SELECTED ABSTRACTS FROM PUBMED

1. *van Wijk IJ, Daelmans HEM, Wouters A, Croiset G, Kusurkar RA. Exploring the timing of medical student research internships: before or after clerkships? BMC Med Educ. 2018 Nov 12;18(1):259.*

ABSTRACT

Background: The objective of this study was to determine the optimal positioning of the research internship, either before clinical clerkships, at the beginning of the medical Master's programme, or at the end.

Methods: A mixed methods study was carried out. We compared characteristics such as duration, location and grades for internships performed and students' motives for choosing to perform their research internship before or after clinical clerkships. We analysed students' answers to open-ended questions about the reasons for their choices, using the Self-Determination Theory of motivation.

Results: Students performing their research internship before clinical clerkships (n = 338) opted more often for an extended internship (OR = 3.16, 95% CI = 2.32-4.31) and an international location (OR = 2.22, 95% CI = 1.46-3.36) compared to those performing their research internships after clinical clerkships (n = 459). Neither the internship grades nor the number of international publications differed significantly between the two groups. Most of the students' motives (102 participants) were classified as extrinsic motivation for research. Students performing research before clinical clerkships more often showed intrinsic motivation for research, students performing research after clinical clerkships were mainly motivated by their career choice.

Conclusion: To accommodate both groups of students, offering research internships before and after clinical clerkships, is recommended.

Keywords: Curriculum; Motivation; Position; Research internship; Self-determination theory.

2. *El Rassi R, Meho LI, Nahlawi A, Salameh JS, Bazarbachi A, Akl EA. Medical research productivity in the Arab countries: 2007-2016 bibliometric analysis. J Glob Health. 2018 Dec;8(2):020411.*

ABSTRACT

Background: The aim of this study was to assess recent trends in medical research productivity in Arab countries.

Methods: We collected bibliometric data for the world countries, Arab countries, and Arab institutions for 2007-2016, using Essential Science Indicators, Journal Citation Reports, and Web of Science database. We collected the number of published papers overall and per year, citations per paper, and number of papers published in top quartile and top 10% journals. For the 10 most productive institutions, we additionally collected the number of papers with correspondence authors affiliated with the institution.

Results: The Arab world produced 189 papers per one million people, about a quarter of the value for other world countries. Four Arab countries (Qatar, Tunisia, Lebanon, and Kuwait) produced more than 695 papers per one million people, exceeding the world average. The average number of citations per paper was 9.2; it rose to more than 15 for papers with international collaboration. At the institutional level, the number of citations showed upward trends, with six institutions having an average citation per paper higher than that of all Arab countries. For the 10 most productive institutions in Arab countries, the percentage of papers involving international collaborations ranged from 42% to 79%; of these, 9% to 29% were led by authors from the same institution. For these 10 most productive institutions, the percentage of papers published in the top quartile journals and with a lead/corresponding author from the institution ranged from 7 to 32%; that percentage drops to 1% to 10% for papers published in top 10% journals.

Conclusions: Although medical research output in Arab countries at both the country and the institution levels has increased over the past 10 years, it is still lagging behind the rest of the world. The percentage of papers involving international collaborations was relatively high, but the majority of these papers were led by authors from outside the local institution, particularly when published in the top 10% journals.

3. *Zhou Y, Yang Y, Liu L, Zeng Z. Effectiveness of mobile learning in medical education: a systematic review. Nan Fang Yi Ke Da Xue Xue Bao. 2018 Nov 30;38(11):1395-1400.*

ABSTRACT

Objective: To design systematic review to summarize high quality evidence for the effectiveness of mobile learning on medical and nursing education.

Methods: PubMed, Embase, ERIC, SCI and SSCI and Cochrane Library were searched since 2000 to December 2014 to identify articles that discussed the effectiveness of mobile learning on medical and nursing education for medical or nursing students or healthcare professionals. After assessed quality using the Cochrane Risk of Bias tool, the heterogeneity allowed for only narrative synthesis.

Results: A total of 208 articles were searched and 11 randomized controlled trials were included for final analysis. In the 11 studies, 7 studies show that when applying mobile devices for learning, their clinical knowledge and performance improved effectively. While 4 studies were not significantly different with who used traditional teaching method or no intervention group.

Conclusions: With the rapid advances in technology, it suggests that mlearning can play a very important role on medical and nursing education for improving clinical knowledge and performance, providing a new learning method, encouraging 'anywhere, anytime' learning and

promote the popularization and fairness of medical education. Though it enables a personalized learning experience for the learners, some studies argue that mobile learning is still equivalent to traditional didactic lectures.

Keywords: medical education; mobile device; mobile learning.

4. *Jia X, Zeng W, Zhang Q. Combined administration of problem- and lecture-based learning teaching models in medical education in China: A meta-analysis of randomized controlled trials. Medicine (Baltimore). 2018 Oct;97(43):e11366.*

ABSTRACT

Introduction: The aim of this meta-analysis is to assess the effectiveness of the combined administration of problem-based learning (PBL) and lecture-based learning (LBL) teaching models in Chinese medical education.

Materials and Methods: We searched the following Chinese electronic databases: China National Knowledge Infrastructure, WanFang Data, China Science Periodical Database, and the Chinese BioMedical Literature Database. We also searched the following English electronic databases: PubMed, Embase, Cochrane Central Register of Controlled Trials, and Google Search Engine. We searched for published studies involving the combined administration of PBL+LBL teaching models in Chinese medical education. All randomized controlled trials were included. The focus of the meta-analysis was on the outcomes of knowledge scores, skill scores, medical writing scores, comprehensive ability scores and teaching satisfaction. A subgroup analysis was also performed.

Results: A total of 23 RCTs were included, with a total sample size of 2589 medical students. The PBL+LBL teaching model significantly increased knowledge scores (95% CI, 2.85-5.78; P < .00001), skill scores (95% CI, 0.51-3.71; P = .01), medical writing scores (95% CI, 1.04-4.04; P = .0009), comprehensive ability scores (95% CI, 2.04-8.71; P = .002) and teaching satisfaction (RR, 1.32; 95% CI, 1.10-1.59; P = .003) compared with the LBL teaching model alone. Additionally, a subgroup analysis showed significant differences in the effect of PBL+LBL on knowledge scores, medical writing scores, and comprehensive ability scores when comparing practical and theoretical courses. Another subgroup analysis that looked at the level of training showed that the PBL+LBL teaching model also significantly improved the knowledge scores of Freshman, Sophomore, Junior, Senior and Masters students.

Discussion and conclusions: Based on the current evidence, this meta-analysis showed that the PBL+LBL teaching model is an effective way to increase knowledge scores, skill scores, medical writing scores, and comprehensive ability scores and to improve teaching satisfaction.

5. *Beaubien-Souligny W, Benkreira A, Robillard P, Bouabdallaoui N, Chassé M, Desjardins G, et al.*

Alterations in Portal Vein Flow and Intrarenal Venous Flow Are Associated with Acute Kidney Injury After Cardiac Surgery: A Prospective Observational Cohort Study. J Am Heart Assoc. 2018 Oct 2;7(19):e009961.

ABSTRACT

Background: Acute kidney injury (AKI) after cardiac surgery is associated with adverse outcomes. Venous congestion can impair kidney function, but few tools are available to assess its impact at the bedside. The objective of this study was to determine whether portal flow pulsatility and alterations in intrarenal venous flow assessed by Point-Of-Care ultrasound are associated with AKI after cardiac surgery.

Methods and Results: This single-center prospective cohort study recruited patients undergoing cardiac surgery with cardiopulmonary bypass. Hepatic and renal Doppler ultrasound assessments were performed before surgery, at the intensive care unit admission, and daily for 3 days after surgery. The primary statistical analysis was performed using proportional hazards model for time-dependent variables. Among the 145 patients included, 49 patients (33.8%) developed AKI after cardiac surgery. The detection of portal flow pulsatility was associated with an increased risk of AKI (hazard ratio: 2.09, confidence interval, 1.11-3.94, P=0.02), as were severe alterations of intrarenal venous flow (hazard ratio: 2.81, confidence interval, 1.42-5.56, P=0.003). These associations remained significant in multivariable models. The addition of these markers to preoperative risk factors and central venous pressure measurement at intensive care unit admission improved the prediction of AKI. (Continuous net reclassification improvement: 0.364, confidence interval, 0.081-0.652 for portal Doppler and net reclassification improvement: 0.343, confidence interval, 0.081-0.628 for intrarenal Doppler)

Conclusions: Portal flow pulsatility and intrarenal flow alterations are markers of venous congestion and are independently associated with AKI after cardiac surgery. These tools might offer valuable information to develop strategies aimed at treating or preventing congestive cardiorenal syndrome after cardiac surgery. Clinical Trial Registration URL: https://www.clinicaltrials.gov. Unique identifier: NCT 02831907.

Keywords: acute kidney injury; cardiac surgery; congestive heart failure; point- of- care ultrasound.

6. *Tao R, Wang X-W, Pang L-J, Cheng J, Wang Y-M, Gao G-Q, et al. Pharmacologic prevention of postoperative delirium after on-pump cardiac surgery: A meta-analysis of randomized trials. Medicine (Baltimore). 2018 Oct;97(43):e12771.*

ABSTRACT

Background: Postoperative delirium is a prevalent and disabling mental disorder in patients undergoing on-pump cardiac surgery. There is some evidence that the use of pharmacological interventions may reduce the risk of

developing of postoperative delirium. Therefore, the aim of this meta-analysis was to determine the effect of pharmacologic agents for the prevention postoperative delirium after cardiac surgery.

Methods: Randomized controlled trials (RCTs) were identified through a systematic literature search of electronic databases and article references up to October 2016. End points included incidence of postoperative delirium, severity of postoperative delirium, cognitive disturbances of postoperative delirium, duration of postoperative delirium, length of stay in intensive care unit (ICU) and hospital, and short-term mortality.

Results: A total of 14 RCTs with an aggregate of 14,139 patients were included. The results of the present meta-analysis show that pharmacologic agents significantly decrease postoperative delirium [relative risk (RR), 0.83; 95% confidence interval (95% CI), 0.75-0.91, P < .00001] and duration of postoperative delirium (RR = -0.37, 95% CI = -0.47 to -0.27, P < .00001) after on-pump cardiac surgery. In addition, subgroup analysis shows that dexamethasone and dexamethasone were associated with a trend toward a reduction in postoperative delirium (RR, 0.45; 95% CI, 0.30-0.66, P < .0001; RR, 0.80; 95% CI, 0.68-0.93, P = .003, respectively). However, our results fail to support the assumption that pharmacologic prophylaxis is associated with a positively reduction in short-term mortality, length of ICU, or hospital stay.

Conclusion: This meta-analysis suggests that the perioperative use of pharmacologic agents can prevent postoperative delirium development in patients undergoing cardiac surgery. However, there remain important gaps in the evidence base on a few small studies with multiple limitations. Further large-scale, high-quality RCTs are needed in this area.

7. *Higano NS, Spielberg DR, Fleck RJ, Schapiro AH, Walkup LL, Hahn AD, et al. Neonatal Pulmonary Magnetic Resonance Imaging of Bronchopulmonary Dysplasia Predicts Short-Term Clinical Outcomes. Am J Respir Crit Care Med. 2018 Nov 15;198(10):1302-1311.*

ABSTRACT

Rationale: Bronchopulmonary dysplasia (BPD) is a serious neonatal pulmonary condition associated with premature birth, but the underlying parenchymal disease and trajectory are poorly characterized. The current National Institute of Child Health and Human Development (NICHD)/NHLBI definition of BPD severity is based on degree of prematurity and extent of oxygen requirement. However, no clear link exists between initial diagnosis and clinical outcomes.

Objectives: We hypothesized that magnetic resonance imaging (MRI) of structural parenchymal abnormalities will correlate with NICHD-defined BPD disease severity and predict short-term respiratory outcomes.

Methods: A total of 42 neonates (20 severe BPD, 6 moderate, 7 mild, 9 non-BPD control subjects; 40 ± 3-wk postmenstrual age) underwent quiet-breathing structural pulmonary MRI (ultrashort echo time and gradient echo) in a neonatal ICU-sited, neonatal-sized 1.5 T scanner, without sedation or respiratory support unless already clinically prescribed. Disease severity was scored independently by two radiologists. Mean scores were compared with clinical severity and short-term respiratory outcomes. Outcomes were predicted using univariate and multivariable models, including clinical data and scores.

Measurements and main results: MRI scores significantly correlated with severities and predicted respiratory support at neonatal ICU discharge (P < 0.0001). In multivariable models, MRI scores were by far the strongest predictor of respiratory support duration over clinical data, including birth weight and gestational age. Notably, NICHD severity level was not predictive of discharge support.

Conclusions: Quiet-breathing neonatal pulmonary MRI can independently assess structural abnormalities of BPD, describe disease severity, and predict short-term outcomes more accurately than any individual standard clinical measure. Importantly, this nonionizing technique can be implemented to phenotype disease, and has potential to serially assess efficacy of individualized therapies.

Keywords: bronchopulmonary dysplasia; magnetic resonance imaging; neonatal lung disease; outcome prediction modeling; prematurity.

8. *Kolstad KD, Li S, Steen V, Chung L, PHAROS Investigators. Long-Term Outcomes in Systemic Sclerosis-Associated Pulmonary Arterial Hypertension from the Pulmonary Hypertension Assessment and Recognition of Outcomes in Scleroderma Registry (PHAROS). Chest. 2018 Oct;154(4):862-871.*

ABSTRACT

Background: Pulmonary arterial hypertension (PAH) is a leading cause of death in patients with systemic sclerosis (SSc). The purpose of this study was to assess long-term outcomes in patients with SSc-PAH.

Methods: Pulmonary Hypertension Assessment and Recognition of Outcomes in Scleroderma is a prospective registry of patients with SSc at high risk for or with incident pulmonary hypertension from right heart catheterization. Incident World Health Organization group I PAH patients were analyzed. Kaplan-Meier survival curves were generated for the overall cohort and those who died of PAH. Multivariate Cox regression models identified predictors of mortality.

Results: Survival in 160 patients with incident SSc-PAH at 1, 3, 5, and 8 years was 95%, 75%, 63%, and 49%, respectively. PAH accounted for 52% of all deaths. When restricted to deaths from PAH, respective survival rates were 97%, 83%, 76%, and 76%, with 93% of PAH-related deaths occurring within 4 years of diagnosis. Men (hazard ratio [HR], 3.11; 95% CI, 1.38-6.98), diffuse disease (HR, 2.12; 95% CI, 1.13-3.93), systolic pulmonary artery pressure

(PAP) on ECG (HR, 1.06 95% CI, 1.01-1.11), mean PAP on right heart catheterization (HR, 1.03; 95% CI, 1.001-1.07), 6-min walk distance (HR, 0.92; 95% CI, 0.86-0.99), and diffusing capacity for carbon monoxide (HR, 0.65; 95% CI, 0.46-0.92) significantly affected survival on multivariate analysis.

Conclusions: Overall survival in PHAROS was higher than other SSc-PAH cohorts. PAH accounted for more than one-half of deaths and primarily within the first few years after PAH diagnosis. Optimization of treatment for those at greatest risk of early PAH-related death is crucial.

Keywords: connective tissue disease; pulmonary hypertension; scleroderma.

9. *Keles MN, Elbasan B, Apaydin U, Aribas Z, Bakirtas A, Kokturk N. Effects of inspiratory muscle training in children with cerebral palsy: a randomized controlled trial. Braz J Phys Ther. Nov-Dec 2018;22(6):493-501.*

ABSTRACT

Background: Respiratory muscle weakness and its relation to other impairments in children with cerebral palsy (CP) have been shown in the latest studies. The effects of inspiratory muscle training (IMT) in this population have not been comprehensively investigated so far.

Objectives: To investigate the effects of IMT on trunk control, pulmonary functions, respiratory muscle strength, daily living activities, exercise capacity and quality of life in children with CP.

Methods: This was a prospective-randomized controlled trial. Twenty-five children with CP were randomly assigned to the treatment (n=13) or the control group (n=12). The treatment group received IMT at 30% of maximal inspiratory pressure (MIP) and the control group received sham therapy (5% of MIP) for 6 weeks. Also, both groups received routine conventional physical therapy (stretching, strengthening, and functional exercises, etc.) for 6 weeks. The primary outcome measure was trunk control. Secondary outcome measures were pulmonary function, respiratory muscle strength, daily living activities, functional exercise capacity and quality of life.

Results: The treatment group had better outcome for trunk control (3.87, 95% CI 3.72-4.02). Also, respiratory muscle strength, daily living activities, functional exercise capacity and quality of life were significantly improved in the treatment group compared with controls. No improvements were observed in the pulmonary function test scores between the groups.

Conclusion: Inspiratory muscle training improves trunk control, respiratory muscle strength, daily living activities, functional exercise capacity and quality of life in children with CP and it can be included in the physiotherapy and rehabilitation programs.

Keywords: Cerebral palsy; Exercise capacity; Inspiratory muscle training; Quality of life; Trunk control.

10. *Bennardo L, Duca ED, Dastoli S, Schipani G, Scali E, Silvestri M, et al. Potential applications of topical oxygen therapy in dermatology. Dermatol Pract Concept. 2018 Oct 31;8(4):272-276.*

ABSTRACT

Background: Topical oxygen therapy is a cosmetic procedure that is becoming more and more popular in dermatology; however, only a few articles on this topic are present in the literature. In this work we report our group experience with oxygen therapy as an adjuvant treatment in various dermatological conditions.

Methods: Four studies were conducted. In the first study we used vehiculated oxygen therapy for diseases that cause hair loss. In the second study oxygen was used in the treatment of mild acne. In the third study moderate acne was treated with topical oxygen. In the fourth study chronic dermatological conditions such as psoriasis and atopic dermatitis were treated with this procedure.

Results: In studies 1 and 2 the outcomes in groups who used topical oxygen therapy as an adjuvant treatment were better than in the groups that did not use it. Studies 3 and 4 also showed very good results, but no control groups were present in the study.

Conclusion: Topical oxygen therapy was useful in the treatment of hair loss conditions, mild and moderate acne, and in chronic cutaneous diseases, showing effectiveness as a support therapy in all of these conditions. Further and larger studies should be conducted to better evaluate its effectiveness in dermatological conditions.

Keywords: acne; chronic dermatosis; hair loss; oxygen; topical oxygen therapy.