**Supplementary Tables**

**Table S1. Statistics for the relative abundances of bacterial taxa in ETAs of NHAI group based on GLMM analysis.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Taxon |  | β-estimate (FDR *P* value) | | | |
| **OTU** | **Overall cohort (n=60)** | | **Pneumonia (n=41)** | |
| Genus | *Acinetobacter* | − 0.039 | 0.616 | − 0.117 | 0.432 |
| *Streptococcus* | − 0.067 | 0.443 | − 0.006 | 0.948 |
| *Corynebacterium* | 0.17 | 0.216 | 0.143 | 0.432 |
| *Staphylococcus* | − 0.142 | 0.216 | − 0.25 | 0.207 |
| *Prevotella* | − 0.233 | 0.038 | − 0.24 | 0.207 |
| *Neisseia* | 0.023 | 0.773 | 0.045 | 0.702 |
| *Veillonella* | − 0.136 | 0.216 | − 0.105 | 0.432 |
| *Mycoplasma* | − 0.134 | 0.248 | − 0.081 | 0.588 |
| *Granulicatella* | − 0.318 | 0.038 | − 0.287 | 0.207 |
| *Actinomyces* | − 0.134 | 0.228 | − 0.076 | 0.588 |
| *Campylobacter* | − 0.15 | 0.228 | − 0.102 | 0.588 |
| Species | *Acinetobacter\_baumannii* | − 0.064 | 0.371 | − 0.121 | 0.371 |
| *Streptococcus\_mitis* | − 0.153 | 0.215 | − 0.065 | 0.491 |
| *Corynebacterium\_ulcerans* | 0.293 | 0.018 | 0.22 | 0.115 |
| *Staphylococcus\_caprae* | − 0.194 | 0.128 | − 0.367 | 0.115 |
| *Veillonella\_dispar* | − 0.137 | 0.167 | − 0.105 | 0.371 |
| *Granulicatella\_adiacens* | − 0.336 | 0.018 | − 0.311 | 0.115 |
| *Streptococcus\_parasanguinis* | − 0.145 | 0.215 | − 0.079 | 0.491 |
| *Streptococcus\_lactarius* | − 0.153 | 0.215 | − 0.104 | 0.491 |

FRD: false discovery rate

OTU: operational taxonomic unit

**Table S2 Association between the relative abundances of the bacterial taxa in the ETAs and clinical outcomes: results from GLMM analyses.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 28-day all-cause mortality | | | Final hospital mortality | | |
| Taxon | Effect | Total | Pneumonia | Non-pneumonia | Total | Pneumonia | Non-pneumonia |
|  | *Acinetobacter* | − 0.024 (0.65) | − 0.064 (0.37) | 0.087 (0.39) | − 0.004 (0.94) | − 0.036 (0.58) | 0.087 (0.39) |
|  | *Actinomyces* | − 0.046 (0.51) | − 0.071 (0.45) | − 0.056 (0.68) | − 0.043 (0.5) | − 0.034 (0.67) | − 0.056 (0.68) |
|  | *Campylobacter* | − 0.045 (0.56) | − 0.046 (0.65) | − 0.117 (0.45) | − 0.023 (0.75) | 0.014 (0.87) | − 0.117 (0.45) |
|  | *Corynebacterium* | 0.065 (0.33) | 0.116 (0.19) | − 0.114 (0.49) | 0.048 (0.45) | 0.063 (0.42) | − 0.114 (0.49) |
| Genus | *Granulicatella* | − 0.03 (0.67) | − 0.055 (0.55) | 0.007 (0.96) | − 0.006 (0.92) | 0.012 (0.88) | 0.007 (0.96) |
|  | *Mycoplasma* | − 0.026(0.71) | 0.026(0.77) | − 0.308(0.14) | − 0.031(0.65) | 0.052(0.55) | − 0.308(0.14) |
|  | *Neisseria* | − 0.066(0.36) | − 0.054(0.53) | − 0.219(0.25) | − 0.006(0.92) | 0.038(0.6) | − 0.219(0.25) |
|  | *Prevotella* | − 0.024(0.68) | − 0.029(0.7) | − 0.073(0.54) | − 0.023(0.67) | 0.009(0.9) | − 0.073(0.54) |
|  | *Staphylococcus* | − 0.05(0.4) | − 0.052(0.45) | − 0.07(0.6) | − 0.049(0.38) | − 0.052(0.43) | − 0.07(0.6) |
|  | *Streptococcus* | − 0.084(0.19) | − 0.121(0.14) | − 0.058(0.63) | − 0.065(0.27) | − 0.073(0.33) | − 0.058(0.63) |
|  | *Veillonella* | − 0.03 (0.61) | − 0.032 (0.66) | − 0.085 (0.54) | − 0.023 (0.68) | 0.002 (0.98) | − 0.085 (0.54) |
| Species | *Granulicatella adiacens* | − 0.029 (0.69) | − 0.053 (0.57) | 0.008 (0.96) | − 0.004 (0.96) | 0.017 (0.84) | 0.008 (0.96) |
| *Acinetobacter baumannii* | − 0.044 (0.46) | − 0.09 (0.26) | 0.051 (0.62) | − 0.006 (0.91) | − 0.026 (0.7) | 0.051 (0.62) |
| *Staphylococcus caprae* | − 0.03 (0.65) | − 0.024 (0.76) | − 0.069 (0.61) | − 0.03 (0.64) | − 0.016 (0.83) | − 0.069 (0.61) |
| *Veillonella dispar* | − 0.036 (0.56) | − 0.035 (0.64) | − 0.106 (0.47) | − 0.025 (0.66) | 0.003 (0.97) | − 0.106 (0.47) |
| *Streptococcus lactarius* | − 0.13 (0.17) | − 0.193 (0.15) | − 0.116 (0.49) | − 0.094 (0.26) | − 0.097 (0.35) | − 0.116 (0.49) |
| *Streptococcus parasanguinis* | − 0.085 (0.27) | − 0.099 (0.3) | − 0.107 (0.52) | − 0.07 (0.31) | − 0.06 (0.47) | − 0.107 (0.52) |
| *Streptococcus mitis* | − 0.077 (0.22) | − 0.105 (0.19) | − 0.063 (0.63) | − 0.055 (0.36) | − 0.054 (0.46) | − 0.063 (0.63) |
| *Corynebacterium ulcerans* | 0.061 (0.33) | 0.076 (0.31) | − 0.034 (0.88) | 0.038 (0.53) | 0.018 (0.79) | − 0.034 (0.88) |