Detection of Metallic Orthopaedic Implants at Airport Security Checkpoints

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ABSTRACT

Objective: This study was performed to investigate the influence of implant compositions, weight, speed of transit, and type of metal detector on the detection rate of orthopaedic implants during airport security checks.

Materials and Methods: Orthopaedic implants of different weights, mainly made of stainless steel, titanium, or cobalt-chromium-molybdenum alloys, were tested in the security arch at the local airport and with hand-held detectors at different transit speeds.

Results: All the implants escaped the arch detector screening but the hand-held detector was sensitive to most implants greater than 30 g in weight. The speed of transit did not result in a significant difference in detection rate.

Conclusion: Surgeons may consider preparing a statement together with an X-ray film detailing the type and location of the implant for patients who plan to travel and need to pass through airport security checkpoints.

Key Words: Artificial implants, Detection, Security measure