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| **Superiority analysis comparing the discrimination performance of the four submodels with that of the models integrating 10 common ORT combinations (and the models derived from the complete data using a similar approach as the submodels)** | | | | |
|  | **Predicting poor responders** | | **Predicting hyper-responders** | |
|  | **AUROC (95%CI)** | **DeLong test (*P* value)** | **AUROC (95%CI)** | **DeLong test (*P* value)** |
| **Comparisons for deploying OS strategies** |  |  |  |  |
| Strategy submodelsa | 0.929 (0.917, 0.940) | Ref | 0.869 (0.853, 0.884) | Ref |
| Age | 0.846 (0.827, 0.863) | <0.001 | 0.726 (0.703, 0.751) | <0.001 |
| FSH | 0.862 (0.844, 0.878) | <0.001 | 0.747 (0.723, 0.770) | <0.001 |
| AFC | 0.877 (0.860, 0.893) | <0.001 | 0.773 (0.749, 0.796) | <0.001 |
| AMH | 0.902 (0.886, 0.916) | <0.001 | 0.823 (0.805, 0.840) | <0.001 |
| Age + FSH | 0.861 (0.843, 0.878) | <0.001 | 0.756 (0.732, 0.779) | <0.001 |
| Age + AFC | 0.873 (0.856, 0.889) | <0.001 | 0.766 (0.744, 0.788) | <0.001 |
| Age + AMH | 0.899 (0.883, 0.915) | <0.001 | 0.823 (0.805, 0.840) | <0.001 |
| Age + AMH + FSH | 0.904 (0.889, 0.917) | <0.001 | 0.835 (0.816, 0.852) | <0.001 |
| Age + AMH + AFC | 0.907 (0.892, 0.921) | <0.001 | 0.832 (0.814, 0.849) | <0.001 |
| Age + AMH + FSH + AFC | 0.914 (0.901, 0.927) | <0.001 | 0.845 (0.827, 0.862) | <0.001 |
| Strategy model (complete data)b | 0.921 (0.903, 0.938) | 0.502 | 0.872 (0.850, 0.894) | 0.847 |
| **Comparisons for identifying POR/HOR** |  |  |  |  |
| Diagnostic submodelsa | 0.920 (0.907, 0.933) | Ref | 0.860 (0.843, 0.876) | Ref |
| Age | 0.709 (0.684, 0.734) | <0.001 | 0.663 (0.634, 0.690) | <0.001 |
| FSH | 0.733 (0.707, 0.759) | <0.001 | 0.683 (0.655, 0.709) | <0.001 |
| AFC | 0.825 (0.804, 0.844) | <0.001 | 0.771 (0.747, 0.793) | <0.001 |
| AMH | 0.890 (0.873, 0.905) | <0.001 | 0.821 (0.803, 0.839) | <0.001 |
| Age +FSH | 0.780 (0.756, 0.802) | <0.001 | 0.722 (0.696, 0.745) | <0.001 |
| Age + AFC | 0.835 (0.816, 0.855) | <0.001 | 0.767 (0.743, 0.791) | <0.001 |
| Age + AMH | 0.891 (0.874, 0.906) | <0.001 | 0.809 (0.792, 0.823) | <0.001 |
| Age + AMH + FSH | 0.894 (0.878, 0.908) | <0.001 | 0.813 (0.793, 0.831) | <0.001 |
| Age + AMH + AFC | 0.897 (0.880, 0.912) | <0.001 | 0.818 (0.799, 0.836) | <0.001 |
| Age + AMH + FSH + AFC | 0.897 (0.882, 0.912) | <0.001 | 0.826 (0.808, 0.845) | <0.001 |
| Diagnostic model (complete data)b | 0.912 (0.890, 0.930) | 0.491 | 0.862 (0.839, 0.884) | 0.901 |
| CI, confidence intervals; Ref, reference.  aSubmodels integrated in the proposed ML system;  bModels derived from the complete case data of the derivation cohort. | | | | |