Chapter 7

Early phase trials

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Aim

The aim of the lesson is to provide comprehensive knowledge to students on the topic of early phase (0, I, and II) studies. We will discuss the difficulties of determining the first human dose, dose concepts, study design, risk minimization, the roles and tasks of study participants, and role and screening of the volunteers. By the end of the chapter, students can understand the differences between early and later phases of clinical studies, can have a knowledge of the differences between phase 0, I, and II, as well as other specific types of early trials and understand the characteristics of these phases. Throughout the practical examples they can discover the complex process of trial design.

Summary

In this chapter, we will study the types of early phase trials, and their role within drug development. We also take a look at the typical design features of early trials, as well as the methods to evaluate their results. By the end of this chapter, students will get a complete picture of early phase trials, since beyond the theoretical background, we concentrate also on practical examples and challenges.

Medicines typically pass through many different trial phases before they are adopted as part of standard of care. Early phase clinical trials, colloquially those at phases I and II, primarily investigate the safety profile, seek to identify promising doses and first assessments of effects in the target disease of a new medicine. They typically use methodological designs quite distinct from traditional phase III trials. Results of early phases of trials provide the basis for subsequent investigations and methodological errors at this stage can compromise the rest of the drug development pathway.

Methods

E-learning materials (study materials, links to publications), quiz questions, discussion boards.

Learning Outcomes

1. Explain the typical role, rationale, and objectives of early phase clinical trials
    a. aim of early phase trials
    b. trends of early phase trials (eg. number of them compared to later phase trials, their success rates)
    c. types:
        i. phase 0 studies
        ii. phase 1 studies
        iii. phase 2 studies: IIa: proof-of concept, IIb
        iv. pilot studies
        v. bioequivalence and biosimilar studies

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2. Discuss the ethical obligations to patients; identify, explain the experimental features commonly used in early phase clinical trials
    a. crucial definitions: first time in human / first time in patient, healthy volunteer /patient volunteer
    b. why sample size in early phase studies are small
    c. the role of healthy volunteers in early phase trials
    d. duration of early phase trials
    e. importance of safety
    f. concepts for raising dosages
3. Interpret and critically appraise the results from an early phase clinical trial
    a. why trials stop at phase I/II
    b. what can be the outcomes of early phase trials relevant to later phases
4. Practical examples (eg. clinical trials of COVID-19 vaccines, what did they tested at early phases, specialities of oncology trials, etc.)

Complementarity to CONSCIOUS I Materials

Original chapter – the issue has not been covered by the CONSCIOUS I project.

Content

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