Drug Registration: Opportunities and Difficulties

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Registration of radiopharmaceuticals has long been hampered by regulations[1] and the medicines authorities' insecurity in the field of radioactive drugs; thus tending to be very conservative and hesitant towards new radiopharmaceuticals. A comprehensive review of the

whole process of developing new PET radiopharmaceuticals; from the selection of radionuclide to first in man study[2].

There are, at least, three routes to register new drugs:

1. Marketing authorization[3]: Extremely expensive (~million Euros) and time consuming (years). This is therefore normally not an option for research institutes and hospitals.

2. Clinical trial[4]: Not expensive but time consuming (~year). There are guidelines for radiopharmaceuticals[5,6] but there are still difficulties to get approval[7].

3. "Magistral approach": The drug may or may not be registered at the medicines agency[8]. Clearly the easiest way to get the radiopharmaceutical into the clinic.

For any non-endogenous compound (xenobiotic) a toxicity study is demanded.

However, as most radiopharmaceuticals are given in minute amounts one can use

the Threshold of Toxicological Concern (TTC) approach[9,10]. Just to compare; in non-radioactive drugs up to 2mg of unknown impurities may be present[11]. Also, ethanol which is often used to stabilize against radiolytic degradation and in HPLC mobile phases should be treated as an excipient and not as a residual solvent[12]. The revision of clinical trials will make them substantially simplified and shortening the application time[13].

Taken together: if we are not heading for a sunny day at least the future looks brighter.

References

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