

SCIENTIFIC SESSION PRESENTATION

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# Whole-body diffusion-weighted MRI versus CT for detection, restaging and operability assessment of recurrent ovarian carcinoma

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## Aim

To evaluate whole body diffusion-weighted MR imaging (WB-DWI MRI) for detection, staging and operability assessment in recurrent ovarian cancer compared with CT.

## Methods

Fifty-one women suspected for recurrent ovarian cancer underwent 3-Tesla WB-DWI/MRI using 2 b-values ( $b=0-1000$  s/mm<sup>2</sup>), T2- and contrast T1-weighted sequences in addition to CT. WB-DWI/MRI and CT were compared for per-patient detection of recurrence, per-site detection of disease extent including peritoneal, serosal, retroperitoneal, periportal and distant metastases and for detecting disease extent according to institutional operability criteria. Imaging findings were correlated with surgical/pathological findings or imaging follow-up for at least 6 months.

## Results

According to the reference standard, recurrence was confirmed in 48/51 patients. WB-DWI MRI showed 94% accuracy for detecting recurrence, versus 78% for CT. Per-site analysis showed significantly higher sensitivity of WB-DWI MRI over CT for assessing disease extent of the peritoneum, small bowel and colon mesentery and serosa ( $p<0.000001$ ,  $p<0.000001$  and  $p=0.00002$ , respectively), retroperitoneal suprarenal lymphadenopathies and periportal lesions (both  $p=0.031$ ). Following institutional operability criteria, WB-DWI/MRI showed

better sensitivity for detection of disease extent compromising operability; mesenteric root infiltration ( $p=0.008$ ), carcinomatosis of small bowel ( $p=0.002$ ) and colon ( $p=0.016$ ), high volumetric peritoneal disease load ( $p=0.004$ ) and irresectable distant metastases ( $p=0.016$ ). WB-DWI MRI correctly predicted complete cytoreduction in 93% patients undergoing cytoreductive surgery versus 40% for CT.

## Conclusion

WB-DWI MRI showed higher accuracy compared with CT for recurrence detection while improving the sensitivity for staging and operability assessment of disease extent. WB-DWI MRI may be most valuable to select patients for surgical resection.

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