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18F-Fluorodeoxyglucose positron emission tomography (FDG-PET) staging of esophageal cancer

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Accurate preoperative staging of patients with cancer of the esophagus and the gastro-esophageal junction is essential to select patients who will benefit from surgery. Diagnostic imaging methods, usually employed for staging, include CT, sonography, and endoscopic ultrasonography (EUS). These methods are far from perfect, as metastatic spread may be encountered during surgery in up to 60% of patients.
Positron emission tomography (PET) using the tracer 18F-fluor-desoxyglucose (FDG) visualizes the increased glucose metabolism present in malignant tumors. FDG PET is increasingly used in clinical oncology, mostly to assist in staging, but also in lesion characterisation, tumor detection, response evaluation and determination of the prognosis. Also in esophageal cancer many studies are currently available, most of which have focussed on diagnostic accurary. In this presentation an overview will be presented on the current status of FDG PET in staging of esophageal cancer.
In T staging the added value of PET is nearly absent, as the spatial resolution of PET is insufficient for precise anatomical determination of tumor margins. Even CT has difficulty here, and currently EUS is considered the best modality for T staging. Also in N staging (locoreginal), the vicinity of the primary tumor and small size of metastases, lead to a relatively poor performance of FDG PET. Sensitivity to detect N1 disease is around 50% at a specificity of 85%. To assess locoregional metastases, EUS is the first-choice modality. The main value of FDG PET, however, is in the assessment of the M stage. Sensitivity both in detecting distant nodal (M1a) or hematogeneous (M1b) metastases is around 70%, and specificity around 95%, which is better than both CT and EUS. In contrast to N staging, M stage directly influences clinical decision making.
While many studies have focussed on diagnostic accuracy, (fewer) studies have currently reported the rate of upstaging (leading to e.g. cancellation of surgery) as a result of FDG PET to be between 3% and 20%. The large range depends partly on the quality of conventional modalities. Centralisation, expertise building, the use of multislice CT scanners are factors that increase the relative performance of conventional imaging methods. Also it has been demonstrated that the yield of FDG PET is lower in T1 and T2 tumors. Reports on the cost-effectiveness of PET are scarce and difficult to interprete. In a recent Dutch study diagnostic costs increased after inclusion of FDG PET, but the diagnostic costs are only a small fraction of total costs in these patients.
In conclusion, most centers agree that the application of FDG PET leads to improved patient care. With the new trend of combined PET-CT scanners it is expected that both the performance of PET and of CT will be further improved.

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The place of neoadjuvant treatment for oesophageal cancer

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The question of which treatment approach is the most appropriate regarding oesophageal cancer is much debated. Resection is still the standard treatment for patients with localised oesophageal cancer and no medical contraindications to surgery, with resectability rates of 54 to 69%, operative mortality rates of 4 to 10% and 5-year survival rates from 15 to 24% in randomised trials. Because of the poor survival, preoperative combined modality treatment has been explored.
Comparing **preoperative radiotherapy** (RT) with immediate surgery, none of the randomised trials have shown a survival benefit for combined therapy. The results of trials exploring the addition of chemotherapy to resection are conflicting. Regarding the two large multi-institutional prospective randomised trials of **preoperative chemotherapy** (CT) vs a surgical control [1,2] only one [1] noted a significant median and 3-year survival benefit for patients who underwent CT. Consequently, we are still left with inexplicable disparate outcomes in these two trials and, therefore, the worth of preoperative CT remains questionable. If preoperative CT is beneficial for oesophageal cancer, such a benefit is small. Recognition of the need for improved local regional control, and also the fact that most patients succumb to distant disease, has prompted many investigators to explore **preoperative CRT** in an attempt to improve outcome. The only two large multi-institutional prospective randomised trials [3,4], enrolling sufficient number of patients to provide statistically meaningful results, failed to shown any survival advantage of preoperative CRT. Only one randomised study [5] showed a survival benefit with combined modality therapy, but this study has been mostly criticised. Consequently, despite the widespread use of preoperative CRT, the absence of benefit reported in phase III trials means that this approach should be considered investigational. A consistent finding in these trials is that 25% of treated patients with induction CRT have no residual tumour in samples of resected tissue after oesophagectomy.
To conclude, the management of oesophageal cancer will undoubtedly continue to evolve as improvements in technology, combined with a greater understanding of genomics and biology of tumours, better define effective therapeutic interventions and allow introduction of novel treatments into strategies for clinical management. Unfortunately, at present, we are unable to accurately point out those patients who require some kind of therapeutic intervention and those for whom particular treatments should be avoided.

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The hepatocellular carcinoma family of tumours in non-cirrhotic patients

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Where we are and where we go – lessons from the SIOPEL 1 and 2 international trials

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Objectives: To collect information on: biology, patients' characteristics, outcome and prognosis of pediatric HCC family of tumors and compare it with pediatric HB and adult HCC experience.
Material: 40 HCC pts. were registered in the SIOPEL1 study (1990–1994). 31% of tumors were metastatic, 39% had extrahepatic extension/vascular invasion, 56% were multifocal. Only 31% of tumors were associated with pre-existing hepatic disease. All but 2, pts. received preop. chemotherapy (PLADO = cisplatin and doxorubicin). In SIOPEL 2 study (1994–1998) 17 pts. were analyzed. 18% tumors were metastatic, 35% had extrahepatic tumor extension/vascular invasion were found and 53% were multifocal. 13 of the 16 treated patients received intensified preop. CARBOPLATIN + PLADO chemotherapy (CHT).
Results: SIOPEL 1: Partial response to PLADO was observed in 18/37 cases (49%). Complete tumor resection was achieved in 14 patients (36%) (incl. 2 liver transplantations – LTX). Overall survival (OS) at 5 yrs was 28%, while event free survival (EFS) was 17%. FU time was 49–90 months (median 75). The following adverse prognostic factors were identified for EFS: metastases and vascular invasion. SIOPEL 2: Partial response to preop. CHT was observed in 6/13 cases (46%). Resection was achieved in 8 patients (47%) (incl.1 LTX). OS of HCC pts. in SIOPEL 2 study remained poor (22%) showing no improvement over the SIOPEL 1 despite CHT intensification.