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Objectives: Esophageal cancer (EC) is the eighth most common cancer and the sixth common cause of cancer-related deaths worldwide. It is associated with a poor prognosis having an 18% 5-year overall survival. This study examined treatment patterns and HCRU in patients who initiated first line (1L) or second line (2L) systemic therapy for squamous cell carcinoma (ESCC) with a focus on 2L patients. ***Methods:*** A retrospective, non-interventional study was conducted among 639 physicians in the US, Canada, France, Germany, Italy, Spain, UK, Japan, Korea, Taiwan and China between September and October 2018. Patient characteristics and treatment-related data were collected from the 3 most recent patient medical charts. ***Results:*** 1,049 ESCC patients were included (n=387 2L). The mean age was 65 years, 82% were male, 53% had gastroesophageal reflux disease, and 21% had Barrett's Esophagus. Testing rates were: 51% for HER-2, 35% for MSI, and 28% for PD-L1. 59% of 2L patients were given systemic treatment and 41% best supportive care. Taxane monotherapy was preferred in Japan (62%), UK (50%), Germany (43%), Spain (40%) and Canada (40%). Most commonly reported grade 3-4 adverse events (AEs) for 2L patients were neutropenia (9%), fatigue (9%), nausea (8%), diarrhea (8%), and anorexia (8%). The rate of AE-related ER visits was 15% and hospitalizations was 13%, with a median length of stay among those with a hospitalization of 10.5 days. The percentage of 2L patients with an ECOG score 2-4 following treatment was 58%. Only 8% of patients went onto 3L; 38% of patients died after 2L, and 49% did not receive additional treatment at the time of data collection. ***Conclusions:*** Effective options for 2L treatment of ESCC are limited, resulting in poor ECOG performance status and high mortality and adverse event rates. This suggests a high unmet need for 2L patients.

PCN168
GLOBAL BURDEN OF WALDENSTRÃ–M MACROGLOBULINEMIA (WM): A SYSTEMATIC LITERATURE REVIEW (SLR) AND EVIDENCE GAP ANALYSIS

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Objectives: To review the global clinical, economic, and humanistic burden of WM and evaluate current evidence data gaps. ***Methods:*** A SLR using PubMed to identify WM-related interventional, observational, qualitative, and economic studies published January 2013-September 2018. Inclusion criteria: human clinical studies, N>40, non-case reports or editorials, English manuscripts available. ***Results:*** Of 1146 evaluable publications, 51 were included based on above search criteria. WM incidence ranged from 0.3-0.57/100,000 person-years in US studies, with most data showing decreased or stable incidence over time. WM incidence appeared similar in Japan and Taiwan but higher in Sweden (1.05/100,000). Recent data trends suggest significantly increased WM-related survival, though 5-year survival rates vary (52%-78%) in US studies. European data demonstrate similar survival rates and trends (5-year survival ~70%) but lower survival in China (61.8%). Across countries, WM appears to be more common in men and in elderly. Mortality rates are also shown to be higher in elderly and male patients. US data suggest higher incidences in Caucasian patients but reduced survival for African American and Hispanic patients. Compared to Westerners, Chinese patients demonstrated a higher male-to-female ratio, younger diagnosis age, higher rates of leukocytopenia, thrombocytopenia, and pancytopenia, and reduced asymptomatic WM. WM-related serious complications are reported, including secondary malignancies, thrombosis, renal diseases, symptomatic hyperviscosity, and autoimmune manifestations. Although novel treatments contribute to improved survival, they significantly increase costs (mean Medicare costs in first treatment year: $9,464 before 2000 to $29,490 after 2008; most recent data available). Data on the humanistic burden of WM are lacking. ***Conclusions:*** This study reviewed the burden of WM across the regions (US, EU, and China). Although rare, WM results in significant clinical (e.g., incidence, complications, survival) and economic burden and unmet needs, with new treatments associated with clinical benefits but increased costs. Data gaps on WM-burden exist, future studies are suggested.

PCN171
OVARIAN CANCER IN KAZAKHSTAN: TRENDS IN AGE-STANDARDISED INCIDENCE AND MORTALITY RATES.

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Objectives: To determine the epidemiological statistics of ovarian cancer (OC) in Kazakhstan and to analyse trends and variations in incidence and mortality by age and region. ***Methods:*** National OC registry data from 2016-2017 was analysed using STATA (version 15.1; StataCorp LLC, Texas, USA). Differences in the age profile of regions have been adjusted through age-standardising the incidence and mortality rates by direct method using WHO world standard population estimates. ***Results:*** Age-standardised incidence rate remained stable in 2016-2017 at around 9.5 per 100 000 female population. Rates vary from 8.12 (Aqmola region) to 14.65 (Astana city) per 100 000 female population. There is evidence that rates are lower than the national average for residents of two regions (Aqmola region ($p \leq 0.025$), Almaty region ($p \leq 0.025$)), and higher for residents of four regions, including the capital (North-Kazakhstan region ($p \leq 0.025$), Karagandy region ($p \leq 0.001$), West-Kazakhstan region ($p \leq 0.001$), and Astana city ($p \leq 0.001$)). According to the 2017 data, the age-specific incidence rates grow steadily with age, peaking among women in the age groups 60-64 and 75-79. Age-standardised mortality rate remained stable in 2016-2017 at around 3.8 per 100 000 female population. Rates vary from 1.48 (Kostanay region) to 4.96 (West-Kazakhstan region) per 100 000 female population. There is evidence that rates are lower than the national average for residents of three regions (Almaty city ($p \leq 0.025$), Almaty region ($p \leq 0.001$), and Kostanay region ($p \leq 0.001$)), and higher for residents of five regions (North-Kazakhstan region ($p \leq 0.025$), Karagandy region ($p \leq 0.025$), Pavlodar region ($p \leq 0.025$), Qyzylorda region ($p \leq 0.025$), and West-Kazakhstan region ($p \leq 0.001$)). In 2016-2017, the age-specific mortality rate sharply increased with age from 40-44 age group onward. ***Conclusions:*** This registry analysis of OC in Kazakhstan is the first of its kind, providing comprehensive estimates of age-standardised incidence and mortality rates that lay a foundation for future research in Central Asia.

PCN172
DIRECT COSTS AND HEALTHCARE RESOURCE USE AMONG PATIENTS NEWLY DIAGNOSED WITH ADVANCED UROTHELIAL CARCINOMA

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Objectives: Patients with advanced urothelial carcinoma (UC) incur significant medical costs. This study describes healthcare resource use and costs incurred by patients with stage III or IV UC. ***Methods:*** This retrospective Surveillance, Epidemiology, and End Results-Medicare database analysis identified patients (≥66 years) with incident stage III or IV UC from 2004-2013. Patients were followed from UC diagnosis to death/last follow-up to estimate mean per-patient-per-month HCRU and costs for patients who: 1) had not received systemic chemotherapy (NC), 2) received (neo-)adjuvant chemotherapy without additional lines of therapy (N/Adj), or 3) received ≥1 line of therapy (LOT1+). ***Results:*** The sample included 1,612 stage III (63% NC, 12% N/Adj, 25% LOT1+; median follow-up: 17 months) and 2,327 stage IV (55% NC, 12% N/Adj, 33% LOT1+; median follow-up: 8 months). The NC group were older, sicker, and had shortest follow-up time in both stages. About 47% of stage III and 30% of stage IV patients had a cystectomy. More than half of patients had a UC-related hospitalization (55% stage III, 51% stage IV). Median length of stay ranged from 10 (NC, both stages) to 14 (N/Adj, Stage IV) days. LOT1+ patients had the lowest UC-related hospitalization PPPM costs (stage III: $800 LOT1+, $1,215 N/Adj, $2,494 NC; stage IV: $1,520 LOT1+, $1,604 N/Adj, $5,560 NC). The median number of UC-related office visits PPPM was highest in N/Adj and lowest in NC patients (0.73-1.22 stage III, 1.17-1.8 stage IV). UC-related office visit PPPM costs were lowest for LOT1+ patients in stage III ($749 LOT1+, $987 N/Adj, $854 NC) and N/Adj patients in stage IV ($1,224 LOT1+, $1,144 N/Adj, $1,815 NC). ***Conclusions:*** Per-patient-per-month costs were highest for patients not receiving chemotherapy (sicker/shortest follow-up time) and lowest for patients receiving LOT1+. This study provides a benchmark for the relative cost burden associated with current UC treatment.

PCN173
EFFECT OF METFORMIN ON SURVIVAL AMONG OVARIAN CANCER PATIENTS WITH COMORBID DIABETES: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Objectives: Metformin has anticancer properties and has been associated with decreased incidence and improved survival among patients with several cancers. Inconsistent evidence exists regarding the beneficial effects of metformin in women with ovarian cancer. We updated the evidence by performing a systematic review and meta-analysis to examine the effect of metformin on all-cause mortality among ovarian cancer patients with comorbid diabetes. ***Methods:*** Original articles published in English until December 2018 were searched in Medline-Ovid, PubMed, The Cochrane Library, and also searched the conference abstracts presented at the conferences at the International Society for Pharmacoeconomics and Outcomes Research, National Comprehensive Cancer Network and American Society of Clinical Oncology, for studies on metformin use in ovarian cancer with comorbid diabetes. Meta-analysis was performed using RevMan to determine the pooled hazard ratio (pHR) and its 95% confidence interval (CI). I^2 statistics was examined to evaluate heterogeneity between the studies. Study quality assessment was conducted using the Cochrane Risk of Bias tool for the randomized controlled trial (RCT) and Newcastle-Ottawa Quality Assessment Scale for cohort studies. ***Results:*** Four studies, one RCT and three retrospective cohort studies, met the inclusion criteria and were included in the meta-analysis. Compared to women who had no metformin use, those who used metformin had lower all-cause mortality, however the association was not significant (pHR=0.47, 95% CI=0.21-1.09, p=0.08, I^2=79%). A subgroup analysis of retrospective cohort studies also did not change the findings. ***Conclusions:*** Metformin has a marginal yet nonsignificant beneficial effect on overall survival in women with ovarian cancer with comorbid diabetes. Due to the possible selection bias in the observational studies, RCTs should be designed to evaluate the efficacy of metformin use in ovarian cancer.