

**EP113****Limits of serum carcinoembryonic antigen (CEA) and carbohydrate antigen (CA) 19-9 as the diagnosis of gallbladder cancer**

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**Introduction** : Because the clinical symptoms of gallbladder (GB) cancers are lacking or vague, objective tools for diagnosing GB cancer were necessary. Although serum carcinoembryonic antigen (CEA) and carbohydrate antigen (CA) 19-9 were widely utilized for the diagnosis of GB cancer, few studies existed about the diagnostic performance of these biomarkers. This study aimed to investigate the diagnostic performance of serum CEA and CA 19-9, and demonstrate the clinical usefulness of them in diagnosing GB cancer.

**Methods** : This was a retrospective cohort study. Between January 2000 and March 2020, total 751 GB cancer patients and 2,310 normal controls were included. Two biomarkers were measured before surgery. Receiver operating characteristics curves were obtained, and sensitivity and specificity of each biomarker were evaluated. Cancer stage was unified to American Joint Committee on Cancer (AJCC) 7th staging system.

**Results** : 666 (88.8%) patients had serum CEA  $\leq 5$  ng/mL, and 546 (72.7%) patients had serum CA 19-9  $\leq 37$  IU/mL. In terms of differentiating the GB cancer from the control, the sensitivity and specificity of serum CEA at 5 ng/mL was 11.2% and 99.2%, and those of serum CA 19-9 at 37 IU/mL was 27.3% and 94.6%. When these cut-off values were applied to differentiate early GB cancer from advanced tumor, the sensitivity and specificity at these cut-off values were 14.2% and 96.1% in CEA and 33.6% and 90.1% in CA 19-9.

**Conclusions** : Serum CEA and CA 19-9 were not suitable for screening GB cancer patients from controls. Two biomarkers should be replaced to new biomarkers with higher

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