FP94

Surgery and radiotherapy in childhood craniopharyngioma: impact on neuropsychological functions

Daniela Chieffo[1,2], Gianpiero Tamburrini[1], S. Chiesa[3], Luca Massimi[1], R. Rubbino[1], M. Balducci[2], Concezio Di Rocco[1], Massimo Caldarelli[1]

[1] *Pediatric Neurosurgery, Catholic University Medical School, Rome, Italy*

[2] *Child Neurology and Psychiatry, Catholic University Medical School, Rome, Italy*

[3] *Bio-images and Radiological Sciences Department, Catholic University Medical School, Rome, Italy*

Purpose/Objective: To evaluate neurocognitive and psychological morbidity in childhood affected by craniopharyngioma, treated by surgery and radiotherapy.

Materials and Methods: Patients with craniopharyngioma treated by surgery and radiotherapy were retrospectively analyzed. Radiotherapy was performed after repeated surgery with residual mass or in inoperable symptomatic or recurrence lesions. Patients received a total dose of 5040 cGy in 180 cGy/fraction to tumoral bed +/- residual mass, if present. Acute toxicity was evaluated according to RTOG scale. All patients underwent multidisciplinary follow-up with radiation oncologist, neurosurgeon and neuropsychologist. A comprehensive cognitive (Griffith'scale and Wechsler scale) and neuropsychological evaluation was performed. Systematic evaluation was performed at three times: diagnosis-pre surgery evaluation (T0), after neurosurgical treatment (T1) and after radiotherapy (T2). A statement of Quality of Life was reported with PedQOL questionnaire. Primary endpoint was the assessment of neurocognitive function, secondary endpoint was the evaluation of overall survival (OS) and progression free survival (PFS).

Results: Nine patients were analyzed. Median age was 6 years (4 - 12) at diagnosis and 8 years (5-14 yrs) at radiotherapy treatment start. Six patients underwent repeated surgery, and all patients presented residual mass. We observed skin, haematological and neurological grade I acute toxicity in 3 patients, reversible in all cases. IQ was normal in all patients at T0, T1 and T2, without significant difference between different timing. Specific neuropsychological disorders were observed. Six out of nine patients (67%) reported visuoperceptual disorders both in T0 and T2, an impairment of immediate recall and working memory was observed at different times; in the last follow-up five out 9 patients were affected by short term memory and working memory. These finding appeared to be correlated to decreased of attentional system processing. Language skills and praxia as executive function were preserved. No significant disorders were reported, in contrast self perception scale was impaired at the last follow up. Their PedQOL results was compatible with average range in 6 out of patients (67%) and low in three cases (33%). With a median follow-up from diagnosis of 73 months (53-117 mts) and from radiotherapy of 71 months (27-81 mts), all patients are alive with disease. One patients presented recurrence at 3 months from radiotherapy. Median PFS has not yet reached, while 5 yrs PFS is 89%.

Conclusion: Radiotherapy does not seem to increase neuropsycological decline in long time survivors. These data demonstrate the relevance of multidisciplinary approach to childhood craniopharyngioma, taking into account also neurocognitive functions. Systematic and specific interventions should be developed and implemented in selected cases.