

# Natural alternatives to corticosteroids in anti-oedema therapy

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Adrenal cortical steroids are molecules produced and released by the adrenal cortex. They are frequently employed in clinical practice, in varying quantity, depending on the pathology at issue, for the treatment of numerous immunoinflammatory and neoplastic disorders.

It is, however, well-known the immunosuppressive activity of cortisone (corticosteroid therapy), thus, it should be employed with a great discretion in pathologies with a significant inflammatory component and only when, after a thorough evaluation, the benefit exceeds the risk.

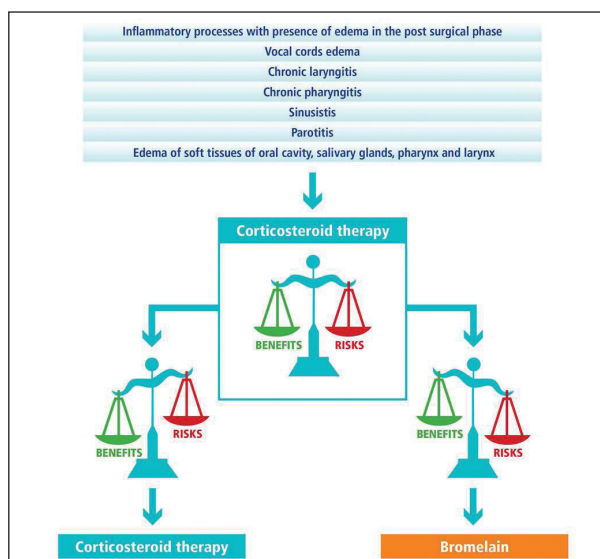
Steroid anti-inflammatory drugs have numerous "secondary" effects: they favour infections, decrease the immunoinflammatory response to external attacks, cause osteopenia (osteoporosis) and eye problems (cataracts and glaucoma). Therefore, I repeat that all of these side effects inherent in corticosteroid therapy have to be thoroughly evaluated and the use of these molecules can be put in practice when the benefit exceeds the risk. In cases of inflammatory processes accompanied by edema in post surgery situations, edema of vocal cords, chronic laryngitis, larynx post-surgery condition, chronic pharyngitis, sinusitis, parotitis and edema and inflammation of the soft tissues of the oral cavity and salivary glands, pharynx and larynx, steroid therapy can be replaced by the only antiedema therapy, using a product such as bromelain. Cortisone being a potent immunosuppressant (of both humoral and cell-mediated immunity) blocks indistinctly any protective response against an inflammatory process. On the other hand, bromelain represents nowadays an important aid to the means available for the use of medical profession from GMP to ENT, urologist, angiologist, etc.

**Table 1.**

**What is bromelain?**

Bromelain is a collective term that identifies a group of enzymes of mainly proteolytic activity, extracted from ripe and unripe fruits, leaves and stem of pineapple tree (*Ananas comosus*). Main activity of bromelain:

1. ↓ bradykinin
2. ↓ PGE2
3. ↓ substance P
4. ↓ hematic prekallikrein levels
5. ↓ plasma concentrations of kininogen
6. it has fibrinolytic action, by means of activation plasminogen to plasmin
7. > drainage of fibrinous exudate
8. ↑ concentration of antibiotics in the inflammation locus



**Figure 1.**

### When do you use bromelain?

Due to its effectiveness, safety and absence of undesirable side effects after oral administration, bromelain is present on the market as the form of preparations available to the medical professionals.

There are numerous therapeutic benefits of this substance. It can be employed for acute and chronic inflammatory conditions: surgery, chronic rhinosinusitis and otitis, inflammatory processes of the upper airways, epididymitis, sports injuries, mastitis, without altering the bioavailability of the concomitant medicines (e.g. antibiotics). Therefore, bromelain acts through a physiological modulation of inflammatory response, which itself is a defence reaction indispensable for the safeguarding of our body's protective processes.

Bromelain action mechanisms by no means influence humoral and cell-mediated response. It is also well-known that bromelain reduces the edema processes during inflammatory response, speeding up a physiologic process. In such a way, it is possible to reduce and facilitate the resolution of the inflammatory phenomena, increasing patient's compliance and adherence to the therapy without any adverse effect.

### What kind of bromelain?

Bromelain is none other than an enzyme similar to those present in our digestive tract, it is able to break down proteins and long-chained fats. Bromelain pharmacokinetics in human body is not known. The compound is active within a wide range pH (3-10), but we know that the pH of the stomach may reach lower

pH values (acid medium pH 1-2) and therefore could be able to degrade the compound. It is, in fact, a proteolytic enzyme, and if it is degraded in the stomach, it may facilitate digestion of dietary proteins and lose a part of its antiedema efficacy. For this reason, it is important to resort to the products that use gastro-protection technology that allows bromelain to pass intact through the barrier of stomach acidity, arriving entire at duodenum in order to be then completely absorbed and available to carry out its antiedema activity. It would also be advisable to have at our disposal products that combine bromelain with potent antioxidant molecules: oxidative stress and inflammation are two sides of the same coin since they fuel each other.

### References

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