Title

MNGI-12. A RETROSPECTIVE INTERVENTIONAL COHORT STUDY TO ASSESS THE EFFICACY AND SAFETY OF SANDOSTATIN LAR (OCTREOTIDE ACETATE) FOR THE TREATMENT OF MENINGIOMAS IN ADULT PATIENTS

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≤7% recurred (1 of 45), compared to 38% with MIB1 LI >7% (13 of 34; P<0.001). RPA confirmed the existence of a high-risk GTR cohort without radiotherapy and MIB1 LI >7%. **CONCLUSIONS:** Adjuvant radiotherapy improves local control of atypical meningioma irrespective of extent of resection. Although independent validation is required, MIB1 labeling index may be a useful guide to select patients for adjuvant radiotherapy of atypical meningioma after gross total resection.

MNGI-10. SURVIVAL BENEFIT ASSOCIATED WITH ADJUVANT RADIOTHERAPY IN ELDERLY PATIENTS WITH WHO GRADE LLL MENINGIOMA

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BACKGROUND: WHO grade III meningiomas are rare but aggressive tumors with high recurrence rate and poor prognosis. The standard care in these patients is maximal surgical resection followed by adjuvant radiotherapy (RT). However, increasing age is associated with decreasing benefit but increasing risk of cognitive side-effects from cranial irradiation. The purpose of this study was to evaluate the benefit of the RT after surgery in elderly patients diagnosed with WHO grade III meningiomas. **METHODS:** The US National Cancer Database was used to identify patients with histologically confirmed WHO grade III meningiomas who received either surgery alone or surgery followed by RT from 2004-2013. Demographic and clinicopathologic factors associated with the use of treatment were analyzed using the chi-square test and multivariable logistic regression. Overall survival (OS) was evaluated by Kaplan-Meier analysis, multivariable Cox proportional hazard regression, and propensity score-matched analysis. **RESULTS:** In total, 830 patients were included, among whom 369 (44.5%) received surgery alone and 461(55.5%) received surgery followed by RT. RT was associated with significantly improved OS when compared with surgery alone on multivariable analysis after adjusting for age at diagnosis, comorbidity, tumor size and extent of resection (adjusted HR,0.709; 95%CI,0.584-0.861;p=0.001). A significant OS benefit for adjuvant RT persisted in a propensity score-matched analysis (HR,0.527;95% CI,0.341-0.816;p=0.004) after matching the two cohorts on age, comorbidity status, year of diagnosis, tumor size and extent of resection. In the subgroup analysis among elderly patients (defined as age over 70), adjuvant RT was identified as an independent predictor of longer OS on both multivariable analysis(adjusted HR,0.708;95% CI,0.530-0.946;p=0.02) and propensity score-matched analysis (log-rank p=0.001). **CONCLUSION:** Our results underline the OS benefit associated with adjuvant RT in elderly patients with WHO grade III meningiomas.

MNGI-11. TREATMENT OF MENINGIOMA WITH TH-302 IN A PDX MOUSE MODEL AND CELL LINE

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INTRODUCTION: Meningioma account for 36% of intracranial tumors and 4.7-7.2% demonstrate aggressive clinical behavior. Current treatments are limited to surgery and radiation. We investigated hypoxia activated prodrugTH302 in patient-derived xenograft model of malignant meningioma. **METHODS:** Female athymic nude mice were implanted subcutaneously with human meningioma tissue obtained intraoperatively. After 80 days of tumors growth animals were randomized into four groups 1) Control(n=1), 2) XRT (n=4), 3) TH302(n=5), and 4) XRT+TH302(n=4). Mice were either focally radiated using LINAC system in five fractions of 3Gy given daily to a total of 15 Gy, treated with TH302 at 50mg/kg started on day 3 of radiation for 9 doses every other day or combination of both. Tumor volume was measured by a digital caliper until endpoint of 4000 mm^3 was reached. H&E, IHC and western blot analysis were performed to further elucidate mechanism of action in meningioma. Additionally, CH157MN meningioma cell line is being used for drug concentration screening (0.1uM - 500uM) to determine IC50 under normaxia and hypoxia conditions using MTT assay. **RESULTS:** Tumor growth in 1)Control: 1199 mm^3 to 4371 mm^3 in 35 days, 2)XRT: 890 mm^3 to 4220 mm^3 in 91 days, 3)TH302: 660 mm^3 to 4894 mm^3 in 130 days and 4)XRT+TH302: 890 mm^3 to 4266 mm^3 in 155 days. FFPE H&E and CA9 stained sections show increase in necrotic regions while decrease in hypoxia in XRT/TH302 vs XRT. Western blot showed increase in Chk1, Rad51, and Polβ in XRT+TH302. **CONCLUSION:** Our *in vivo* study shows that mice treated with XRT+TH302 compared to XRT alone have prolonged survival with p<0.0206 with decreased rate of tumor growth likely from TH302-dependent DNA damage of hypoxic cells resulting in cell death.

MNGI-12. A RETROSPECTIVE INTERVENTIONAL COHORT STUDY TO ASSESS THE EFFICACY AND SAFETY OF SANDOSTATIN LAR (OCTREOTIDE ACETATE) FOR THE TREATMENT OF MENINGIOMAS IN ADULT PATIENTS

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Meningioma is the most common primary intracranial tumor in adults. Thorough majority of tumors are slow growing, many patients fail first-line treatments with surgery and/or radiation. Others are poor surgical candidates for definitive surgical resection due to their age, tumor location or associated medical comorbidities. Few targeted therapies and biologics for meningioma are studied, and they have limited efficacy. This study aims to assess the efficacy and safety of Sandostatin LAR as a potential treatment for recurrent, treatment resistant meningiomas. The retrospective chart review included patients over 18 years of age and diagnosed with meningioma who were administered Sandostatin LAR from 01/01/2010 until 06/01/2017 at the University of California, Irvine (UCI). The primary endpoints were overall survival (OS) and progression-free survival (PFS). The secondary endpoint was assessing safety. There were 47 patients included in the chart review. The mean age was 64 years old and 69.6% were female. The mean KPS score was 80 (60-100). The majority of patients were diagnosed with WHO grade 1 meningioma (73.3%) compared to WHO grade 2 (11.1%) and WHO grade 3 (15.6%). Of the 47 patients, 14 experienced disease progression and 6 died. The mean overall survival times for grade 1, 2, and 3 were 4.5, 2.3, and 0.91 years respectively. Median time to progression for grade 1, 2, and 3 were 3.1, 2.3, and 0.20 years respectively. The most common AE was diarrhea which occurred in 19 out of 47 patients. Overall, Sandostatin LAR was well tolerated. This is the largest reported cohort of meningioma patients treated with Sandostatin LAR and it suggests that Sandostatin LAR can be an effective, well tolerated treatment for these patients.

MNGI-13. FINAL ANALYSIS OF PHASE II COMBINING EVEROLIMUS AND OCTREOTIDE FOR PATIENTS WITH REFRACTORY AND DOCUMENTED PROGRESSIVE MENINGIOMA (CEVOREM)

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BACKGROUND: After iterative surgeries and radiotherapy (RT)/radiosurgery (RS) failure, aggressive meningiomas remain an unmet medical need. We have shown in vitro that everolimus combined to octreotide is active in meningiomas. **METHODS:** Prospective multicentric single arm phase II study (NCT02333565) including patients with recurrent meningioma with documented progression (>10% increase of tumor surface over 6 months) after surgery and RT/RS. Everolimus was orally administrated at 10mg/day and octreotide by IM injection 30 mg/28 days. MRI was performed every 3 months with preplanned central review of imaging. The primary endpoint was PFS6. The criteria for success was defined as a PFS6> 40%. **RESULTS:** 20 patients were included, aged 30-75 years with 37 progressive intracranial meningiomas (16 non-NF2 patients: 2 WHO grade I, 7 grade II, 7 grade III; and 4 NF2 patients). All patients previously underwent at least one surgery. 19/20 patients were treated with RT/RS and 5 pts