Diclofenac: also harmful for the environment

**Diclofenac**, a drug with widespread presence in the environment, has well-demonstrated environmental toxicity. Another reason not to choose diclofenac.

**Diclofenac** carries a greater risk of adverse effects than other nonsteroidal anti-inflammatory drugs (NSAIDs), in particular an increase in cardiovascular deaths, without any greater efficacy; hence its use should be avoided (1). It also has more harmful effects on the environment than other NSAIDs (2).

Drugs and their metabolites are found in the environment when they are not sufficiently removed by sewage treatment after their urinary excretion, or when they have been discarded directly into waste water (3-5). **Diclofenac** was detected in 29% of more than 30,000 samples of surface water collected in France between 2007 and 2018. Its concentration is generally reduced by only 20% to 50% by the sewage treatment process (5).

**Diclofenac** has been detected in various plant and animal species, and in fresh and coastal waters in many countries. Its toxicity, particularly renal, has been demonstrated in trout, to the extent that it has been blamed for their depletion in Swiss rivers (6). **Diclofenac** is also toxic to scavenging birds (6). In the Indian subcontinent, where bovine carcasses are left for vultures, one vulture species almost disappeared in the first decade of the 21st century, before recognition of the role of **diclofenac** led to banning its use in animals in 2006 (2,6,7). Use of **diclofenac** in veterinary medicine is prohibited in many European countries (5). It has been authorised in Spain since 2013, and led to the death of a vulture in the Pyrenees in 2021 (7).

According to the French Agency for Food, Environmental and Occupational Health and Safety (ANSES), the available data are not sufficient to establish a risk to human health in France at the levels found in water destined for human consumption (5).

The Stockholm region publishes a list of drugs recommended for its population. **Diclofenac** is excluded because of its adverse effects, both for humans and the environment (2). Anti-inflammatory drugs such as ibuprofen and naproxen do not carry the same risk of human or environmental harms. This is also the case for paracetamol (2,8).

For many drugs, their impact on the environment has not yet been documented, but it could become a criterion in the choice between drugs. In the meantime, protection of the environment is another reason for not using diclofenac.

**References**