**Supplemental Digital Content 7: Ability to diagnose advanced fibrosis in NAFLD patients using fecal and serum bile acids and C4**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Feces | Cut-off(μmol/g) | AUROC | Sensitivity | Specificity | 　 | Serum | Cut-off(μM) | AUROC | Sensitivity | Specificity |
| *Total BA* | 1274.4  | 0.65  | 67  | 63  |  | *Total BA* | 7.9  | 0.65  | 74  | 71  |
|  | Conj BA | 6.7  | 0.68  | 56  | 67  |  |  | Conj BA | 3.0  | 0.67  | 56  | 67  |
|  | Unconj BA | 1272.2  | 0.65  | 67  | 63  |  |  | Unconj BA |  | 0.62  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Primary | 12.5  | 0.73  | 74  | 60  |  |  | Primary | 4.2  | 0.66  | 64  | 70  |
|  | Secondary |  | 0.61  |  |  |  |  | Secondary |  | 0.62  |  |  |
|  | S/P ratio |  | 0.59  |  |  |  |  | S/P ratio |  | 0.60  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Total CA* | 3.2  | 0.71  | 77  | 58  |  | *Total CA* | 1.0  | 0.67  | 71  | 64  |
|  | Unconj CA | 2.5  | 0.71  | 76  | 55  |  |  | Unconj CA | 0.8  | 0.67  | 62  | 67  |
|  | Conj CA |  | 0.64  |  |  |  |  | Conj CA |  | 0.59  |  |  |
| *Total CDCA* | 13.0  | 0.70  | 65  | 66  |  | *Total CDCA* |  | 0.57  |  |  |
|  | Unconj CDCA | 14.0  | 0.70  | 62  | 67  |  |  | Unconj CDCA |  | 0.53  |  |  |
|  | Conj CDCA | 0.4  | 0.65  | 44  | 76  |  |  | Conj CDCA |  | 0.60  |  |  |
| *Total DCA* |  | 0.63  |  |  |  | *Total DCA* | 1.0  | 0.66  | 59  | 68  |
|  | Unconj DCA | 0.62  |  |  |  |  | Unconj DCA | 0.5  | 0.66  | 62  | 71  |
|  | Conj DCA | 2.7  | 0.66  | 66  | 70  |  |  | Conj DCA |  | 0.60  |  |  |
| *Total LCA* |  | 0.56  |  |  |  | *Total LCA* | 1.3  | 0.69  | 59  | 58  |
|  | Unconj LCA | 0.56  |  |  |  |  | Unconj LCA | 1.0  | 0.71  | 47  | 64  |
|  | Conj LCA |  | 0.60  |  |  |  |  | Conj LCA |  | 0.55  |  |  |
| *Total HDCA* | 14.0  | 0.68  | 60  | 68  |  | *Total HDCA* |  | 0.51  |  |  |
|  | Unconj HDCA | 7.2  | 0.68  | 74  | 68  |  |  | Unconj HDCA |  | 0.62  |  |  |
|  | Conj HDCA | 0.45  |  |  |  |  | Conj HDCA |  | 0.60  |  |  |
| *Total UDCA* | 6.1  | 0.69  | 53  | 71  |  | *Total UDCA* |  | 0.56  |  |  |
|  | Unconj UDCA | 6.1  | 0.69  | 53  | 61  |  |  | Unconj UDCA |  | 0.61  |  |  |
|  | Conj UDCA | 0.59  |  |  |  |  | Conj UDCA |  | 0.62  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 　 | 　 | 　 | 　 | 　 | 　 | *C4* | 2.4  | 0.67  | 73  | 61  |

AUROC, Area under the Receiver Operatorating Characteristic Curve; C4, 7α-hydroxy-4-cholesten-3-one; CA, cholic acid; CDCA, chenodeoxycholic acid; Conj, conjugated; DCA, deoxycholic acid; GCA, glycocholic acid; HC, healthy control; HDCA, hyodeoxycholic acid; LCA, lithocholic acid; NAFLD, nonalcoholic fatty liver disease; S/P, secondary/primary; UDCA, ursodeoxycholic acid; Unconj, unconjugated