

**CENTRAL COUNCIL FOR RESEARCH IN HOMOEOPATHY**

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001590

Time allowed: 2 hours 30 minutes

**Set: B**

Your Roll No.....010590..

**Instructions for candidates:**

1. This Question Booklet contains 100 Questions and has 29 pages, excluding cover page. Kindly check the answer booklet whether it is complete in all respects. If there is a deficiency, please bring it to the notice of Invigilator immediately and get the Question Booklet replaced with the Booklet of appropriate Set.
2. Darken ONLY ONE CIRCLE for each question. If a candidate gives more than one answer, it will be treated as a wrong answer, even if one of the given answers happens to be correct, and there will be same penalty as for wrong answer of a question.
3. There will be negative mark for wrong answer and for every wrong answer, one-fourth ( $\frac{1}{4}$ ) of the marks assigned to that question will be deducted. If a question is left blank, that is, no answer is marked, there will be no negative mark for that question.
4. The answer sheets will be checked electronically. Therefore, follow the instructions properly as printed on the back of OMR sheet.
5. All the entries in the answer sheet should be filled up carefully.
6. Rough work, if any, may be done in the Question Booklet.

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## Case No. 1

Urolithiasis is a multi-dimensional disease with several underlying disorders of metabolism. A prospective observational study was undertaken to ascertain the role of homoeopathic medicines in Urolithiasis. 31 cases were enrolled and 220 cases were analyzed at the end of the study. During follow up, changes in signs and symptoms of each case were noted and single dose of next higher potency of the same medicine was administered in those cases that had no further improvement or improvement lasted for a short duration. Medicines were prescribed up to 1M potency. All the patients were advised auxiliary measures along with the prescribed medication. Out of 220 cases, there was expulsion of calculi in 106 cases (single calculus in 76 cases, multiple calculi in 30 cases) whereas in 114 cases, calculi remained but the symptom score reduced, indicating improvement in the cases. The symptom score at baseline and after treatment was analyzed and found statistically significant ( $P<0.005$ ). The medicines found most useful were: Lycopodium clavatum in 40.9% (n=90) cases; Sulphur in 12.3% (n=27) cases; Pulsatilla nigricans in 8.2% (n=18) cases; Nux vomica in 6.2% (n=14) cases and Cantharis vesicatoria in 5.9% (n=13) cases. Treatment with homoeopathic medicines showed positive response in dissolution/expulsion of calculi.

Total symptom score at entry and at end of the treatment of urolithiasis is given in table below:

	Total no. of cases	Median/ IQR at entry	Median/ IQR at end	Z Value	P value
Symptom score	220	11/10-13	5/0-8	12.744	0.001 ✓
Mild (1-7)	6	7/7-7	0/0-0	2.226	0.026 ✓
Moderate (8-14)	195	11/10-12	6.5/5-7	11.987	0.001 ✓
Severe (15-22)	19	16/15-16	8/8-9	3.836	0.001 ✓

### Questions :

- Which statistical tool we can apply to the values presented in the above table for analysis?
  - Friedman's test
  - Spearman's rank correlation coefficient
  - Wilcoxon's signed rank test
  - Kruskal-wallis test

2. As per Boericke's Materia Medica, which of the following medicines is often indicated when a patient complains urinary stone with arthritic affections?
- Hydrangea
  - Ocimum canum
  - ~~Berberis vulgaris~~
  - Sarsaparilla
3. Which of the followings is the commonest type of urolithiasis?
- Xanthine
  - Uric acid
  - ~~Calcium~~
  - Cystine
4. Calcific plaques in the erosions seen on the apex of renal papillae in the formation of renal stones are known as:
- Senile plaque
  - Hollenhorst plaque
  - ~~Vulnerable plaque~~
  - Randall's plaque
5. Hypercalciuria is seen in all the following except:
- Hyperparathyroidism
  - ~~Vitamin D deficiency~~
  - Sarcoidosis
  - Renal tubular acidosis
6. Which medicine is given in Kent's repertory for the rubric 'black sediment in urine'?
- Berberis vulgaris
  - Sepia
  - Terebinth.
  - Crotalus horridus
7. 'Dysuria' belongs to which sub-chapter of Boenninghausen's Therapeutic Pocket Book ?
- ~~Micturition~~
  - Bladder
  - Urine
  - Urethra
8. Medicine for 'brick-dust red or yellow sediment in urine with odor of musk' is:
- Pareira brava
  - Sarsaparilla
  - ~~Ocimum canum~~
  - Senecio

9. When each of the participants in a clinical trial receives only one treatment, the design is called:
- a) Cross-over design
  - b) Block design
  - c) Parallel design
  - d) Balanced design
10. In the above study, the medicines were prescribed in increasing potencies. In which aphorism of 6<sup>th</sup> edition of Organon of Medicine, Hahnemann told, 'It is impractical to repeat the same unchanged dose of a remedy once, not to mention its frequent repetition'.
- a) 245
  - b) 147
  - c) 238
  - ~~d) 247~~

## Case No. 2

A prospective randomized clinical pilot study was conducted to compare the effectiveness of LM-vs-CM homoeopathic potencies in reducing pain due to cervical spondylosis. Out of 148 patients screened, 54 patients were enrolled and randomized into two groups, LM group (n=28) and CM group (n=26). Pain was assessed using visual analog scale. The primary end point for pain from 1 to 60 days was calculated using Area under the curve (AUC) method. Secondary outcome was to assess the quality of life using WHO QOL BREF questionnaire. Medicines were prescribed to the enrolled patients on the basis of their totality of symptoms and according to principles of Homeopathy. The medicines were selected by repertorising and consulting Materia Medica. The patients were assessed on 1st, 7th, 14th, 30th, 45th and 60th day for pain, tingling, stiffness, weakness and vertigo on a Visual Analogue Scale (VAS) of 0 to 10 where '0' indicates no symptom and '10' indicates worst possible symptoms.

AUC for pain was significantly less in the LM group (Median (IQR): 112 (86 to 299); p= 0.007). There was a statistically significant clinical success (p=0.01) in LM group (82%, n=23) compared to CM group (50%, n=13) for pain. Similarly, statistically significant clinical success was observed in LM group compared to CM group (82% vs 46% p= 0.006) in Total Symptom Score. Overall quality of life of the patients after homeopathic medication showed significant improvement in the WHO QOL-BREF domains..

Comparison of overall treatment is presented in the table below:

Characteristic	Mean(sd)		Diff.(95%CI)	p-value
	Day1 (n=54)	Day 60(n=54)		
Pain	7.8(1.9)	1.5(1.9)	6.4(5.8 to 6.9)	0.0001
Stiffness	4(3.2)	0.8(1.3)	3.1(2.3 to 3.9)	0.0001
Tingling	1.7(2.3)	0.4(0.8)	1.3(0.8 to 1.9)	0.0001
Numbness	3.3(2.5)	1.1(1.7)	2.4(2.1 to 3.6)	0.0001
Weakness	2.2(3)	0.7(1.3)	1.5(0.9 to 2.1)	0.0001
Vertigo	3.9 (3.5)	0.8(1.3)	3.6(2.7 to 4.5)	0.0001
WHO-QOL BREF				
Physical health	12.5	13.7	-1.3(-1.7 to -0.8)	0.0001
Psychological	12.1	13.1	-1.0(-1.5 to -0.6)	0.0001
Social relationships	15.2	15.2	0 (-0.4 to 0.4)	1
Environment	13.7	13.8	-0.1(-0.3 to 0)	0.95

**Questions:**

11. The above study design was:

- a) Randomized clinical trial
- b) Non-Randomized clinical trial
- c) Non-concurrent trial
- d) Cross over trial

12. Pilot studies are :

- a) Small scale preliminary studies
- b) Full scale research projects
- c) Suitable for case studies
- d) More expensive full-scale experiments

13. From the above analysis table which domain of WHO QOL BREF is not statistically significant?

- a) Physical health
- b) Psychological
- c) Social relationship
- d) Environment

14. What is most suitable statistical tool for the above Exhibit:

- a) Paired *t*-test
- b) Unpaired *t*-test
- c) Chi-square test
- d) ANOVA

15. Cervical spondylosis includes all of the following except:

- a) Disc degeneration
- b) Osteophyte formation
- c) Osteoarthritic changes in the spinal apophyseal joints
- d) Increase in the molecular size of the proteoglycans of the nucleus pulposus

16. "Sense of weight and weariness in nape of neck and across shoulders with numbness of upper limb; fingers often feel numb" indicates which medicine:

- a) Sulphur
- b) Syphilinum
- c) Paris quadrifolia
- d) Rhus tox.

17. According to Hahnemann, what is 'renewed dynamization'?

- a) Centesimal potencies
- b) Fifty millesimal potencies
- c) Decimal potencies
- d) Mother tinctures

18. For selection of medicine on the basis of Repertorisation, Kent has given maximum importance to :
- a) Mental
  - b) Particulars
  - c) Physical generals
  - d) Common symptoms
19. As per Boericke's Materia Medica, 'pain on the right side of neck extending to right arm' is a symptom of :
- a) Bryonia
  - b) Rhus tox.
  - c) Ferrum picricum
  - d) Paris quadrifolia
20. How many items are there in WHO QOL BREF ?
- a) 26
  - b) 27
  - c) 30
  - d) 25

**CASE No. 3**

A 25 year old lady presents with complaints of weight loss, low grade fever and lethargy for the last 3 months. She also gives history of frequent development of rashes on areas exposed to sun along with pain and tenderness in knees and ankles. She has developed weakness of memory especially for names. She sometimes cannot remember names of her most intimate friends. All her complaints were worse while thinking of those and started weeping while narrating the complaints. She was constantly thirsty and craved ice, oranges and green fruits. On examination, she has pallor with oral and nasopharyngeal ulcers and swelling of knees with effusion. She has a BMI of  $20 \text{ kg/m}^2$  and her BP is 126/74 mmHg. On investigations, she has normocytic, normochromic anemia and her urine analysis shows presence of proteins.

**Questions:**

21. Which of the following systemic disorders this patient is most likely suffering from?
  - a) Systemic sclerosis
  - b) Tuberculosis
  - c) Systemic lupus erythematosus
  - d) Rheumatoid Arthritis
  
22. Other than routine biochemical evaluation which of the following has highest specificity for Rheumatoid arthritis?
  - a) Anti ds DNA
  - b) Anti CCP**
  - c) Rheumatoid factor**
  - d) ANA
  
23. In case this lady becomes pregnant in future, what is her newborn likely to suffer from?
  - a) Juvenile RA
  - b) Congenital complete heart block**
  - c) Congenital hypothyroidism
  - d) Systemic sclerosis
  
24. Which of the following part is unlikely to be involved in arthritis suffered by this patient?
  - a) Wrist
  - b) Hands
  - c) Knees
  - d) Dorsolumbar spines

25. Which of the following test is not useful in screening this patient for the development of renal involvement?
- Urine microscopy ✓
  - Anti ds DNA ✓
  - ~~Anti phospholipid antibodies~~
  - 24 hours urine protein levels ✓
26. According to Kent's repertory, 'complaints are better while thinking of them' is present in:
- Camphor, Medorrhinum, Helleborus
  - Camphor, Cicuta, Helleborus
  - Camphor, Helonias, Medorrhinum
  - Oxalic acid, Medorrhinum, Alumina
27. The type of immune response in the above disease is:
- Type I immune reaction
  - Type II immune reaction
  - ~~Type III immune reaction~~
  - Type IV immune reaction
28. 'Desire for green fruits' is present in:
- Phosphorus
  - Veratrum album
  - ~~Carcinosin~~
  - Medorrhinum
29. Where will you look for the rubric 'anemia' in Boenninghausen's? Characteristics and Repertory by C.M. Boger
- Blood
  - ~~Sensations and complaints in general~~
  - ~~Circulation~~
  - Skin and exterior body
30. The symptom 'cannot speak without weeping' is present in:
- Lycopodium
  - Sulphur
  - Calcarea carb.
  - ~~Medorrhinum~~

**CASE No. 4**

The long term effect of cigarette smoking and subsequent development of lung carcinoma was evaluated in 7000 smokers and 3000 non-smokers who were followed up during 1999-2009. Baseline characteristics were comparable in respect of all the variables in both the groups.

The results of the study are summarized in the table below:

<b>Cigarette smoking</b>	<b>Developed lung cancer</b>	<b>Did not develop lung cancer</b>
Yes (n=7000)	70	6930
No(n=3000)	03	2997

**Questions:**

31. What is the design of the above study:

- a) Randomized controlled trial
- b) Case-control study
- c) Cross-sectional study
- d) Cohort analytical study

32. What is the incidence rate of Cancer among non-smokers?

- a) 7 per 1000
- b) 3 per 1000
- c) 10 per 1000
- d) 1 per 1000

33. What is the Relative Risk in the above study?

- a) 10
- b) 30
- c) 70
- d) 1

34. Match the statements with the type of study for which they are used:

- |            |  |
|------------|--|
| A. STARD   | i. Systematic review and meta-analysis |
| B. CONSORT | ii. Observational study                |
| C. PRISMA  | iii. Diagnostic study                  |
| D. STROBE  | iv. Randomized controlled trial        |
- a) A iii, B iv, C i, D ii
  - b) A ii, B iv, C i, D iii
  - c) A i, B iii, C ii, D iv
  - d) A iv, B ii, C iii, D i

35. If the investigators of this study publish 2-3 articles from the same data of the study with different titles, it is an ethical violation called:

- a) Falsification
- b) Plagiarism
- c) Salami
- d) Fabrication

36. Sample size in a descriptive cross sectional study will not include which of the following:

- a) Estimation of prevalence of the condition
- b) Non response rate
- c) Precision of desired estimate
- d) Power of the study

37. Clubbing of nails is not a feature of:

- a) Chronic fibrosing alveolitis
- b) Acid peptic disease
- c) Carcinoma bronchus
- d) COPD

38. In Allen's Keynotes, medicine for 'annoying hiccoughs from tobacco chewing' is:

- a) Clematis
- b) Tabacum
- c) Gelsemium
- d) Ignatia

39. In which chapter of Kent's repertory, will you find the rubric "wheezing on smoking"?

- a) Respiration
- b) Larynx and trachea
- c) Chest
- d) Generalities

40. Single medicine in Kent's repertory for rubric, "Tobacco, smoking, when breaking off" is:

- a) Spigelia
- b) Sepia
- c) Caladium
- d) Tabacum

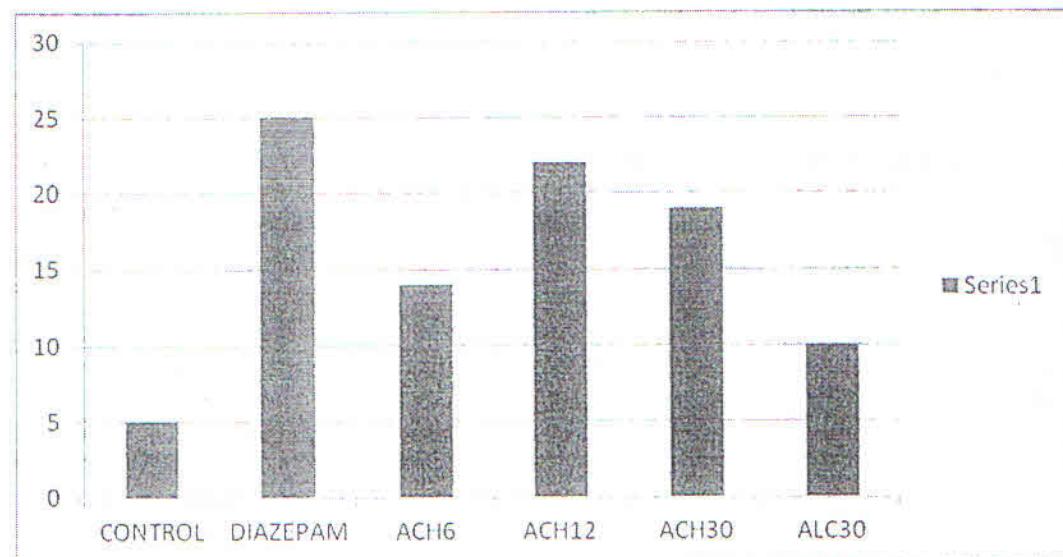
## CASE No. 5

A study was conducted to assess the action of homoeopathic medicine, Aconitum napellus, in the treatment of generalized anxiety using rats. In this study, 48 adult (two to three months old) male Wistar rats (*Rattus rattus*) were randomly divided in six groups and given the following treatments by gastric tube for 10 days: 1) control (diazepam 1 mg/kg/day); 2) negative control (0.15 mL saline solution/day); 3) ACH6 (0.15 mL Aconite nap.6C /day); 4) ACH12 0.15 mL Aconite nap.12C /day); 5) ACH30 (0.15 mL Aconite nap.30C /day); and 6) ALC30 (0.15 mL 30% cereal alcohol/day). The animals were housed in groups (n= 8) in plastic cages in a room kept at  $22 \pm 1^\circ\text{C}$ , 60 to 80% humidity, 12-hour dark-light cycle. Each group was given its corresponding treatment daily for 10 consecutive days. Treatments were administered by one and the same person every day at the same time.

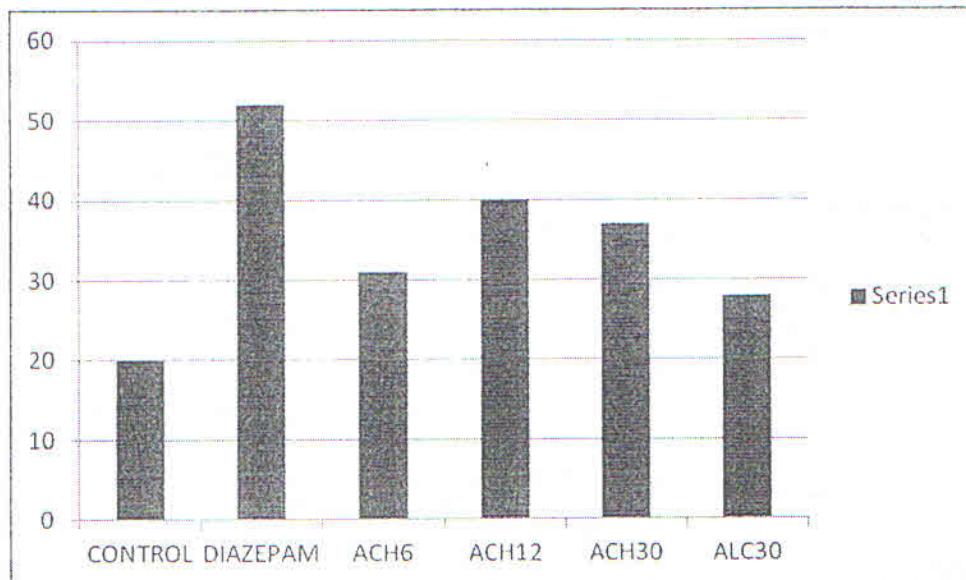
(Behavioral effects of the rats were blindly and randomly assessed in Elevated Plus Maze (EPM) in which the increase of the permanence time and number of entries in the open arms was considered an index of anxiolytic action of drugs.)

Statistical differences among groups were detected by one-way variance analysis (ANOVA). Significance was established as p-value < 0.05. The following two graphs exhibit the data obtained during the study.

**FIGURE 1** shows the percentage Permanence time in EMP open arm



**FIGURE 2** shows the percentage entry in EMP open arm:



**Questions:**

41. The above research study is an example of
  - a) Transversal study
  - b) Experimental study
  - c) Historical study
  - d) Retrospective study
  
42. Which of following was used as the criteria to assess the outcome of the study?
  - a) Metabolic activity of rats
  - b) Heart rate of rat
  - c) Permanence time in EMP open arm
  - d) Hormonal assay
  
43. One-way variance analysis (ANOVA) is a technique used for
  - a) Comparing means of three or more samples
  - b) Double blinding
  - c) Evaluating recall bias
  - d) Hypothesis formulation
  
44.  $p$  value less than 0.05 signifies :
  - a) There is packaging defect of less than 0.05gm
  - b) There is less than one in twenty chance that the outcome of study was accidental
  - c) The outcome of study is statically too insignificant
  - d) The chances of postponing the study is less than 5%

45. The study shows that amongst the different potencies of Aconitum napellus, most marked anxiolytic effect was observed in :

- a) Mother tincture
- b) 6CH
- c) 12CH
- d) 30CH

46. Aconite induced anxiolytic effect and its relation with its ascending dilution was:

- a) Linear
- b) Masked
- c) Doubtful
- d) Non-linear

47. Which part of human brain primarily regulates anxiety?

- a) Amygdala
- b) Arachnoid mater
- c) Cerebral sinuses
- d) Dura mater

48. Consider the following statements:

- I. Generalized anxiety disorder is a type of pervasive developmental disorder.
- II. Hyperthyroidism is known to produce anxiety in its pathogenesis.
- III. Long-term use of benzodiazepines can worsen underlying anxiety.

Which of the above statements is/are TRUE?

- a) I only
- b) II only
- c) II&III
- d) III only

49. Which of the following medicines is complementary to Aconite nap.?

- a) Secale cor.
- b) Sulphur
- c) Phosphorus
- d) Rhus tox.

50. Besides Aconite nap., the other medicines in Boenninghausen's 'croup powders' were:

- a) Belladonna & Stramonium
- b) Arsenic alb. & Thuja
- c) Bryonia and Pulsatilla
- d) Spongia and Hepar sulph.

## CASE No. 6

Acne is a common dermatological disease with high prevalence in the adolescence age group. Various studies had been carried out to understand the efficacy of Homoeopathic specific remedies. In two different studies, Zingiber officinale, Azadirachta indica were prescribed respectively. The studies were done on patients of 12 to 25 years of age having inflammatory (Papules, Pustules and Nodules) and non - inflammatory lesions (Closed and Open Comedones), who had not taken any other medications during the previous one month. The patients having acne conglobata and consuming alcohol were excluded.

Both the studies were prospective, randomized, open-label study. In both the studies, the remedy was prescribed in potencies 6C and raised to 1M as required over a period of 6 months. On the first visit, the remedy was prescribed in 6C potency, four times a day, for 7 days. The remedy was not repeated till the participant showed continuous improvement. When improvement stopped, then same potency of the medicine was repeated. If there was no further perceptible change then a higher potency, i.e. 30C was given three times a day for 7 days. Then if required, the potency was further increased to 200C and then to 1M, given in single doses.

The effects of remedies had been assessed objectively by using the Global Acne Grading System (GAGS) and subjective assessment by using Acne – Specific Quality of Life Questionnaire (Acne-QOL).

### **Study I: Study with Zingiber officinale (Z. Officinale):**

The analysis is done on 31 patients. There is statistically significant difference in GAG and Acne-QOL scores before and after Z. Officinale. The specific symptom of acne 'aggravation, summers', was elucidated in this study.

The improvement after Z. Officinale in different types of lesions on different locations is as follows:

Location	Type of Lesion	Z - value	P - value
Face (n=31)	Closed comedones	4.7	0.001
	Open comedones	3.3	0.001
	Papules	4.7	0.001
	Pustules	3.9	0.001
	Nodules	1.3	0.180
Chest (n=9)	Closed comedones	2.3	0.020
	Open comedones	0.64	0.518
	Papules	2.3	0.018
	Pustules	1.8	0.066 ✓
	Nodules	0.00	1.00
Back (n=14)	Closed comedones	2.5	0.010
	Open comedones	0.54	0.589
	Papules	3.1	0.001
	Pustules	2.4	0.014
	Nodules	0.00	1.00

**Study II:** Study with Azadirachta indica (A. Indica):

The analysis is done on 31 patients. There is statistically significant difference in GAG and Acne-QOL scores before and after A. Indica. The improvement after A. Indica in different types of lesions on different locations is as follows:

Location	Type of Lesion	Z – value	P – value
Face (n=31)	Closed comedones	4.743	<0.001 ✓ <i>significant</i>
	Open comedones	4.715	<0.001 ✓
	Papules	0.797	0.425 ✗
	Pustules	3.760	<0.001
	Nodules	1.633	0.102
Chest (n=11)	Closed comedones	3.211	0.001 <i>signific</i>
	Open comedones	2.333	0.020
	Papules	1.000	0.317 ✗
	Pustules	1.000	0.317
	Nodules	0.000	1.000 ✓ <i>Not significant</i>
Back (n=17)	Closed comedones	2.561	0.010 ✗
	Open comedones	2.222	0.026 ✗
	Papules	1.732	0.083
	Pustules	2.121	0.034
	Nodules	0.000	1.000 ✓

**Questions:**

51. In both studies, which statistical test will be useful to understand the effectiveness of the remedy on different types of acne on various locations?

- a) Unpaired  $t$  – test
- b) Z test
- c) Wilcoxon signed – rank test
- d) SE( $P_1 - P_2$ )

52. If you wish to establish the “Efficacy of Z. Officinale in the treatment of acne” which research design you will be choosing :

- a) Prospective, non – randomized, open – label design
- b) Prospective, Double Blind, Self Controlled Trial
- c) Prospective, Double Blind, Sequential Control Study
- d) Prospective, Case Series study

53. In the study I, which of the following conclusions is correct?

- a) Z. Officinale has not produced significant change on Nodule type acne on face, chest and back
- b) Z. Officinale has not produced significant change on Papule type acne on Chest
- c) Z. Officinale has produced significant changes on Pustule type acne on Chest ✓
- d) Z. Officinale has produced significant changes on Open comedones on Back

54. In the study II, which of the following conclusions is correct?
- A. Indica has produced significant changes on face and chest papule type of acne
  - A. Indica has produced significant changes on Face, Chest and Back Nodule type of acne
  - c) A. Indica hasn't produced any significant changes on Face, Chest and Back open comedones
  - d) A. Indica has produced significant changes on Face, Chest and Back Closed comedones
55. From the two studies following statements are drawn:
- I. Z. Officinale and A. Indica are effective for inflammatory and non – inflammatory type of acne on Face, Back and Chest
  - II. Z. Officinale is effective over non – inflammatory type of acne over chest whereas A. Indica is not effective over inflammatory type of acne over chest
  - III. Z. Officinale and A. Indica is not effective over Nodule type of acne over Face, Chest and Back .
- Which of the following is correct?
- Statement I only
  - Statement II only
  - Statement III only
  - Statements I, II & III
56. Why acne conglobata has been excluded in the study?
- Acne conglobata is congenital deformity of skin and hence difficult to treat. Thus acts as variable.
  - Acne conglobata is associated with other systematic illnesses which acts as confounding variable. Thus, influencing the results.
  - c) Z. Officinale and A. Indica might not act on acne conglobata hence, excluded from the study.
  - d) Acne conglobata is severe form of acne, characterized by abscesses and scarring with psychological implications.
57. Name the remedy for Acne Simplex, caused after use of cosmetic:
- Bovista lycoperdon
  - b) Nux vomica
  - c) Zingiber officinale
  - d) Berberis aquifolium
58. Acne is subdivided into many types. In order to incorporate all the types in the study, which type of sampling technique will be appropriate?
- Conventional Sampling
  - b) Snow ball Sampling
  - Stratified Sampling
  - d) Simple Random Sampling

59. If we wish to test the specific symptom 'acne, aggravation in summer,' as an indication for prescribing *Z. officinale*, which statistical method will be more appropriate?

- a) Likelihood Ratio
- b) Proportion test
- c) ROC curve
- d) Paired *t* test

60. From the Case I and Case II, maximum improvement is seen in which location?

- a) Chest
- b) Face
- c) Back
- d) Face and Chest

**CASE No. 7**

Effects of Homoeopathic treatment with Hypericum perforatum on peripheral nerve regeneration was studied using a rat sciatic nerve transaction model. Fifty – four male healthy White Wistar rats were divided into three groups ( $n = 18$ ), randomly. They were Sham operation (Sham), silicon tube (Sil) and silicon tube + Hypericum (Sil/Hypericum). In all the three groups, left sciatic nerve was exposed through a gluteal muscle incision after giving anaesthesia. In sham group, after homoeostasis the muscle was sutured. In Sil group, the sciatic nerve was transected proximal to tibio-peroneal bifurcation leaving 10-mm gap where silicone tube was implanted. In Sil/Hypericum group, silicone tube was implanted and each animal received three oral drops of Hypericum 30 twice daily for 1 week. Each group was subdivided into three sub-groups of six animals each and studied for 4, 8, 12 weeks after the surgery. The effect was seen through Sciatic Functioning Index (SFI), change in Gastrocnemius muscle mass, histological, morphometric findings and immunohistochemistry.

Prior to the surgery, SFI values in all the groups were near zero and there was no significant difference between the groups at baseline. After the nerve axotomy, the mean SFI decreased to -100 due to complete loss of sciatic nerve function in all animals. The posterior tibial branch of the sciatic nerve innervates the gastrocnemius muscle, after Sil/Hypericum regain the mass proportional to the amount of axonal reinnervation.

**Exhibit 1 :** SFI 4, 8 and 12 weeks after surgery in experimental groups; values are given as mean  $\pm$  SD

Sham			Sil			Sil/Hypericum		
4	8	12	4	8	12	4	8	12
-6.1 $\pm$ 2.3	-3.1 $\pm$ 2.7	-4.9 $\pm$ 3.3	-93.8 $\pm$ 3.2	-78.2 $\pm$ 4.3	-57.1 $\pm$ 4.1	-57.3 $\pm$ 5.0 <sup>a</sup>	-47.6 $\pm$ 4.2 <sup>a</sup>	-34.3 $\pm$ 3.7 <sup>a</sup>

a:  $P < 0.05$

After 2 wks  
n=18  
3 groups  
Sham operat  
Silicon tube  
Sil + Hg  
SFI, change in  
muscle mass,  
histological / morphometric  
findings

**Exhibit 2:**

Morphometric analyses of regenerative nerves for each of the experimental groups: values are given as mean  $\pm$  SD

N = number of fibers; D = Diameter of fibers ( $\mu\text{m}$ ); d = Diameter of Axon ( $\mu\text{m}$ ); T = Thickness of myelin sheath ( $\mu\text{m}$ )

Weeks	Sham			Sil			Sil/Hypericum		
	4	8	12	4	8	12	4	8	12
N	8124 $\pm$ 385	8379 $\pm$ 446	8028 $\pm$ 404	1654 $\pm$ 301	3026 $\pm$ 285	3674 $\pm$ 272	4217 $\pm$ 213 <sup>a</sup>	6368 $\pm$ 241 <sup>a</sup>	7012 $\pm$ 264 <sup>a</sup>
D	12.01 $\pm$ 0.01	11.93 $\pm$ 0.17	12.06 $\pm$ 0.23	3.57 $\pm$ 0.83	8.03 $\pm$ 0.21	8.45 $\pm$ 0.72	10.09 $\pm$ 0.42 <sup>a</sup>	11.05 $\pm$ 0.37 <sup>a</sup>	11.21 $\pm$ 0.45 <sup>a</sup>
d	7.03 $\pm$ 0.02	6.97 $\pm$ 0.39	7.06 $\pm$ 0.46	2.68 $\pm$ 0.53	4.21 $\pm$ 0.38	4.78 $\pm$ 0.34	5.34 $\pm$ 0.51 <sup>a</sup>	6.05 $\pm$ 0.41 <sup>a</sup>	6.12 $\pm$ 0.72 <sup>a</sup>
T	2.56 $\pm$ 0.01	2.48 $\pm$ 0.02	2.53 $\pm$ 0.01	0.52 $\pm$ 0.07	2.06 $\pm$ 0.41	2.21 $\pm$ 0.24	2.35 $\pm$ 0.03 <sup>a</sup>	2.43 $\pm$ 0.02	2.44 $\pm$ 0.01
G – ratio	0.58 $\pm$ 0.02	0.57 $\pm$ 0.02	0.59 $\pm$ 0.03	0.72 $\pm$ 0.03	0.52 $\pm$ 0.02	0.57 $\pm$ 0.03	0.52 $\pm$ 0.02 <sup>a</sup>	0.54 $\pm$ 0.03	0.54 $\pm$ 0.02

a:  $P < 0.05$  vs Sil group

**Questions:**

61. In Exhibit I and II, which statistical test will help in inferring the results:

- a) Multiple t test for multiples pairs of mean.
- b) Factorial ANOVA.
- c) Chi – Square.
- d) Fisher's linear Discriminant.

62. In Exhibit I, which group is having the statistically significant difference in recovery of nerve function at  $p < 0.05$ ?

- a) Recovery of nerve function is statistically significant in Sham Group than Sil Group.
- b) Recovery of nerve function is statistically significant in Sil Group than Sham Group.
- c) Recovery of nerve function is statistically significant in Sil/Hypericum Group than Sil Group.
- d) Recovery of nerve function is statistically significant in Sil Group than Sil/Hypericum Group.

63. In Exhibit II, which conclusion is correct while comparing Sil/Hypericum group with Sil group statistically at  $p < 0.05$ :

- a) Mean thickness of myelin sheath hasn't shown statistically significant difference among 8 and 12 weeks in Sil/Hypericum Group.
- b) Mean thickness of myelin sheath has statistically significant difference between 8 and 12 weeks in Sil/Hypericum Group.
- c) Sil/Hypericum Group hasn't shown the statistical difference in number of nerve fiber regeneration after 4, 8, and 12 weeks.
- d) Sil/Hypericum Group haven't shown the statistical difference in axon diameter after 4, 8 and 12 weeks.

64. Which of following statements is true for Hypericum perforatum?
- Sciatica with tender feet
  - Aching in Sciatic nerve (Left) after prolonged sitting
  - Sciatic pain, shooting, band – like, screwing > pressure and heat
  - Intense pain along the sciatic nerve; numbness alternates with pain.
65. If the patient comes with the complaints of dysesthesia and paraesthesia, then which fibers are affected?
- Large fiber
  - Motor
  - Autonomic
  - Small fiber
66. In above said experiment which design has been used?
- Randomized Control Trial
  - Case - Control
  - Cohort – Prospective
  - Cross – Over Design
67. Trauma to sciatic nerve, of recent origin, causing pain can be classified as per Hahnemannian classification of diseases in Organon of Medicine :
- Miasmatic, Surgical Disease
  - Miasmatic, One – sided disease, External, Surgical Disease
  - Non – miasmatic, Pseudo-Chronic Disease
  - Non-Miasmatic, Local Disease
68. For the complaint of Coccygodynia, which drug will be more useful?
- Gnaphalium
  - Allium cepa
  - Hypericum perforatum
  - Colocynthis
69. In Sciatic Neuropathy, the EMG studies will show:
- EMG: Normal
  - Denervation in Sciatic Nerve distribution sparing Glutei and Paraspinal
  - Early conduction block along the spiral groove
  - Denervation limited to hip adductors sparing the quadriceps
70. After Surgery, Sil/Hypericum Group has shown statistically significant increase in Gastrocnemius muscle mass. This conclusion is indirect evidence of:
- Strengthening of the Calf muscles
  - Strong contraction of the Gastrocnemius muscle
  - Hyper trophy of type II fiber of Gastrocnemius muscle
  - Successful end organ reinnervation

**CASE No. 8**

A population based case control study was undertaken to evaluate association of various risk factors in the etiopathogenesis of breast cancer in Indian women. The risk factors analyzed during the study were: age of menarche, parity, family history of breast cancer in a first-degree female relative(s) and education. For this purpose, women aged 35–69 years, who were diagnosed with breast cancer between 2005 and 2008 ( $n=1326$ ), were compared with women without cancer breast, selected from the general population ( $n=1357$ ). In-person interviews were conducted by using a standardized, structured questionnaire that covered a wide variety of topics: demographics, menstrual and reproductive events, hormone use, and medical history.

The data obtained from the study is tabulated as under:

Risk factor	Breast Cancer Cases ( $n = 1,326$ )	Controls ( $n = 1,357$ )
<b>AGE (YEARS) AT MENARCHE</b>		
<12	459	349
12–13	514	542
≥14	353	466
<b>PARITY</b>		
Nulliparous	217	137
1–2	556	607
3–4	389	396
≥5	164	217
<b>Age (years) at first full-term pregnancy (parous women)</b>		
<20	281	301
20–24	414	431
25–29	258	290
≥30	156	198
<b>Family history of breast cancer in first-degree female relative(s)</b>		
Nil	1,112	1,268
Present	214	89
<b>EDUCATION (YEARS)</b>		
<12	305	313
12	246	243
13–15	436	457
≥16	339	344

$$\frac{1326}{1357} \times 100 = 97.4\%$$

$$\frac{1357}{1326} \times 100 = 101.2\%$$

$$\frac{466}{1357} \times 100 = 34.0\%$$

$$\frac{466}{466+89} \times 100 = 85.4\%$$

$$\frac{89}{466+89} \times 100 = 14.6\%$$

$$\frac{1357}{1326+1357} \times 100 = 53.89\%$$

**Questions:**

71. This research study design is best described as:  
 a) Experimental study  
 b) Observational study  
 c) Single blind study  
 d) Interventional study
72. What percentage of women in control group had menarche after 14 years of age?  
 a) 15.6%  
 b) 22.4%  
 c) 34.3%  
 d) 39.8%
73. The odds ratio for 'nulliparous' as a risk factor for breast cancer is:  
 a) 0.06  
 b) 0.82  
 c) 1.32  
 d) 1.62
74. The above table shows that the following variable may be considered as insignificant risk factor for breast cancer:  
 a) Parity  
 b) Age of menarche  
 c) Education  
 d) Family history of breast cancer
75. The study shows that increased risk of breast cancer was associated with:  
 a) Early menarche  
 b) Late menarche  
 c) Multiparity  
 d) Education
76. Which of the following statement, regarding case control studies is/are true:  
 I. They are efficient for diseases with a long latency period between exposure and disease manifestation ✓  
 II. They are time consuming as compared to panel studies  
 III. They are inefficient for rare exposures. ✓  
 a) 1 only  
 b) 2 & 3  
 c) 3 only  
 d) 1 & 3

77. The easiest breast cancer screening method is :

- a) Mammography
- b) Chest X-ray
- c) Breast self examination
- d) Biopsy

78. A patient of breast cancer complains of hardness in breast with pain before and during menses. She also complains of rashes during menses. The most indicated remedy is:

- a) Calc. fluor.
- b) Hydrastis
- c) Cundurango
- d) Conium

79. One of the cardinal signs of inflammatory breast cancer is:

- a) Peau d' orange appearance of breasts
- b) Leucopenia
- c) Bird's beak sign on mammography
- d) Molluscum contagiosum on breasts.

80. Hahnemann's concept of miasm is an outcome of:

- a) Retrospective case study
- b) Prospective case study
- c) Longitudinal case study
- d) Cross sectional case study

**CASE No. 9**

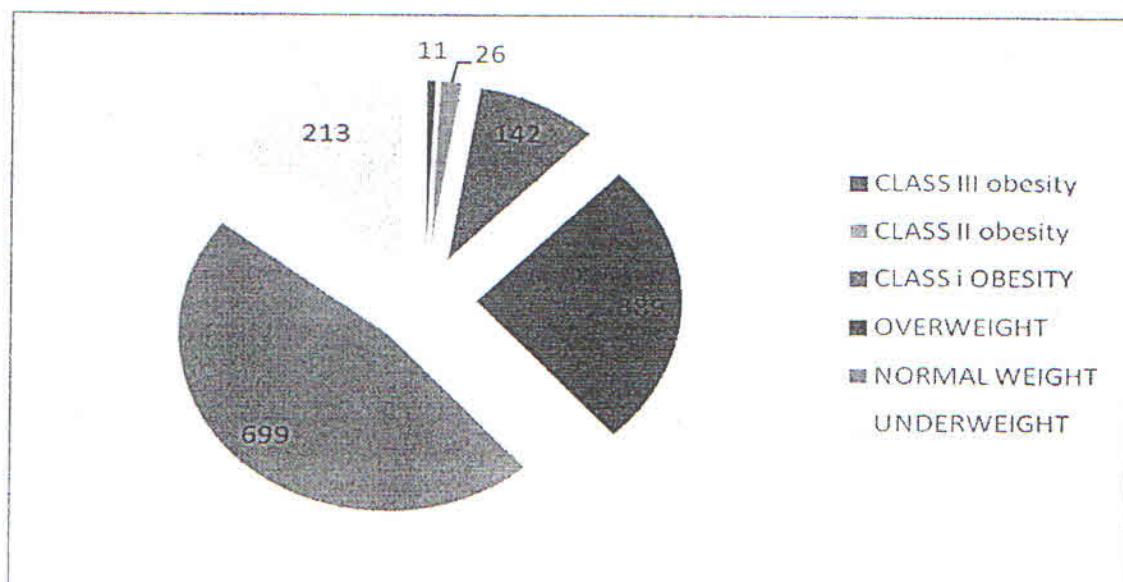
A uni-centric cross sectional study was carried out to assess the prevalence of childhood obesity in school going children and its association with socio-economic status (n=1480). Body fat was estimated on basis of body mass index (BMI) and classification was done as under:

**Exhibit -I**

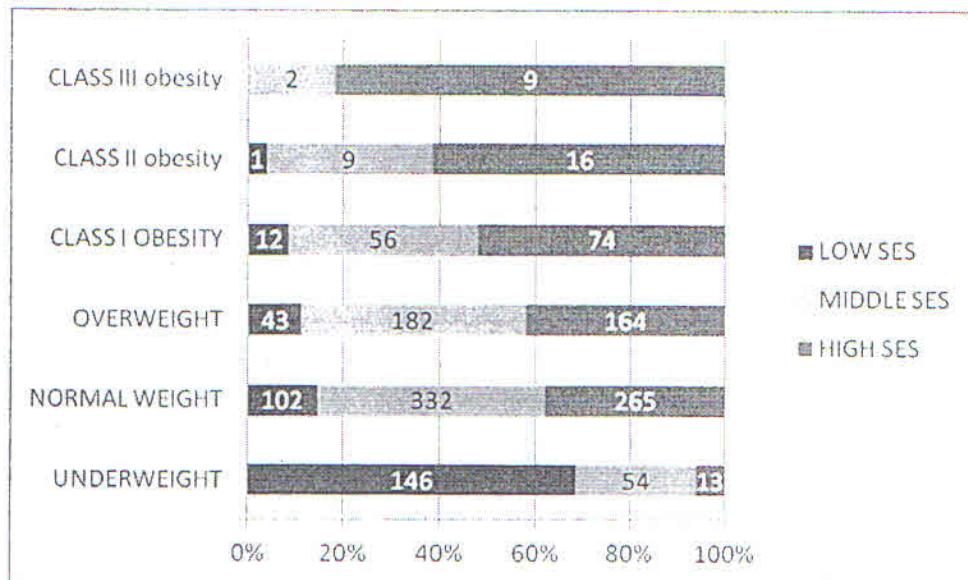
BMI	CLASSIFICATION	
< 18.5	underweight	CLASS III obesity 11
18.5–24.9	normal weight	CLASS II obesity 26
25.0–29.9	overweight	CLASS I OBESITY 142
30.0–34.9	class I obesity	OVERWEIGHT 389
35.0–39.9	class II obesity	NORMAL WEIGHT 699
≥ 40.0	class III obesity	UNDERWEIGHT 213

n=1480  
 ✓ 1480

The socio-economic status (SES) was graded into three categories (high SES, middle SES, and low SES) on the basis of the three variables (income, education, and occupation). The data collected from the study are graphically represented as follows:

**Exhibit -II**

**Exhibit III- Correlation of Obesity with SES**



81. The chart in Exhibit II is known as:

- a) Pie chart
- b) Bar chart
- c) Line chart
- d) Bubble chart

82. According to the study, what percentage of school children are obese:

- a) 8.3%
- b) 10.2%
- c) 12.1%
- d) 15.8%

83. Prevalence is defined as:

- a) The rate of occurrence of new cases in population at risk in a given time period.
- b) The proportion of cases in the population at a given time
- c) Method of selection bias
- d) Method of randomized cross-over study design.

84. The BMI is expressed as:

- a) Body weight (Kg)/height (cm)
- b) Body weight (Kg)/height ( $m^2$ )
- c) Body weight (gm)/height ( $mm^2$ )
- d) Body weight (kg)/height (inches)

85. The above study shows that most significant variable in influencing obesity is:
- Low SES
  - Middle SES
  - High SES
  - No conclusion can be drawn from the study
86. Which of the following statements is/ are TRUE regarding Cross sectional studies?
- They are also known as prevalence studies
  - They are expensive as compared to cohort studies
  - They are a type of observational studies.
- I&II
  - II&III
  - III only
  - I&III
87. Hahnemann has emphasized the importance of proper diet, fresh air, and public hygiene in which of his articles?
- The Friend of Health
  - Aesculapius in the balance
  - The Medical Observer
  - Cure and prevention of scarlet fever
88. In which section of Boenninghausen's Characteristics & Repertory by C.M. Boger the rubric 'Obesity' is available?
- Mind
  - Aggravation
  - Skin
  - Sensations & Complaints in General
89. As per Allen's Keynote, 'Body large and fat, but legs too thin' is a feature of :
- Lycopodium
  - Capsicum
  - Ammonium mur.
  - Calcarea carb.
90. Childhood obesity is a major risk factor for :
- Autism
  - Sleep apnoea
  - Hemophilia
  - Sickle cell anemia

## CASE No. 10

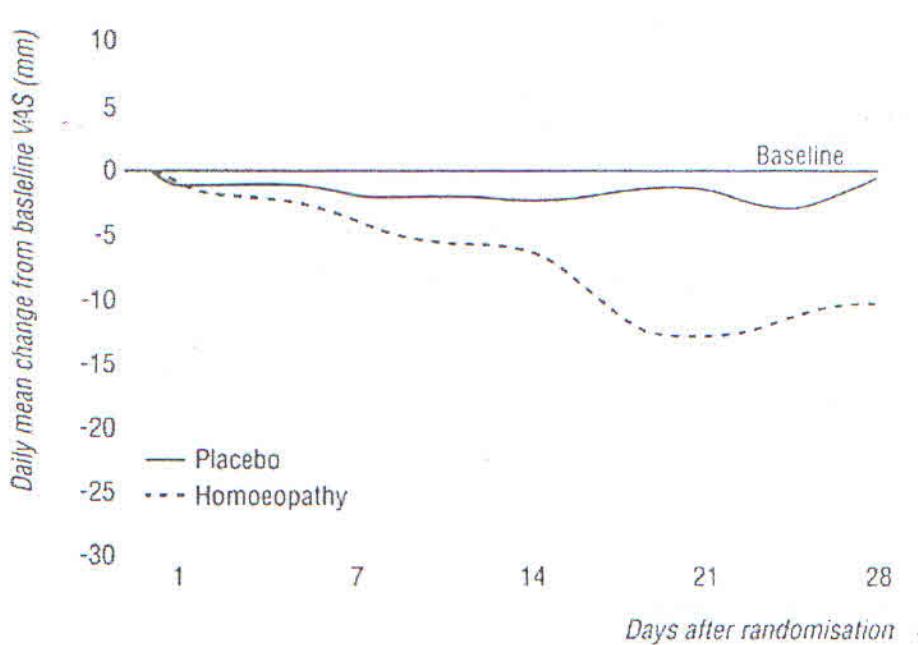
A randomized double blind placebo controlled trial was conducted to examine the effects of homoeopathic treatment in patients with allergic rhinitis. The patients were enrolled from 7 hospitals in accordance with the pre-determined inclusion/ exclusion criteria (n=682). The subjects were randomly assigned oral 30C homoeopathic preparation of principal allergen or to placebo. The principal allergen used as homoeopathic medicine was chosen on the basis of the largest wheal post skin test concordant with the allergy history.

Each patient received either 1 g of lactose-sucrose globules that had been impregnated with either a 30C homoeopathic dilution of the principal allergen or placebo. The patient was given three doses a day, spaced over 24 hours to cover any diurnal variation in the patient's sensitivity to treatment and to ensure compliance. The study was carried out for a period of 4 weeks.

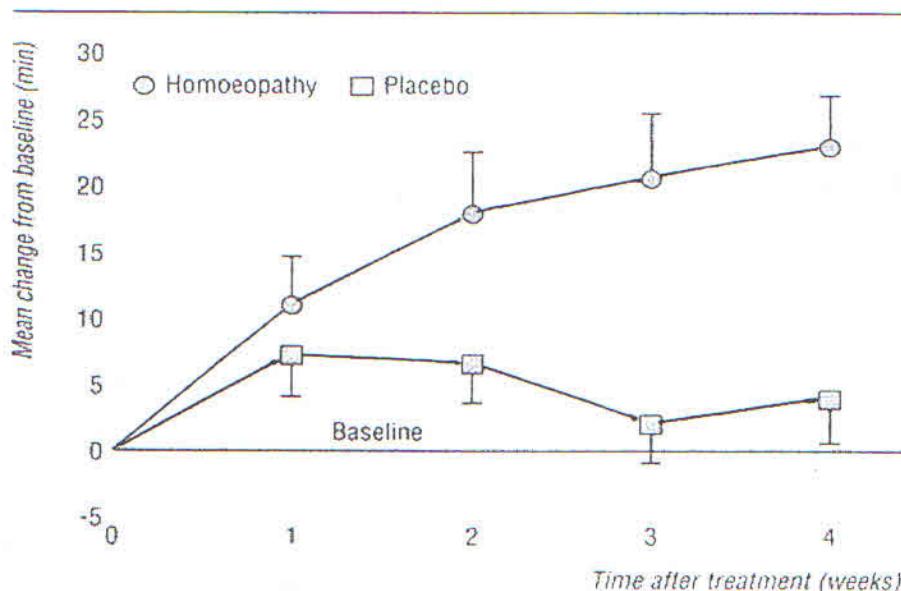
The main outcome measure included changes from baseline in nasal inspiratory peak flow and visual analogue scale (VAS) score over third and fourth week after randomization. Variables with normal distributions (nasal inspiratory peak flow and visual analogue scale) were analysed by using two tailed, two sample *t* tests.

The outcome of study is graphically depicted as below:

**Figure 1: Changes in baseline VAS in placebo and homoeopathy group**



**Figure 2: Changes in baseline nasal inspiratory peak flow in placebo and homoeopathy group**



**Questions:**

91. The above research study is :
  - a) Unicentric
  - b) Multicentric
  - c) Population based
  - d) Cohort
  
92. The Double blind method denotes:
  - a) Research conducted by researcher with both eyes closed
  - b) Research on visual loss
  - c) Both the participating subjects and the researchers are unaware of the experimental medication
  - d) Study conducted by researcher with subjects with 'both eyes closed'
  
93. The design adopted in this randomized placebo controlled trial was :
  - a) Cross over
  - b) Parallel
  - c) Factorial
  - d) Cluster
  
94. In order to determine significant difference in two sets of data, the method employed in this study was:
  - a) Visual Analogue Scale score
  - b) t-test
  - c) Nasal inspiratory peak flow
  - d) Confidence interval

95. 'n=682' in the above study signifies :
- Number of researchers involved in the study
  - Coded title of the study
  - Time duration of study in hours
  - Sample size of the study

96. The inference of the above study is :
- Homoeopathy and placebo response were identical
  - Compared with placebo, homoeopathy produced clinically relevant improvement in nasal inspiratory peak flow and VAS.
  - All homoeopathic medicines work best in 30C
  - Randomized clinical trials are poor quality trials

97. One of the commonest methods of allergy testing is :
- Skin Patch test
  - HbA1c
  - Platelet count
  - Grattage test

98. In a patient suffering from recurrent attacks of allergic rhinitis, the chronic symptoms are expressed most clearly :
- During acute attack
  - At beginning of acute attack
  - During indisposition
  - At the end of acute attack

99. Constitutional disposition to be brought into a more or less morbid state by certain things which seem to produce no impression in many other individuals has been described by Hahnemann as :
- Surrogate
  - Idiosyncrasy
  - Schein symptom
  - Causa occasionalis

100. Profuse acrid lachrymation and bland coryza is a marked feature of :
- Euphrasia
  - Allium cepa
  - c) Sticta
  - d) Pulsatilla

*AND, bland coryza*