Does tumour necrosis factor-α blockade per se explain its multiple actions?

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Background: Inflammatory bowel disease (IBD) including ulcerative colitis (UC) and Crohn's disease are perpetuated and exacerbated by inflammatory cytokines like tumour necrosis factor (TNF)-α, interleukin (IL)-1, IL-4, IL-6 and the IL-12, IL-17, IL-23 cascade. Based on this knowledge, anti-cytokine antibodies, notably infliximab (IFX) against TNF-α have been developed and used to treat patients with IBD. Indeed, the efficacy of IFX has validated the role of TNF-α in the immunopathogenesis of IBD. In this study, we were interested to see the impact of IFX on inflammatory cytokine and chemokine profiles in patients with UC.
Methods: In a single centre, and retrospective setting, 33 consecutive patients with active UC, Lichtiger's clinical activity index 11.2±4.0, range 5–14, and average UC duration 5.0±5.2 yr who had received IFX were reviewed. All included patients had received their first IFX remission induction therapy with 3 infusion sessions (5 mg/kg) at weeks 0, 2 and 6. Further, among the 33 patients, 31 (93.9%) had received prednisolone with or without azathioprine prior to IFX therapy. Clinical remission was defined as CAI ⩽3. Blood samples were taken at baseline, 12 hours post first IFX infusion and then at week 14. Blood concentrations of 19 known cytokines and chemokines were measured by processing test samples for suspension array assays.
Results: At week 10, sixteen of 33 patients (48.5%) achieved remission (CAI <3), and at 12 hours after the first IFX infusion, the concentration of interferon (IFN)-γ-inducible protein (IP)-10 was very markedly decreased (P < 0.001). Likewise, at week 14 after the first IFX infusion, the concentration of IL-4, IFN-γ, IL-6, granulocyte colony-stimulating factor (G-CSF) and macrophage inflammatory protein (MIP)-1α were significantly decreased (P < 0.05). However, these effects were not exclusive to responders, indicating that the blockade of TNF-α receptors per se does not fully explain all actions of IFX.
Conclusions: This is the first study that has looked at a broad range of cytokines and chemokines in UC patients receiving IFX remission induction therapy. Most notably in this study, we found that the concentration of IP-10, which is known to be elevated in the mucosa of patients with UC and is suspected to be a significant factor in mucosal injury was markedly decreased after the first IFX infusion. This could suggest that protection from further mucosal injury is likely by depletion of IP10. Additionally, IFX therapy reduced the generation of IL-4, IL-6, IFN-γ, G-CSF and MIP-1α. The clinical significance of these actions remains to be evaluated.

Epidemiology

P583

Venous thromboembolism in Asian patients with inflammatory bowel disease

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Background: Patients with inflammatory bowel disease (IBD) have an apparent increased risk of venous thromboembolism (VTE) with the majority of VTE occurring during active disease. Antithrombotic prophylaxis has been recommended in all hospitalised patients with IBD. The prevalence of VTE in IBD ranges from 1.2 to 6.7% in clinical studies; in a recent study of 2784 IBD patients, prevalence and incidence rate of all VTE was 5.6% and 6.3 per 1000 person-years respectively. Most studies were however conducted in western populations, and there is limited data available in Asian patients. Our aim is to evaluate the risk of VTE in Asian patients with IBD in Singapore, a multiracial country consisting largely of Chinese, Malays and Indians.
Methods: Case notes and electronic records of patients with ulcerative colitis (UC) or Crohn's disease (CD) who were treated at our centre from 2002 to 2013 were retrospectively reviewed. Medical records were then extracted for biodata, progress, treatment and thromboembolic complications of disease. The diagnosis of VTE is according to international guidelines and appropriate imaging techniques. Padua prediction score was used to stratify the risk of developing VTE. Incidence rates were calculated based on person-years of follow-up from 2002–2013.
Results: Of the 152 patients with IBD, 96 had UC and 56 had CD: of which 94 were male (62%) with a median age of 48 (range 17–90). There were 93 Chinese (61%), 40 Indians (26%), 16 Malays (11%) and the remaining 2% were of other Asian ethnicities. This is a fair representation of local demographics. Disease severity was highly variable, as was modality of treatment. 31 (33%) UC patients and 29 (52%) CD patients had 161 (91 CD, 70 UC) hospitalisation episodes for flare of disease. The median number of hospitalisation episodes was 1.5 (range 1–7) for UC flare and 1 (range 1–17) for CD flare. None of the patients were given antithrombotic prophylaxis during hospitalisation. None of the ambulatory IBD patients developed VTE. Among hospitalised IBD patients, only 1 CD (Padua score 0: low risk) and 1 UC patient (Padua score 5: high risk) developed pulmonary embolism and bilateral deep vein thrombosis respectively; both VTEs were detected during their first hospitalisation and initial diagnosis of IBD. Thrombophilia screens were negative. The period prevalence and incidence rates for all VTE, DVT and PE were 1.31%, 0.65%, 0.65% and 1.20, 0.60 and 0.60 per 1000 patient-years respectively.
Conclusions: The risk of VTE in Asian patients with IBD appears to be lower than that in western populations. Further larger

prospective studies are needed to better assess the risk of VTE and the role of routine antithrombotic prophylaxis in Asian patients with IBD.

P584

Vaccination and risk for inflammatory bowel disease: results of a meta-analysis

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Background: Environmental factors play an important role in the pathogenesis of inflammatory bowel disease (IBD). Immunization of children has been considered as one hypothesis as to why IBD emerged initially in developed countries. The aim of this study was to perform a systematic review and meta-analysis of previously published studies on association between immunization and the development of IBD.
Methods: Studies and abstracts investigating the relationship between vaccination and subsequent risk for development of IBD were reviewed. Only randomized controlled trials, cohort and case–control studies were included in the analysis. Childhood or adult immunizations with any vaccine type, at any dose, conditioning or vaccine scheduled were used as inclusion criteria. Electronic search from Pubmed and Embase databases was performed between 1979 and 2013 to identified studies fulfilling inclusion criteria.
Results: Nine studies including 1865 IBD patients were included in the meta-analysis, seven case–control studies (five population-based) and two population-based cohort studies. Studied vaccination were vaccine with Bacille Calmette-Guérin (BCG), vaccines against diphtheria, tetanus, poliomyelitis, pertussis, measles, rubella, mumps and the combined MMR vaccine. Overall, there was no significant association between childhood immunization and risk for developing IBD: BCG, RR = 1.54 (IC 95%: 0.54–4.42), diphteria, RR = 1.24 (0.80–1.94), tetanus, RR = 1.27 (0.77–2.08), pertussis, RR = 1.39 (0.68–2.84), poliomyelitis, RR = 1.79 (0.88–3.66), MMR vaccine, RR = 0.67 (0.36–1.24), measles, RR = 1.10 (0.69–1.75). There was a significant heterogeneity between studies analyzing measles [I(2) = 69%, p = 0.006] and poliomyelitis vaccines [I(2) = 67%, p = 0.049]. Specific analysis of risk for Crohn's disease (CD) or ulcerative colitis (UC) that excluded one study without distinction demonstrated a significant association between poliomyelitis vaccine and risk for developing CD (RR = 2.28; 1.12–4.63) or UC (RR = 3.48; 1.2–9.71).
Conclusions: Results of this meta-analysis show no evident association between childhood immunization and risk for developing IBD. Association between poliomyelitis vaccine and risk for CD or UC should be analyzed with caution because of studies heterogeneity.

P585

Treatment paradigm and natural course of ulcerative colitis between 1977–2012: a hospital-based cohort study from Korea

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Background: Until now, no large-scale studies have evaluated the prognosis of ulcerative colitis (UC) over a period of three decades in non-Caucasian populations. The aims of this study were to update the current information on the natural course of UC using a large series of patients and to evaluate changes in treatment paradigms over time and the prognosis of UC in Korea.
Methods: We retrospectively analyzed 2,497 Korean UC patients who visited the Asan Medical Center. The study subjects were divided into three groups according to the year of diagnosis (cohort 1: 1977–2000, cohort 2: 2001–2005, and cohort 3: 2006–2012).
Results: The male-to-female ratio was 1.2:1 and the median age at diagnosis was 36 years (range, 9–90 years). The median duration of follow-up was 88 months (range, 0.1–433 months). Azathioprine/6-mercaptopurine and anti-tumor necrosis factor (anti-TNF) agents have been used increasingly more frequently and earlier over the last 30 years, with a 5-year cumulative probability of prescription of 5.5% and 0.0%, respectively, in cohort 1 and 26.5% and 9.9%, respectively, in cohort 3 ($p < 0.001$). A total of 206 patients (8.2%) underwent total proctocolectomy, with a cumulative probability of total proctocolectomy 10, 20, and 30 years after diagnosis of 8.7%, 15.5%, and 24.2%, respectively. The cumulative probability of colectomy was significantly lower in patients first diagnosed in our center (n = 496) than in patients referred from primary clinics or other hospitals (n = 2001) (2.9% vs. 10.1% at 10 years and 4.5% vs. 18.0% at 20 years, $p < 0.001$). In patients first diagnosed in our center, the cumulative probability of colectomy was significantly lower in cohort 3 than in cohort 1 ($p = 0.042$).
Conclusions: Our study demonstrated that thiopurines and anti-TNF agents have been used increasingly over the years as has been observed in the Western population. The colectomy rate has decreased over time in patients first diagnosed in our institution (i.e. excluding referral bias). Korean UC patients, especially first diagnosed in our institution may have better clinical courses than Westerners, as indicated by the lower colectomy rate.
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P586

Time-to-diagnosis in inflammatory bowel disease

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Background: Inflammatory bowel disease (IBD) is a chronic, relapsing inflammatory disease group. It was shown in recent studies that inflammatory bowel disease has a progressive course. Early diagnosis and treatment may alter the course of disease. Because of that, the time from onset of symptoms to established diagnosis is important. In our study, we aimed to investigate the time to diagnosis in ulcerative colitis (UC) and Crohn's disease (CD) in our population.
Methods: The clinical data was collected from patients followed up between 1999–2013 in our clinic. It was retrospectively evaluated in terms of IBD, the time to diagnosis and the physicians diagnosed the diseases. Descriptive statistical analysis was made.
Results: We have totally 450 IBD patients [333 UC, 108 CD, 9 indeterminate colitis (IC)] followed between 1998–2013 in our clinic. The patients that have an IC were not included the study. Nine CD and 31 UC patients were excluded the study because of inadequacy of clinical data. UC and CD were diagnosed in the first 6 months in 176 (58.3%) of 302 UC patients and 41 (41.4%) of 99 CD patients. The number of patients that the time to diagnosis is longer than 24 months was 26 (8.6%) in UC, 4 (4%) in CD (Table 1). Most of the patients have been diagnosed in first 12 months in both diseases. We have a data about the physicians diagnosed an IBD only in 294 patients. Most