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The role of FDG-PET/TC in the surgical approach of malignant pleural mesothelioma

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Background: Approximately 20-30% of patients undergoing explorative thoracotomy because of the inaccurate imaging used for staging in malignant pleural mesothelioma (MPM). FDG-PET/TC scan could help in preoperative staging, in operative evaluation and in postoperative follow-up in MPM.

Methods: Data from patients with pathologically proven, previously untreated, MPM was obtained from a prospective database. All patients underwent FDG-PET/TC scan. Patients were clinically staged using IMIG staging system. Operative selection criteria were: ps 0-1, cStage I-II, epithelial histology, predictive postoperative FEV1>1.0 L and resectable lung perfusion <50%, PaO2>65 mmHg, PaCO2<45 mmHg, ejection fraction >40%. Videothoracoscopy for diagnosis and for pleurodesis was made in all the cases.

Fifty-five potentially EPP submitted patients (range age of 31-70 years) were observed between 1999 and 2006. Median PET SUV prior surgery in the primary tumor was 6.8 (range 4-16).

The same surgeon team operated 33 patients with MPM (21 male - 12 female), with one only thoracotomic approach in 30 cases, 20 right-sided lesions and 13 left-sided.

Twenty-nine patients underwent EPP, 3 exploratory thoracotomies without resection for chest wall or inferior vena cava invasion, and 1 laparoscopy for peritoneal metastases. All T4 or M1 cases were detected by FDG-PET/TC preoperative scan.

Pericardial (n=26) and diaphragmatic (n=29) defects were repaired by PTFE. Twenty-six patients had epithelioid subtype, 3 sarcomatous and 4 biphasics. Sixteen tumors were pStage I-II, 12 pStage III and 4 pStage IV.

Results: Of the 55 patients who had both FDG-PET/TC and surgical procedure only 4 had unresectable tumors. FDG-PET/TC correctly identified 1 unresectable tumor for proven peritoneal metastases.

The follow-up study reported a sensibility of 95% with a diagnostic accuracy of 92% regarding the local recurrences or distant metastases.

The analysis correlation in patients with high and low SUV and epithelioid and non-epithelioid histotype showed a better prognosis in both low SUV and epithelioid tumor.

Conclusions: FDG-PET/TC appears to give a good support in staging and prognosis in MPM. Furthermore, a systematic use of PET scan could be prevent the recurrence of MPM in follow-up period in EPP submitted patients.

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A preliminary comparison between short and long survivors consecutively diagnosed in a large hospital included in the regional population-based mesothelioma registry (Liguria, Italy)

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Background: Malignant pleural mesothelioma (PM) is a highly aggressive tumour; occupational exposure to asbestos is the most common cause of this cancer. Prognosis is often severe, although occasionally it is possible to observe survival times (ST) longer than two years.

We do not know exactly whether and to what extent some variables, such as gender, age at diagnosis, cigarette smoking, histology, and occupational exposure, correlate with prognosis.

Aim of this study was to show the differences between long and short survivors according to these variables.

Methods: We retrospectively studied a series of 281 patients (234 men and 47 women) affected by PM consecutively diagnosed in "illa Scassi" Hospital (Genoa, Italy) from 1994 to 2003 and subsequently deceased; live status was followed up to 2006, 30th June. Cases were systematically recorded by the regional population-based mesothelioma registry (COR Liguria), following inclusion criteria standardized by the national mesothelioma registry (RENAM). Mean age at diagnosis was 68,6 and 70,6 among men and women, respectively, and difference was not statistically significant (n.s.). Cell morphology was ascertained to be epitheliod in 74% of patients, sarcomatoid in 10%, biphasic in 8% and unspecified in 8%. Median overall survival was 12 and 14 months for men and women, respectively (n.s.). On the basis of ST, patients were classified into short (ST < 12 months) and long survivors (ST ≥ 24 months), and a remaining group with intermediate ST (between 12 and 23 months). According to this categorisation, 142 patients resulted to be short survivors (50%), 93 intermediate survivors (33%) and 48 long survivors (17%). The distribution by gender, age at diagnosis, histology, cigarette smoking and occupational exposure within these groups has been investigated by performing ANOVA analysis on continuous variables and Chi square test on categorical ones.

Results: No statistically significant difference in survival experience was detected between men and women. Among women, age at diagnosis, cigarette smoking, histology and occupational exposure had no correlation to survival. Among men, younger age at diagnosis was associated with a better survival, as mean age was 70 years old among short survivors and 66 years old among long survivors (p=0.03). Subjects with epitheliod PM showed a better survival when compared to other morphologies (p=0.54, n.s.). Definite occupational exposure (versus probable or non occupational) was moderately related to a better survival. Cigarette smoking had no correlation with survival.

Conclusions: From this large series of MPM patients, a sub-group of long survivors (ST ≥ 24 months) was identified. This subgroup with a better prognosis, with respect to shorter survivors, showed a younger age at diagnosis and a larger proportion of epitheloid MPM and of definitely occupationally asbestos exposed cases. The analysis of the role of different therapies, as well as other prognostic factors, on survival has been planned.