|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ***PCD-CTstd*** | ***PCD-CT140 keV*** | ***PCD-CTiMAR*** | ***PCD-CT140keV+iMAR*** |
| **Image quality** | 3 [2.67-3] | 3.3 [3-3.33] | ­4 [3.67-4.6] | 4.3 [3.67-4.3] |
| ***Comparison*** | | | | | |
| PCD-CTstd | — |  |  |  |
| PCD-CT140 keV | p=0.7 | — |  |  |
| PCD-CTiMAR | P<0.001 | P<0.01 | — |  |
| PCD-CT140keV+iMAR | P<0.001 | p=0.01 | p=1 | — |
| **Artifact severity** | 1.67 [1.67-2] | 2.3 [1.67-2.67] | ­3.67 [3.3-4] | 3.67 [3.3-4] |
| ***Comparison*** | | | | | |
| PCD-CTstd | — |  |  |  |
| PCD-CT140 keV | p=0.44 | — |  |  |
| PCD-CTiMAR | P<0.001 | p<0.01 | — |  |
| PCD-CT140keV+iMAR | P<0.001 | P<0.01 | p=1 | — |
| **Adjacent anatomy** | 1.67 [1.67-2] | 2.3 [2-2.67] | ­3.67 [3-4] | 3.67 [3.3-4] |
| ***Comparison*** | | | | | |
| PCD-CTstd | — |  |  |  |
| PCD-CT140 keV | p=0.13 | — |  |  |
| PCD-CTiMAR | p<0.001 | p<0.01 | — |  |
| PCD-CT140keV+iMAR | p<0.001 | p<0.01 | p=1 | — |
| **Distant anatomy** | 3 [2.6-3.3] | 4 [4-4.3] | 4 [3.67-4] | 4.3 [4-4.3] |
| ***Comparison*** | | | | | |
| PCD-CTstd | — |  |  |  |
| PCD-CT140 keV | p<0.001 | — |  |  |
| PCD-CTiMAR | p<0.001 | p=0.035 | — |  |
| PCD-CT140keV+iMAR | p<0.001 | p=1 | p=0.038 | — |
| **Diagnostic confidence** | 1.6 [1.6-2] | 2.6 [2-3] | ­3.6 [3.3-4.3] | 3.6 [3.6-4] |
| ***Comparison*** | | | | | |
| PCD-CTstd | — |  |  |  |
| PCD-CT140 keV | p=0.17 | — |  |  |
| PCD-CTiMAR | p<0.001 | p<0.01 | — |  |
| PCD-CT140keV+iMAR | p<0.001 | p=0.02 | p=1 | — |

**Table S1.** Results of the qualitative image analysis in stratified analysis by hip replacement

PCD-CTStd=Standard reconstruction; PCD-CT140keV=virtual monoenergetic reconstruction at 140keV; PCD-CTiMAR= dedicated iterative metal artifact reduction algorithm; PCD-CT140keV+iMAR= dedicated iterative metal artifact reduction algorithm combined with virtual monoenergetic reconstruction at 140keV

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ***PCD-CTstd*** | ***PCD-CT140 keV*** | ***PCD-CTiMAR*** | ***PCD-CT140keV+iMAR*** |
| **Image quality** | 3 [2.75-3.3] | 3.67 [3.4-3.92] | ­4 [3.3-4] | 4.5 [3.75-4.67] | |
| ***Comparison*** | | | | | | |
| PCD-CTstd | — |  |  |  | |
| PCD-CT140 keV | p=0.03 | — |  |  | |
| PCD-CTiMAR | p=0.02 | p=1 | — |  | |
| PCD-CT140keV+iMAR | p<0.01 | p=0.3 | p=0.53 | — | |
| **Artifact severity** | 2.3 [1.67-2] | 3.3 [1.67-2.67] | ­3.5 [3.3-4] | 4.3 [3.3-4] | |
| ***Comparison*** | | | | | | |
| PCD-CTstd | — |  |  |  | |
| PCD-CT140 keV | p<0.01 | — |  |  | |
| PCD-CTiMAR | p<0.01 | p=1 | — |  | |
| PCD-CT140keV+iMAR | p<0.001 | p=0.12 | p=0.17 | — | |
| **Adjacent anatomy** | 2.3 [2-2.92] | 3.33 [3-4] | ­3.5 [2.75-4] | 4.3 [3.42-4.58] | |
| ***Comparison*** | | | | | | |
| PCD-CTstd | — |  |  |  | |
| PCD-CT140 keV | p<0.01 | — |  |  | |
| PCD-CTiMAR | p<0.01 | p=1 | — |  | |
| PCD-CT140keV+iMAR | p<0.001 | p=0.38 | p=0.57 | — | |
| **Distant anatomy** | 3 [2.67-3.3] | 4 [4-4.58] | 4.17 [3.67-4.3] | 4.17 [3.42-4.3] | |
| ***Comparison*** | | | | | | |
| PCD-CTstd | — |  |  |  | |
| PCD-CT140 keV | p<0.001 | — |  |  | |
| PCD-CTiMAR | p<0.001 | p=1 | — |  | |
| PCD-CT140keV+iMAR | p<0.001 | p=1 | p=1 | — | |
| **Diagnostic confidence** | 2.5 [2.08-2.92] | 3.67 [3.33-4] | ­4 [3-4.25] | 4.3 [3.75-4.67] | |
| ***Comparison*** | | | | | | |
| PCD-CTstd | — |  |  |  | |
| PCD-CT140 keV | p<0.01 | — |  |  | |
| PCD-CTiMAR | p<0.01 | p=1 | — |  | |
| PCD-CT140keV+iMAR | p<0.01 | p=0.72 | p=1 | — | |

**Table S2.** Results of the qualitative image analysis in stratified analysis by spine instrumentation

PCD-CTStd=Standard reconstruction; PCD-CT140keV=virtual monoenergetic reconstruction at 140keV; PCD-CTiMAR= dedicated iterative metal artifact reduction algorithm; PCD-CT140keV+iMAR= dedicated iterative metal artifact reduction algorithm combined with virtual monoenergetic reconstruction at 140keV