selenase® Resuscitation

Scientific information on

Resuscitation

Causes of ischaemia:

Cardiac / circulatory arrest due to:

- Coronary heart disease/coronary infarction (70 - 80%)
- Cardiomyopathy, myocarditis (10 - 15%)
- Other causes

→ **global hypoxia during "no-flow"**

→ **Reperfusion due to resuscitation / ROSC**

Risks after reperfusion:

- Specific damage to heart, lung and brain tissue
- Hyperinflammation (= post resuscitation, sepsis-like syndrome)
- Endothelial damage

→ **SIRS**

→ **Disturbance of microcirculation**

Conventional measures to reduce tissue damage:

- Cardiac massage (earliest possible)
- Cardiac massage : ventilation → 30:2
- Volume replacement, vasoactive substances → however, up to date not sufficiently effective

Data on selenium (selenite, some with selenase®):

- SIRS / sepsis patients have low selenium levels, this correlates with the severity of the disease
  [Sakr et al. British Journal of Anaesthesia 98 (2007) 775-784]
- Selenium supplementation reduces mortality in SIRS/sepsis patients (SIC)
  [Angstwurm et al. Crit Care Med 35 (2007) 1-9]
- Selenium significantly improves neurological survival in patients with cardiac arrest
  [Reisinger et al. European Society of Cardiology (ESC) Congress Vienna 2007]
- High doses of selenium (100 µg/kg) protects from neurodegeneration (animal model)
  [Ansari et al. Biological Trace Element Research 101 (2004) 73-86]
- High doses of selenium (100 µg/kg) reduce cerebral cell death after ischaemia / reperfusion (animal model) [Yousuf et al. Brain Research 1141 (2007) 218-225]
- Selenium levels are significantly reduced in patients after cardiac / circulatory arrest
  [Busch et al. DIVI (2008)]

Possible actions of selenium supplementation:

- Reduction of tissue damage in heart, lungs and brain, i.e. improved neurological outcome
- Prevention or minimisation of systemic inflammation (SIRS)

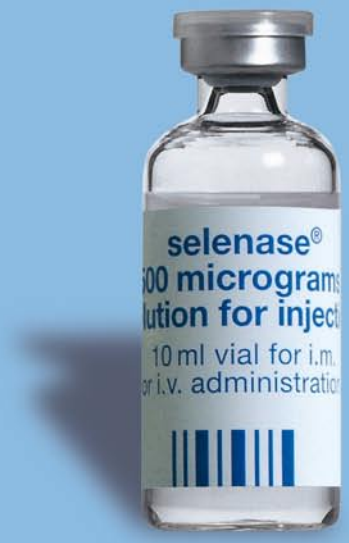
Suggested timing and dosage for selenium supplementation:

Time point	Dosage
Bolus dose immediately upon transfer of the patient into ambulance	1000 µg Se/d as selenase® solution for injection
Bolus dose on admission to catheter lab	1000 µg Se/d as selenase® solution for injection
Continuous infusion over 4 days	1000 µg Se/d as selenase® solution for injection

Information sheet on RESUSCITATION, biosyn Arzneimittel GmbH, RSi 2008. According to a lecture given by Dr med. Hans-Jörg Busch in 2008 entitled "The significance of selenium supplementation in the successful treatment of resuscitated patients".

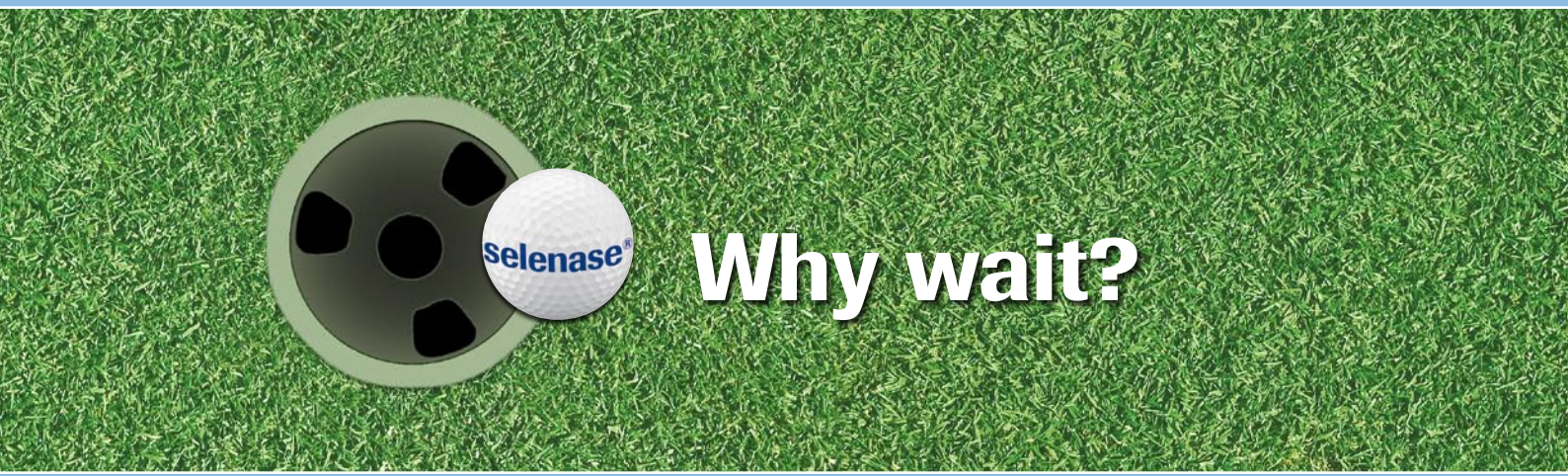
selenase®

a chance for your intensive care patients



selenase® –

- protects from endothelial, organ and reperfusion damage
- modulates inflammatory and coagulation pathways
- is very well tolerated



Abbreviated Prescribing Information
selenase® 100 micrograms, solution for injection (50 micrograms/ml)
selenase® 500 micrograms, solution for injection (50 micrograms/ml)
Active ingredient: sodium selenite pentahydrate. **Composition:** Each 2 ml ampoule/10 ml injection vial contains 100 micrograms/500 micrograms selenium as 333 micrograms/1.66mg sodium selenite pentahydrate ($Na_2SeO_3 \times 5H_2O$), corresponding to 50 micrograms/ml. **Excipients:** Sodium chloride, hydrochloric acid, Water for Injections. **Indication:** Proven selenium deficiency that cannot be offset from food sources. **Posology and Administration:** selenase® solution for injection is administered as an intramuscular or intravenous injection at a daily dose of 100 – 200 µg (1.27 – 2.53 µmol) selenium. If necessary, this dose can be increased to 500 µg (6.33 µmol) for a typical adult. No dosage adjustment is required for paediatric, renal or hepatic impairment patients. **Contraindications:** Selenosis. **Interactions:** Ensure that the pH value does not fall below 7.0 and that the solution is not mixed with reducing substances (e.g. vitamin C). **Pregnancy and Lactation:** There are no data from the use of selenase® in pregnant or lactating women. **Undesirable Effects:** None known to date when used as directed. **Overdose:** Counter measures include gastric lavage, forced diuresis, dialysis or administration of high doses of vitamin C. **Pharmaceutical Precautions:** Store below 25°C. **Legal Category:** POM. **Presentation:** Cartons containing 10 x 2ml ampoules / 10 x10ml glass vials for single use. **MA Numbers:** PL 20437/0003, PL 20437/0004. **MA Holder:** biosyn Arzneimittel GmbH, Schorndorfer Str 32, D-70734 Fellbach, Germany. **Date of Preparation:** November 2004

selenase® corrects selenium deficiency

biosyn

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We would be pleased to send you any further information.

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