Dysphagia post-extubation affects long-term mortality in mixed adult ICU patients – data from a large prospective observational study with systematic dysphagia screening

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Figure Legends

Figure 1  Hazard Ratios
Adjusted Schoenfeld residuals of the variable dysphagia against follow-up time. The effect varies over time, showing an increased HR for dysphagia within the first year after ICU admission.

Figure 2  Hazard Ratios
Estimate of the regression coefficient for dysphagia against follow-up time, the model predicts a sharp decline of HR over the first 2 years before flattening out. Intercept of the spline with HR = 1 was reached after 1.03 years.

Table Legends

Table 1  Survival Probabilities by Kaplan-Meier estimates
Table 2  Survival Probabilities by time-dependent Cox model estimates
Table 3  Univariate and multivariate Cox regression for survival time since ICU admission
Table 1 – Survival Probabilities by Kaplan-Meier estimates

| time [years] | dysphagia | pts at risk | survival probability (95 % CI) | p     |
|--------------|-----------|-------------|--------------------------------|-------|
| 0.25         | yes       | 96          | 0.844 (0.78 - 0.913)           | <0.001|
|              | no        | 763         | 0.952 (0.937 - 0.967)          |       |
| 0.5          | yes       | 95          | 0.835 (0.77 - 0.906)           | 0.002 |
|              | no        | 753         | 0.94 (0.924 - 0.957)           |       |
| 1            | yes       | 82          | 0.746 (0.67 - 0.83)            | <0.001|
|              | no        | 727         | 0.908 (0.888 - 0.928)          |       |
| 2            | yes       | 78          | 0.718 (0.64 - 0.806)           | <0.001|
|              | no        | 688         | 0.86 (0.837 - 0.885)           |       |
| 4            | yes       | 73          | 0.672 (0.591 - 0.765)          | 0.006 |
|              | no        | 628         | 0.79 (0.763 - 0.819)           |       |
| 6            | yes       | 65          | 0.626 (0.543 - 0.723)          | 0.041 |
|              | no        | 519         | 0.711 (0.68 - 0.743)           |       |
Table 2 – Survival Probabilities by time-dependent Cox model estimates

| time [years] | dysphagia | pts at risk | survival probability (95 % CI) | p    |
|-------------|-----------|-------------|--------------------------------|------|
| 0.25        | yes       | 96          | 0.929 (0.902 - 0.957)          | 0.008|
|             | no        | 763         | 0.97 (0.958 - 0.982)           |      |
| 0.5         | yes       | 95          | 0.915 (0.883 - 0.948)          | 0.006|
|             | no        | 753         | 0.963 (0.95 - 0.977)           |      |
| 1           | yes       | 82          | 0.861 (0.813 - 0.913)          | 0.004|
|             | no        | 727         | 0.939 (0.921 - 0.958)          |      |
| 2           | yes       | 78          | 0.8 (0.731 - 0.874)            | 0.004|
|             | no        | 688         | 0.911 (0.888 - 0.934)          |      |
| 4           | yes       | 73          | 0.7 (0.604 - 0.811)            | 0.003|
|             | no        | 628         | 0.861 (0.832 - 0.892)          |      |
| 6           | yes       | 65          | 0.599 (0.482 - 0.743)          | 0.002|
|             | no        | 519         | 0.807 (0.769 - 0.847)          |      |
Table 3 – Univariate and multivariate Cox regression for survival time since ICU admission

| Variables                                      | Univariate Cox model |                      |                      | Multivariate Cox model |                      |                      | Schoenfeld PH-test |
|------------------------------------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|-------------------|
|                                                 | Hazard ratio (95% CI)| p                    | Wald                 | Hazard ratio (95% CI)  | p                    | Wald                 |                   |
| Age (per 1 year increase)                       | 1.04 (1.03 - 1.05)   | 0.00                 | 46                   | 1.03 (1.02, 1.04)      | 0.00                 | 6.09                 | 0.02              |
| Gender (male)                                   | 1.05 (0.81 - 1.37)   | 0.69                 | 0.16                 | -                      | -                    | -                    | -                 |
| Dysphagia (screening positive)                  | 1.51 (1.09 - 2.1)    | 0.01                 | 6.1                  | 0.97 (0.69, 1.37)      | 0.86                 | -0.17                | 0.00              |
| Body mass index (per 1 step increase)           | 1 (0.97 - 1.02)      | 0.86                 | 0.03                 | -                      | -                    | -                    | -                 |
| Emergency admission (yes)                       | 2.29 (1.76 - 2.97)   | 0.00                 | 38                   | 2.07 (1.54, 2.79)      | 0.00                 | 4.82                 | 0.00              |
| APACHE-II score (per 1 increase)                | 1.09 (1.07 - 1.11)   | 0.00                 | 100                  | 1.05 (1.03, 1.07)      | 0.00                 | 4.83                 | 0.08              |
| APACHE-IV admission diagnostic groups (Neurologic) | 1.37 (1.02 - 1.86)  | 0.04                 | 4.2                  | 1.00 (0.73, 1.37)      | 1.00                 | 0.00                 | 0.46              |
| Tubus diameter (per 1 mm increase)              | 1.17 (0.93 - 1.48)   | 0.19                 | 1.8                  | -                      | -                    | -                    | -                 |
| Days in ICU (per 1 increase)                    | 1.02 (1 - 1.04)      | 0.02                 | 5.5                  | 1.01 (0.98, 1.04)      | 0.54                 | 0.61                 | 0.03              |
| Days on renal replacement therapy (per 1 increase) | 1.03 (0.98 - 1.07)  | 0.25                 | 1.3                  | -                      | -                    | -                    | -                 |
| Days on invasive mechanical ventilation (per 1 increase) | 1.03 (1.01 - 1.05) | 0.01                 | 6.1                  | 1.02 (0.98, 1.06)      | 0.39                 | 0.87                 | 0.07              |
| (GLOBAL¹)                                       |                      |                      |                      |                         |                      |                      | 0.00              |

¹Schoenfeld’s global test to test the proportional hazards assumption in the Cox proportional hazards model