

# Pitfalls and Artefacts in Imaging Infection and Inflammation: Labelled Leukocytes

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Human leukocytes can be labelled with radiopharmaceuticals in vitro ( $^{111}\text{In}$ -oxine or  $^{99\text{m}}\text{Tc}$ -HMPAO) or with labelled antibodies anti-granulocytes (Leukoscan or Scintimun) in vivo. Labelled autologous leukocytes (WBC) represent the gold standard for the diagnosis and follow-up of many infectious diseases.

In vitro labelling procedure of leukocytes shows some crucial steps that need experienced personnel for the preparation, these crucial steps should be taken into account to obtain the best labelling efficiency. In this presentation the crucial steps will be discussed and it will be explained how to solve them.

WBC scintigraphy should be performed according to the imaging acquisition criteria of EANM GL as well as the interpretation of scintigraphic images should follow the interpretation criteria of EANM GL to correctly report the final diagnosis.

WBC scintigraphy is often performed to differentiate septic and aseptic inflammation, for this purpose it is very important to know which are the possible pitfalls or artefacts that can be found.

General pitfalls and artefacts of WBC scintigraphy will be discussed in this presentation as well the modality to prevent them, first of all, the definition of the correct patient preparation, other several factors (kind of infection, site of infection etc) that may influence the uptake and interpretation of labelled WBC will be discussed. Last but not least, pitfalls related to the localization of radiopharmaceutical uptake will be evaluated.

Then, an overview will be provided of pitfalls related to specific indications, such as musculo-skeletal infections, cardiovascular infections, fever of unknown origin, and therapy response evaluation.

In the last part of the presentation, some future perspectives will be showed, especially the possible use of new specific radiopharmaceuticals for the diagnosis of infectious diseases.

## References:

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