selenase® reduces the occurrence of ventilator-associated pneumonia with sepsis

selenase® dosage	
1st day	3,500 µg per day
2nd – 14th day	1,500 µg per day

Late ventilator-associated pneumonias increase mortality

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A selenase® supplementation reduces the occurrence of ventilator-associated pneumonia in sepsis patients

A new prospective, randomized controlled trial investigated the impact of a high-dose selenase® supplementation on sepsis patients in Iran. A total of 54 patients were treated within six hours after the sepsis diagnosis with a bolus of 2,000 µg selenium in the form of sodium selenite (selenase®). Thereafter, a maintenance therapy was carried out with 1,500 µg selenium per day for 14 days. The patients hence received a total of 3,500 µg selenium on the first day.

The primary endpoint of the trial was the 28-day mortality. In the selenase®-supplemented group, 31 % died, in the control group 40 %. Based on the slight number of confined participants, this difference was not significant. In addition, this trial also investigated the development of glutathione peroxidase activity with and without selenase® supplementation. Selenoprotein glutathione peroxidase is one of the most important proteins in the decomposition of reactive oxygen species. From day three, the glutathione peroxidase activity significantly increased in the selenase®-supplemented group compared to the control group *(Fig. 1)*.

Significant improvement in the respiratory SOFA values

The clinical results showed a significant improvement in the respiratory SOFA values. On day 7 and 10, the SOFA value in the selenase®-supplemented group was significantly lower ($p < 0.05$) *(Fig. 2)*. This significant difference also showed in the number of ventilator-associated pneumonias that occurred. Only 55.2 % of the selenase®-supplemented patients developed ventilator-associated pneumonia, but 84 % in the control group ($p = 0.023$). The significant difference was primarily attributable to late ventilator-associated pneumonia.

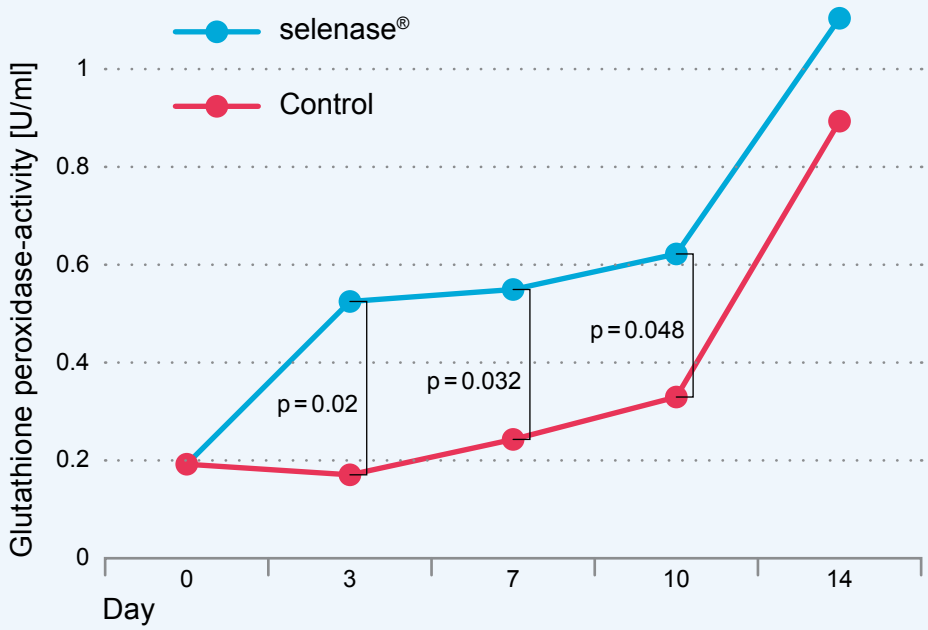
Only 17.2 % of the patients who received selenase® intervention developed late ventilator-associated pneumonia, while 44 % of the patients of the control group were affected ($p = 0.032$).

Significantly increased mortality in patients with late ventilator-associated pneumonia

In addition, this trial also investigated the impact of ventilator-associated pneumonia on mortality and duration of the ICU or hospital stay. While an early ventilator-associated pneumonia had no significant impact, late ventilator-associated pneumonia showed a very different picture. A late ventilator-associated pneumonia significantly increased the duration of mechanical respiration ($p < 0.0001$), the duration of the ICU stay ($p < 0.0001$), the duration of the hospital stay ($p = 0.002$), the duration of vasopressor therapy ($p < 0.0001$) and the number of new infections ($p < 0.0001$). Also, the mortality of patients with late ventilator-associated pneumonia was significantly increased ($p = 0.001$).

The significantly smaller number of late ventilator-associated pneumonia with the high-dose selenase® therapy thereby has a large impact on important clinical parameters in sepsis patients, where both the survival probability as well as the duration of the stationary treatment were significantly influenced. The treatment of sepsis patients was thereby improved.

Significant increase in the glutathione peroxidase activity on the selenase®-supplemented sepsis patients



Based on Chelkeba L, et al. Tab. 2

Fig. 1

Significantly lower respiratory SOFA values in the selenase®-supplemented group

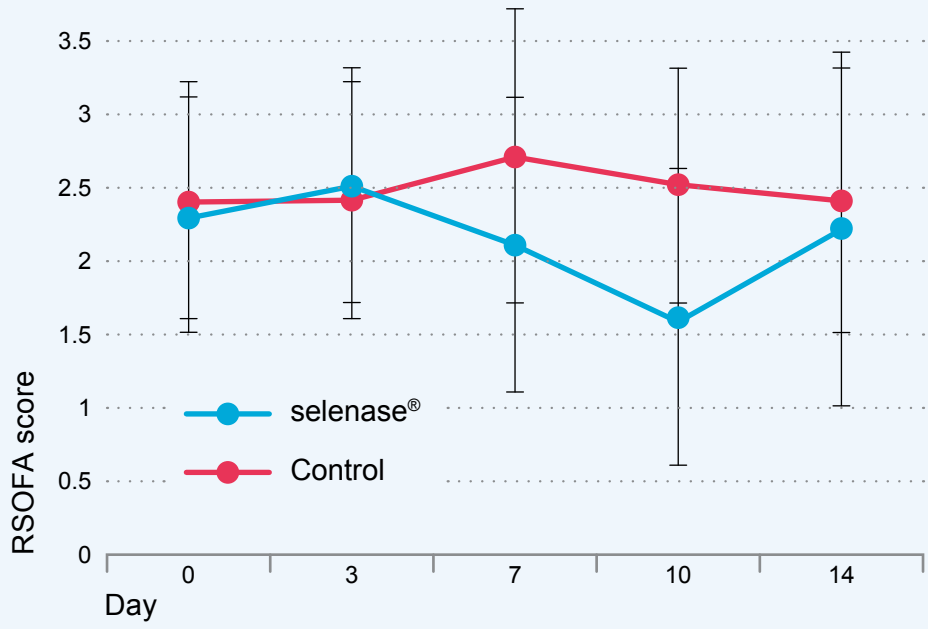


Fig. 2

Literatur

Chelkeba L, Ahmadi A, Abdollahi M, Najafi A, Ghadimi MH, Mosaed R, Mojtahedzadeh M. *Ann Intensive Care. 2015 Dec;5(1):29. doi: 10.1186/s13613-015-0071-y. Epub 2015 Oct 1*. The effect of parenteral selenium on outcomes of mechanically ventilated patients following sepsis: a prospective randomized clinical trial.

Brochures

We will gladly send you our detailed brochure „Use of selenium in intensive care as adjunctive therapy for sepsis, ischaemia/reperfusion and reanimation“.

Order by e-mail: information@biosyn.de (key word “Intensive folder“)

We moreover offer extensive information on the topics “Selenium as complementary therapy in oncology“ and “Selenium and the thyroid gland“ – for professional groups and patients.

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If you have specific questions on this topic, please call us at: +49 (0) 711-575 32-00

selenase® corrects selenium deficiency

selenase® 100 µg / T: Active substance: Sodium selenite pentahydrate, 50 µg selenium per ml. **Indications:** Clinically proven selenium deficiency that cannot be compensated by nutritional sources. Selenium deficiencies may occur as a result of states of maldigestion and malabsorption, as well as in malnutrition (e.g. due to complete parenteral nutrition). **Composition: selenase® 100 µg pro injectione:** 1 ampoule of 2 ml solution for injection contains: 0.333 mg sodium selenite pentahydrate, corresponding to 100 µg (micrograms) selenium. **selenase® T pro injectione:** 1 injection vial of 10 ml / 20 ml solution for injection contains: 1.67 mg / 3.33 mg sodium selenite pentahydrate, corresponding to 500 µg / 1000 µg selenium. **selenase® 100 µg peroral:** 1 drinking ampoule of 2 ml oral solution contains: 0.333 mg sodium selenite pentahydrate, corresponding to 100 µg selenium. **selenase® T peroral:** 1 ml oral solution contains: 0.167 mg sodium selenite pentahydrate, corresponding to 50 µg selenium. Excipients: Sodium chloride, hydrochloric acid, water for injections. **Contra-indications:** Selenium poisoning. **Undesirable effects:** None known to date if the medicinal product is administered according to prescription. **selenase® 100 µg / T pro injectione: General disorders and administration site conditions:** Frequency not known (cannot be estimated from the available data): After intramuscular administration local pain at the site of administration has been reported. **Form of administration, size of packages: selenase® 100 µg pro injectione:** 10 or 50 ampoules of 2 ml solution for injection. **selenase® T pro injectione:** 2 or 10 injection vials of 10 ml solution for injection, hospital-size pack 30 (3 x 10) or 50 (5 x 10) injection vials of 10 ml solution for injection, 2 or 10 injection vials of 20 ml solution for injection, hospital-size pack 30 (3 x 10) or 50 (5 x 10) injection vials of 20 ml solution for injection. **selenase® 100 µg peroral:** 20, 60, 90 or 100 ampoules of 2 ml oral solution. **selenase® T peroral:** 10 drinking bottles of 10 ml oral solution plus one measuring cup. Subject to prescription

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Imprint

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