

POSTER 10

Unravelling mysteries and preserved secrets: an overview on the application of toxicology on archaeological and forensic mummified bodies

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Resumo

Introduction: Human mummies are remains with nonbony tissue preserved (e.g., muscle and skin) which have been found all around the world in different contexts and time periods [1]. Despite the wide variety of methods that can be applied [2] (e.g., computed tomography and endoscopy), toxicology analysis can straightforwardly screen xenobiotics the individual ingested and/or was exposed to. **Aims: Due to the limited references on the topic,** the aim of this communication is to display the application and importance of toxicological analysis to forensic and non-forensic mummies. **Material and Methods:** A search on PubMed (U.S. National Library of Medicine – <http://pubmed.ncbi.nlm.nih.gov>) was performed using the keywords “mummy”, “mummies”, “mummified”, and “mummification”. Case reports and research articles were selected based on their relevance to the topic. A total of thirty-four publications were considered for this communication: nineteen on archaeological mummies (dated from 7,000 BCE to the early 20th century), and fifteen on forensic mummified bodies (with a postmortem interval ranged between 50 and 2 years). **Results:** Toxicological analysis are mostly

conducted in hair (n=20; 58.82%), though other biological matrices can also be sampled such as soft tissue (n=16; 47.06%), hard tissue (n=4; 11.76%), and nails (n=2; 5.88%). Still, there are six case reports on forensic mummies (17.65%) that do not mention which matrix was studied. Research shows how analysis can confirm the presence of heavy metals and other chemical elements (e.g., mercury and arsenic), or even psychoactive drugs (e.g., ethyl glucuronide and delta-9-tetrahydrocannabinol) long after death in archaeological mummified bodies. During autopsies performed in forensic scenarios, toxicology reports can be positive for benzodiazepines and dibenzazepines (e.g., temazepam and trimipramine), or only reveal decomposition products. **Conclusions:** Toxicology can give new insights on the lifestyle and the cause-of-death of an individual [3-5], with the xenobiotics being analysed depending on both the origin and the burial/discovery context of each mummified body. The authors would like to bring awareness to the lack of bibliographic references on the topic, hoping the present communication will drive other colleagues to perform toxicology analysis and publish their results more often.

References:

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