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# *Diagnostic value of tumour markers CA 19-9 and CEA in pancreatic, ampullary and extrahepatic biliary tract carcinomas*

# *Dijagnostička vrednost tumorskih markera CA 19-9 i CEA u karcinomima pankreasa, ampularnim i ekstrahepatičkog bilijarnog trakta*

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**ABSTRACT. The diagnostic efficacy of CA 19-9 and CEA was evaluated in 12 patients with pancreatic, 3 patients with ampullary and 5 patients with extrahepatic biliary tract carcinomas in comparison with 20 healthy persons and 5 patients with gastric carcinoma, CA 19-9 was a sensitive and specific tumour marker for ampullary (100% and 96%), pancreatic (100% and 96%) and extrahepatic biliary tract carcinomas (100% and 96%), while CEA was sensitive and specific for ampullary (100% and 100%) and pancreatic carcinomas (92% and 100%) only. The markers were specific in comparison to healthy persons and patients with gastric carcinoma. The combination of these two markers improved the final diagnostic result.**

**KEY WORDS:** carcinoma, pancreas, tumour markers

**SAŽETAK. Dijagnostička efikasnost CA 19-9 i CEA je procenjena na 12 bolesnika sa pankreatičnim karcinomom, 3 bolesnika sa ampularnim karcinomom i 5 bolesnika sa karcinomom ekstrahepatičnih žučnih puteva. Kontrolnu grupu je sačinjavalo 20 zdravih osoba i 5 bolesnika sa karcinomom želuca. CA 19-9 je osetljiv i specifičan tumorski marker za ampularni karcinom (100% i 96%), pankreasni karcinom (100% i 96%) i karcinom ekstrahepatičnih žučnih puteva (100% i 96%), dok je CEA osetljiv i specifičan marker samo za ampularni (100% i 100%) i pankreasni karcinom (92% i 100%). Specifičnost markera se odnosi na zdrave osobe i bolesnike sa karcinomom želuca. Kombinacija ova dva markera poboljšava konačni dijagnostički rezultat.**

**KLJUČNE REČI:** karcinom, pankreas, tumorski markeri

Pancreatic carcinoma, despite the progress in early diagnosis and treatment, continues to have a dismal prognosis. In the vast majority of cases (reaching approximately 80-85%) it is inoperable at the time of presentation with disappointing results. Early diagnosis and subsequent effective surgical intervention offers the only chance of cure in otherwise condemned patients (1).

Tumour markers in combination with new imaging techniques (US, ERCP, CT, MRI) have contributed largely in staging, planning of therapeutic strategy and following of treated patients with malignant tumours (2).

A variety of tumour markers (Table 1) in serum and in gastrointestinal fluids have been found to be correlated with pancreatic carcinoma (2-6), However, a lot of them are no longer in use. The most reliable in clinical practice remain CEA and CA 19-9 (7-10).

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Table 1 – *Tumour markers in pancreatic carcinoma*

| | |
|---|---|
| **A.** | Tumour – related antigens |
| | CEA (Carcinoembryonic antigen) |
| | CA 19-9 |
| | CA 50 |
| | CA 72-4 (TAG-72) |
| | TPA (Tissue polypeptide antigen) |
| | POA (Pancreatic oncofetal antigen) |
| | PCAA (Pancreas cancer – associated antigen) |
| | LAI (Leucocyte adherence inhibition) |
| **B.** | Enzymes |
| | Amylase |
| | Alkaline phosphatase |
| | Ribonuclease |
| | Elastase |
| | GT-II (Galactosyltransferase isoenzyme II) |
| **C.** | Oncofetal or hormonal products |
| | HCG (Human chorionic gonadotrophin) |
| | $B_2$-Microglobulin |
| | Ferritin |
| | $\alpha$ FTP ($\alpha$-Fetoprotein) |
| | Calcitonin |