Indomethacin: The pro-inflammatory anti-inflammatory

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Abstract

Indomethacin is an anti-inflammatory non-steroidal drug which has been successfully used for the treatment of pain and inflammation. Used as a COX inhibitor and prostaglandin regulator, indomethacin has played a defining role in understanding the mechanism of action of NSAID drugs. Even though the medical benefits, indomethacin has been shown to have adverse effects in the environment. Amphibians have been well documented to be sensitive to the environments decline and deterioration, often serving as good biological indicators. For this reason, toxicological assays were done to elucidate the role of indomethacin as a contaminant in the pollution process of the aquatic life in Albania. Bufo bufo frog eggs were used to analyse these effects, until Gosner stage 20 at different concentrations up to 96 hours of exposure. Triplicates were done for the control (no added indomethacin), for the 2.5mg/L and 5mg/L concentration of dissolved indomethacin. Differences were observed in the length and width of the larvae, getting smaller and shorter with the increasing concentration, as well as damages to the skeletal muscles, stomach lining, kidney and liver. Even though no increased mortality was observed, the pathological implications that indomethacin causes to these amphibians were quite severe, showing the increasing damaging effects that this drug can do to off-target organisms when disposed incorrectly.

References

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