**Background:** MPAL is a heterogeneous category in the World Health Organization (WHO) that comprises acute leukemias with discrete admixed populations of myeloid and lymphoid blasts ("bilineal") or with extensive coexpression of lymphoid and myeloid markers in a single blast population ("biphenotypic"). Mixed phenotype acute leukemia (MPAL) accounts for 2–5% of newly diagnosed acute leukemia. WHO criteria highlight key lineage-defining markers with particular emphasis on CD19 for B lineage, CD3 for T lineage, and myeloperoxidase (MPO) for myeloid lineage.

**Aims:** Review of classification, biology, clinical features, and treatment approach to MPAL.

**Methods:** We studied retrospectively 1163 consecutive patients diagnosed with acute leukemia at the G. Papanicolaou Hospital, Thessaloniki, Greece, from 1999 until January 2019 subclassified as follows: AML = 854, B-ALL = 172, T-ALL = 80, acute undifferentiated leukemia = 9, MPAL/BAL = 44, diagnosed using either the WHO (13/44) or the EGIL (31/44) criteria.

**Results:** Of the 31 patients diagnosed with biphenotypic acute leukemia (BAL) using the EGIL classification 12 did not fulfill the WHO criteria for MPAL. Only 2 B-Myeloid cases according to the WHO classification did not fulfill EGIL criteria. We reclassified all cases following the WHO criteria and resulted in 32 MPAL cases (2.8% of the cohort; 24/32 B-Myeloid, 7/32 T-Myeloid, 1/32 B-TMPAL). Aberrant T-cell marker expression was seen in 6 patients with B-Myeloid MPAL, CD7 expression being the most frequent. In T-Myeloid MPAL, the cytotoxic CD79a B-cell marker was aberrantly expressed in 4/7 cases (57%). HLA-DR was expressed in all MPAL cases. TdT was present in all Ph+ MPAL, compared to 26% in non-Ph+ MPAL cases. Seventy-three percent of the cases were classified as ALL by morphology. Clinical data was available in 25/32 patients; 18 males, 7 females, median age: 32 years (2–79). Median WBC count at presentation was 10.6 × 10⁹/L; hemoglobin 9.3 g/dL; platelets 63 × 10⁹/L; LDH 839 U/L and normo blast count 55%. Cytogenetic data available for 29/32 patients were as follows; normal karyotype = 5 (17.2%), t(9;22) translocation = 7 (24.1%), monosomy 7 = 7 (24.1%), complex karyotype (CK) = 14 (48.2%).

**Response to treatment and outcome**

- **24** patients responded. All refractory patients (7/24) had a complex karyotype. Fourteen patients underwent allogeneic hematopoietic cell transplantation (allo-HCT). Median overall survival (OS) was 18 months; and 27 months for patients with CK and (t;9;22) respectively, while the 5-year survival rate was 12.5%. In contrast, ALL patients classified according to EGIL had median OS 23.3 months.

**Summary/Conclusion:** In our study, reclassification of BAL (EGIL) patients as per WHO, resulted in a more accurate characterization of acute leukemias with mixed phenotypic features. Our study confirms that MPAL/BAL displays a uniformly poor outcome especially in patients with CK. The addition of TKI in the treatment of Ph+ patients probably ameliorates MPAL poor prognosis. Upon validation in larger prospective cohorts, MPAL could be considered as an independent poor risk feature for leukemia patients.

**PF192 CLINICAL PROFILE OF POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME IN HAEMATOLOGY PATIENTS AT A TERTIARY CARE CENTRE**

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**Background:** Posterior reversible encephalopathy syndrome (PRES) is a disorder of reversible subcortical vasogenic brain edema with acute neurological symptoms in patients of renal failure, hypertension and on cytotoxic drugs. Established diagnostic criteria have been lacking and diagnosis can be made on exclusion based on clinical criteria, serum markers, CSF and imaging. The treatment is symptomatic depending on underlying condition. The overall prognosis is favourable but some patients may have long-term sequelae.

**Aims:** To study the clinico-radiologic profile and outcomes of PRES in hematological disorders.

**Methods:** We retrospectively reviewed clinical and neuroimaging findings of patients diagnosed with PRES from January 2016 - October 2018. PRES was diagnosed based on clinical signs and MRI findings.

**Results:** There were total of 16 patients diagnosed with PRES. There were 7 females and 9 males with age ranging from 2–25 years. Maximum (12/16) patients were ALL on induction chemotherapy (BFM protocol), rest were AML on consolidation high dose cytarabine (HiDAC), thalassemia post HSCT and aplastic anaemia. None of the patients had prior history of seizures, hypertension or evidence of CNS disease. Most patients had hypertension and generalised tonic clonic seizures (GTCS) as presenting complaints. CSF examination done in all was inconclusive. The most common MRI finding (12/16) was bilateral symmetrical subcortical white matter hyperintensities on T2 and FLAIR images in occipital and parietal lobes. Others had frontal lobe, temporal lobe, thalamic and cerebellar involvement. For management cytotoxic drugs were stopped, antihypertensive (amlodipine, labetalol) and anti-epileptics were started. Most patients experienced normalisation of blood pressure in an average of 8.6 days (range 4–15 days). Two patients expired during the course due to fungal meningitis and intra-cerebral haemorrhage respectively. Patients were continued on anti-epileptics for 6–12 months after last seizure episode. Antihypertensives were used for period of one month and then tapered off successfully. Most patients (14/16) were discharged and are under our follow up with no active PREs related complications except one patient who has persistence of neurological deficit in the form of right sided hemiparesis.

**Summary/Conclusion:** Amongst patients with hematological malignancy, PRES is extremely seen in ALL where steroids are the backbone of induction chemotherapy. Close blood pressure monitoring in settings of induction chemotherapy and immunosuppressive drugs like calcineurin inhibitors should always be prescribed. Early recognition of PRES may facilitate appropriate treatment in a timely manner, conferring a better prognosis. Future studies should be done to address questions like duration of interruption of drug implicated in PRES, if the implicating drug has to be eliminated permanently, optimal duration of anti-hypertensives and anti-epileptics.