Clinical Studies with food or ingredients as test materials

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When do we do clinical studies for Foods

- A novel food or ingredient with adequate pre-clinical data for regulatory approval
- A novel food or ingredient with H/O safe over 30 years but in another country
- A novel food or ingredient with evidence of safety and efficacy mentioned in traditional literature but may not be applicable
- The FBO plans to make a product claim
- FSDU or FSMP for efficacy or claim

Who regulates or approves the conduct of such studies

- Legally it will be under the purview of the FSSAI
- Presently no such norms are available
- USFDA/Health Canada or EFSA or FSANZ in other countries
- FSSAI or ASCI seek data to substantiate claims

Conditions where no clinical study may be needed

A food or ingredients with H/O safe use of at least 15 years in India

A food or ingredients with sufficient data available in traditional literature and prepared as per traditional methods

A food or ingredient where only the content claim is being made where sufficient scientific publications are available for substantiation

Pre-requisites for conduct of human studies

An independent clinical research organization with no conflict of interest

Skilled and experienced investigators and GLP accredited labs

If ICH methods and accreditations are possible then data will be acceptable in OECD countries

Must follow ICMR GCP guidelines

Study design should be appropriate to the outcome

Rationale for doing a study

Clear objectives and end points

Pre-requisites for conduct of human studies

Statistician should design, fix sample size and the tests to be used in analysis

DSMB may be needed to ensure participant safety in blinded studies

Adequate pre-clinical data for novel test food/ ingredient or published data from other countries

Minimal or less than minimal risk to volunteers

Should be registered in Clinical Trials Registry of India (CTRI)

If using Artificial Intelligence tools – Follow ICMR AI guidelines

Study Duration

If safety is the outcome, then sufficient duration since the food or ingredient is likely to be used for long periods

Bioinformatics can be used to predict adverse effects if any based on chemical nature

If a disease risk reduction is the intent, it would depend on the markers and outcomes being studied- may be of a long duration

Shorter duration for metabolic studies e.g. bioavailability etc.

Study Duration 2

Early or proof of concept small studies about 4 weeks maximum

Dose escalation should be done ensuring lower dose did not have any adverse event

Chronic studies usually 8 to 12 weeks

Potential deviations

Poor study design

Inadequate dose

Insufficient duration

Investigator bias

Conflict of interest

Not adhering to ethical standards

No quality control

Wrong statistics or flawed analysis

Study Subjects

Avoid vulnerable subjects – pregnant , destitute, orphans, sub-ordinate employees, students – unless product is intended for them

Level of food / ingredient given should mimic the normal suggested intake or within ADI or RDA (May not be applicable with FSDU or FSMP)

Higher or lower dosages should be justified

Appropriate controls on standard nutrition – no deprivation

Studies on children should be done only after safety in adults has been established

Study Subjects

Randomization is to be preferred

If sets of populations are to be studied cluster randomization should be done

Blinding better than open label

Blinding may not be possible when food or ingredient smell, flavor or taste cannot be masked

Smaller pilot studies may be needed before planning a large study

Methods

Internationally accepted methodology for lab parameters

Standardized and validated methods for physical measurements

Validated methods with clear end points for cognitive measurements

Questionnaires should be pre-tested in the population under study

The correct statistical tools to be used for analysis

Subject adherence to the study should be monitored and removed if noncompliant

At start of study or between change in regimens there should be sufficient wash out periods

Approvals

FSSAI should set up a Review board for regulatory human studies

An institutional ethics committee should approve the study

Multiple approvals for multiple sites

Should be compliant with the ICMR Guidelines for human studies

THANK YOU FOR YOUR ATTENTION