MEDICAL UNIVERSITY OF VIENNA

Training Programme (essential elements)

Clinical Practical Year (CPY)

at Medical University of Vienna, Austria

CPY-Tertial C

Clinical Immunology

Valid from academic year 2021/2022

Responsible for the content

Univ.-Prof. Dr. Winfried Franz Pickl

This training programme applies to the subject of "Clinical Immunology" within CPY tertial C "Electives". The training programmes for the elective subjects in CPY tertial C are each designed for a duration of 8 weeks.

3. Learning objectives (skills)

The following skills must be acquired or deepened in the subject of Clinical Immunology during the CPY.

3.1 Skills to be achieved (mandatory)

A) Pre-analytics

1. Evaluation of suitable immunodiagnostic tests for clinical questions
2. Recognition and avoidance of significant preanalytical errors
3. Knowledge of the appropriate test material for each laboratory analysis

B) Analysis – performance of assay methods

4. Indication and practical experience in the application of immunodiagnostic methods in at least one of the following areas of immunology (optionally, methods may be performed by the student under supervision): Autoimmune diagnostics, assessment of immunodeficiencies, allergy diagnostics, assessment of inflammatory immune reactions, cell-based typing of leukemia and lymphomas
5. Leukocyte typing by flow cytometry
6. Performance of immunoassays for the determination of autoantibodies

C) Interpretation of findings

7. Evaluation and interpretation of test results in at least one of the following areas of immunology, including a summary of the most important features for diagnosis and differential diagnosis and, if necessary, indication for further laboratory analyses: autoimmune diagnostics, evaluation of immunodeficiencies, allergy diagnostics, evaluation of inflammatory immune reactions, cell-based typing of leukemias and lymphomas
8. Evaluation of leukocyte typing

D) Communication with the patient/analysis team

9. Communication with other medical professionals in the laboratory team, e.g. to coordinate test sequence in the diagnostic process or to clarify implausible test results, etc.
10. Communication with clinical referring physicians, e.g. when uncertain about indication for referral or to communicate or discuss test results etc.
11. Participation in case discussions/reviews
12. Presentation of diagnostic cases

E) Documentation

13. Basic understanding of automation processes in the laboratory
14. Basic understanding of the technical and medical validation of test results
15. Basic understanding of the laboratory information system
16. Knowledge and application of quality management tools
17. Documentation of test results
18. Understanding and applying measures to evaluate a laboratory test for sensitivity, specificity, precision, accuracy and positive/negative predictive value

19. Basic understanding required to define reference ranges and cut-off

3.2 Optional skills

In addition to the mandatory skills skills related to preanalytics, analysis and interpretation of findings may be acquired in the following areas.

1. Transplant-relevant reactions, incl. graft-versus-host disease
2. Immunotherapeutic approaches
3. Vaccination-related matters
4. Scientific studies in the area of clinical immunology
5. Establishment of new testing procedures

4. Performance review information, ongoing evaluations

4.1 The following items can be evaluated in the DOPS

1. Performance of immunological testing procedures for the diagnosis of auto-immune diseases, immunodeficiencies, allergies, inflammatory immune reactions or leukemias/lymphomas
2. Lymphocyte typing
3. HLA-B27 typing
4. Evaluation of autoantibody-specific ELISA results
5. Recognition and avoidance of pre-analytic pre-analytical errors
6. Documentation of test results
7. Understanding and use of measures for the evaluation of applying benchmarks to evaluate a laboratory test for sensitivity, specificity, precision, accuracy and positive/negative predictive value

This list may be expanded as appropriate.

5. Subject-specific information on the CPY tasks

The learning objectives cover the basic tasks of the speciality of Clinical Immunology. Emphasis is placed on the selection of appropriate laboratory tests for clinical problems and on the interpretation of findings with indications for any follow-up testing that may be required. Common diagnostic activities that a physician –regardless of future specialisation – may use in the diagnosis and treatment of patients with diseases of the immune system are the focus of practical skills. By focussing on a specific area of immunodiagnostics, in-depth knowledge and skills can be acquired in in presenting selected cases and the current state-of-the-art of immunodiagnostics and research on a particular issue.

The following CPY tasks are to be completed in the subject Clinical Immunology:

(A) Active tasks – mandatory component	Each 8 weeks	
Discussion of test results (5 min)	8x	
Evaluation of parameters (15 min)	2x	
"State-of-the-art" presentation/lecture (20 min)	1x	
(A) Active tasks – mandatory elective component	**Points**	**Each 8 weeks**
Discussion of test results (5 min)	2	*Elective tasks – amounting to at least 15 points*
Evaluation of parameters (15 min)	4	
"State-of-the-art" presentation/lecture (20 min)	6	

(B) Participation in continuing education events - mandatory component	Each 8 weeks	
Seminars	2x	
(B) Participation in continuing education events - mandatory component	Points	Each 8 weeks
Seminars	2	*Elective events amounting to at least 4 points from at least 2 categories*
"State-of-the-art" presentation/lecture relating to a diagnostic question	1	
Case presentations	1	
Interdisciplinary case conferences	1	
Journal Club	2	
External professional development events per ½ day (congresses, courses etc.)	3	
Non-live events (e.g. Webinars)	1	

Appendix: Details of the CPY tasks in the subject Clinical Immunology

Discussion of test results (5 min)

The mentor selects a set of immunodiagnostic findings to be interpreted or explained by the student with appropriate reasoning.

Structure, content:

1. Evaluation and interpretation of the findings in terms of plausibility and clinical significance
2. Tentative diagnosis
3. Differential diagnoses
4. Further examinations/tests (focus on immunodiagnostics)

Formal requirements:

- Preparation time: max. 20 min
- Scope: 5 min discussion with mentor
- Resources: Clinical information, previous findings

Documentation: Copy of test results (anonymised) and written summary (key words on points 1-4)
Date of preparation of document

Evaluation of Parameters (15 min)

In consultation with the mentor, students select an immunological parameter, determine its clinical value (see below), and present it appropriately.

Please prepare a presentable document (using appropriate presentation/word processing software e.g. PowerPoint or Word), using clear definitions and correct medical terms.

Structure, content:

1. Principle of the test
2. Indication for clinical use
3. Clinical value/quality criteria (sensitivity, specificity, PPV, NPV, variance if applicable, reliability: precision, accuracy, validity)
4. Interpretation

Date of preparation of the document

"State-of-the-Art" presentation on the pathogenesis, diagnosis, therapy, prevention etc. of diseases based on a specific patient (approx. 20 min)

A "State-of-the-Art" lecture can be given, if desired, as part of an internal continuing education event for all physicians in which the latest findings on the pathogenesis, diagnosis, treatment, course and prognosis of diseases are presented.

Select a patient in whose care you have been involved and present the latest reviews/research work/guidelines relevant to that case.

Please prepare a presentation-ready document (using appropriate presentation software, e.g., PowerPoint) with the following structure.

1. Specific patient (anonymized)
2. State-of-the-art (science, treatment, guidelines)
3. Bibliography/references