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LOW GRADE GLIOMA: WHAT MAKES THE DIFFERENCE IN HOW I DO?

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Resumen

Outside of brain metastasis, low and high grade gliomas are the most common intrinsic brain tumors. Low-grade gliomas (LGG) comprises nearly 15-20% of all central nervous system glial tumors, with approximately 2,000-3,000 patients diagnosed annually in the United States. They are a diverse group that often arise in young, otherwise healthy patients and generally have an indolent course with longer-term survival in comparison with high-grade gliomas.

Ideal management of LGG is still unclear. Although there is a growing belief that early surgery is benefitial in survival curves, options include conservative treatment with follow up, chemotherapy and radiotherapy. Among chemotherapy options, the most widely applicable are procarbazine, lomustine and vincristine (PCV) and temozolamide (TMZ), depending on histologic features.

However, several considerations about LGG are being reformulated, like diagnostic strategies previously considered adequate for patients with LGGs, including structural magnetic resonance (MR) imaging and stereotactic biopsy. Currently, the role of biopsy in such lesions is becoming doubtful once biopsies may have low specificity and sensitivity. MR imaging may also be inappropriate to establish precise diagnosis.

Surgical management paradigms are also shifting, as increasing evidence reveal the importance of greater extent of resection in reducing transformation rates, and the importance of eloquence in determining tumor resectability. Besides, LGG-associated refractory seizures are being increasingly treated with early resection surgery.

Several factors have been recognized as playing role in LGG malignant transformation. The most important are: age over 40 years old, location of tumor in presumed eloquent cortex, Karnofsky score < 70, size of tumor usually greater than 4 cm and several genetic variations.

Previous data have already highlighted the potential mutagenic property of TMZ in animal models. However, a breakthrough analysis of a multidisciplinary group pointed that TMZ may indeed play a role in malignant transformation of LGGs. TMZ could theoretically facilitate mutagenic changes which would induce and fasten malignant transformation of LGG into high grade tumors.

We analyzed retrospectively the medical charts of 122 patients with LGG submitted to surgery or biopsy and attending at Hospital do Servidor Público Estadual de São Paulo (São Paulo, Brazil), consecutively diagnosed from 1995 to 2013.

We evaluated gender, age, histological type and treatment strategy for patients. We additionally registered patients in use of TMZ which presented with malignant transformation.

We applied in our patients a classification based in Sainte-Anne Hospital Classification and in the experience of the senior author (Rotta JM). We classified all LGG according to their radiological presentation and involvement of adjacent parenchyma. When lesions were purely circumscribed, with the same area in T1 and T2 images, they were classified as type A and treated with surgery alone; when lesions were circumscribed and with some degree of infiltration (T2 area larger than T1 area), they were classified as type B and treated with surgery and adjuvant therapy; when totally infiltrative (T2 pretty larger than T1 and not visible borders), they were classified as type C and treated with surgery and adjuvant therapy.