

PERBEDAAN POLA PENYANGATAN DAN NILAI PENYANGATAN KONTRAS CT SCAN ABDOMEN 4 FASE KARSINOMA HEPATOSELLULER DAN HEPATAL METASTASIS TERKONFIRMASI HISTOPATOLOGIS

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INTISARI

Latar Belakang: Karsinoma hepatoseluler (KHS) dan hepatal metastasis merupakan masalah kesehatan yang penting di dunia, karena insidensi, morbiditas dan mortalitas yang tinggi. Pencitraan KHS dan hepatal metastasis merupakan *daily challenge* bagi radiolog, dan penegakan diagnosis pencitraan sangat penting oleh karena diagnosis histopatologis jarang dilakukan mengingat resiko *spreading* dan perdarahan.

Tujuan Penelitian: Mengetahui perbedaan pola penyangatan dan nilai penyangatan kontras relatif pada KHS dan hepatal metastasis.

Metode Penelitian: Subyek penelitian terdiri dari 109 citra CT scan abdomen 4 fase yang terdiri atas 53 sampel KHS dan 56 sampel hepatal metastasis yang semuanya sudah terkonfirmasi histopatologis. Uji perbedaan menggunakan *Chi Square Test* untuk variabel nominal dan *Independent Sample T-test* atau *Mann Whitney Test* untuk variabel rasio.

Hasil: Variabel pola penyangatan yang signifikan didapatkan pada KHS dibanding hepatal metastasis yaitu tampilan penyangatan visual relatif terhadap parenkim di fase arteri (96%), *prominent intratumoral vessels* (81%), *mosaic appearance* (77%), *corona enhancement* (87%) dan tumor thrombus vena porta (15%). Variabel pola penyangatan yang signifikan didapatkan pada hepatal metastasis dibanding KHS yaitu *peripheral rim enhancement* (25%), *mexican hat appearance* (41%) dan kalsifikasi intratumoral (18%). Tidak terdapat perbedaan yang bermakna pada variabel penyangatan visual relatif di fase vena, *bull's eye appearance* dan kistik intratumoral diantara kedua kelompok. Variabel nilai penyangatan kontras signifikan membedakan KHS dari hepatal metastasis dengan nilai median *absolute arterial phase enhancement ratio* KHS 12% dan hepatal metastasis -25%, nilai median *absolute dualphase enhancement ratio* KHS 3,43 dan hepatal metastasis 0,95, serta nilai median *pre-post contrast attenuation difference* KHS 23 dan hepatal metastasis 8,5.

Kesimpulan: Terdapat perbedaan yang bermakna antara variabel pola penyangatan berupa penyangatan visual relatif parenkim di fase arteri ($p<0,001$), *prominent intratumoral vessels* ($p<0,001$), *mosaic appearance* ($p<0,001$), *corona enhancement* ($p<0,001$), dan tumor thrombus vena porta ($p=0,02$) pada KHS, serta variabel *mexican hat appearance* ($p<0,001$), *peripheral rim enhancement* ($p<0,001$), serta kalsifikasi intratumoral ($p=0,019$) pada hepatal metastasis. Tidak

terdapat perbedaan bermakna pada variabel penyangatan visual relatif parenkim di fase vena, pola *bull's eye appearance* dan pola kistik pada kedua kelompok. Terdapat perbedaan bermakna pada ketiga nilai penyangatan kontras diantara kedua kelompok.

Kata Kunci: Karsinoma Hepatoseluler, hepatal metastasis, pola penyangatan dan nilai penyangatan kontras, CT *scan* abdomen kontras 4 fase.

ENHANCEMENT PATTERNS AND ENHANCEMENT VALUES DIFFERENCES BETWEEN FOURPHASIC ABDOMINAL CONTRAST CT SCAN BETWEEN PATHOLOGICALLY CONFIRMED HEPATOCELLULAR CARCINOMA AND LIVER METASTASES

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ABSTRACT

Background: Hepatocellular carcinoma (HCC) dan liver metastases are important health problems because of their high incidence, morbidity and mortality rate. Imaging of HCC and liver metastases daily challenges for radiolog, and imaging diagnosis of these are very important because of pathologic examination are rarely to do consider the risks of bleeding and tumor spreading.

Objective: Knowing the difference in contrast enhancement pattern and enhancement value of CT scan between HCC and liver metastases.

Material and Methods: The study subjects consisted of 109 samples four phasic abdominal CT scan (53 samples of HCC and 56 samples of liver metastases) with all pathologic confirmed. Significance tests are using Chi Square Test for nominal variables and Independent Sample T-test or Mann Whitney Test for ratio variables.

Results: Significant enhancement patterns variables of HCC compared to liver metastases are relative visual enhancement to surrounding parenchyma in arterial phase (96%), prominent intratumoral vessels (81%), mosaic appearance (77%), corona enhancement (87%) and portal vein thrombus (15%). Significant enhancement patterns variables of liver metastases compared to HCC are peripheral rim enhancement (25%), mexican hat appearance (41%), intratumoral calcification (18%). There are no significant difference between HCC and liver metastases in variable of relative visual enhancement to surrounding parenchyma in venous portal phase, bull's eye appearance and cystic pattern. All variables of enhancement value are significant in differentiating between HCC and liver metastases, with median values of absolute arterial phase enhancement ratio are HCC 12% and liver metastases -25%, median values of absolute dual phase enhancement ratio are HCC 3,43 and liver metastases 0,95, and median value of pre-post contrast attenuation difference are HCC 23 and liver metastases 8,5.

Conclusion: There are significant difference in enhancement patterns of HCC compared to liver metastases, in variables of relative visual enhancement to surrounding parenchyma in arterial phase ($p<0,001$), prominent intratumoral vessels ($p<0,001$), mosaic appearance ($p<0,001$), corona enhancement ($p<0,001$), and portal vein thrombus ($p=0,02$). There are significant difference in enhancement patterns of liver metastases compared to HCC, in variables of mexican hat appearance ($p<0,001$), peripheral rim enhancement ($p<0,001$) and intratumoral

calcification ($p=0,019$). There are no significant difference between HCC and liver metastases in variables of relative visual enhancement to surrounding parenchym in portal venous phase, bulls'eye appearance and cystic pattern.

Keyword: Hepatocellular Carcinoma, liver metastases, enhancement patterns and enhancement values, fourphasic abdominal CT scan.