

Popular clinical electives in medical internship

Ali Ibrahim Al-Sultan

Department of Internal Medicine
College of Medicine
King Faisal University

Abstract

Objective: To know the pattern and review the relevance of selection of electives during a rotating medical internship, and to find out if the college graduation grade and the evaluation of the elective rotation have influence on intern's choices.

Methods: Data of all Saudi interns graduates of King Faisal university during the period August 1994 to July 2000 were reviewed for age, gender, the college graduation grade, and the evaluation of the elective rotation.

Results: 478 medical interns are included. 63.6% are males. 81.8% of college graduation grades are fair to good. 88.5% of the evaluations of their electives are very good to excellent. Dermatology and radiology are chosen by 29.7 and 19.2% of interns respectively. Psychiatry attracts interns with high college graduation grades. Radiology end of rotation evaluation scores are lower than others.

Conclusions: Dermatology is a popular elective, so is radiology even though it is found to award low evaluation scores. The frequently chosen electives are relevant to the career of the majority of interns joining the national residency programs and health care services. The college graduation grades do not have definite influence on the choice of electives.

Introduction:

The medical college curriculum of King Faisal university like others in the Kingdom of Saudi Arabia requires rotating medical internship. It is a twelve-month period with four main mandatory subjects including internal medicine, surgery, pediatrics and obstetric and gynecology. There is an elective period, which is usually 2 - 2 1/2 months long. This is reduced in

our College to one month to allow for one-month mandatory rotation in primary health care to compensate for deficiency in the undergraduate curriculum. Elective rotations and their educational values are not studied in this setting of medical schools nationally and regionally.

Harth et al noted a number of aims and objectives of medical electives (1). They include the followings: to enable medical students to gain knowledge and practical skills in a particular discipline, to overcome real or perceived academic deficiencies, to allow 'career sampling' and assist in choice of future career, to provide a change of pace and relief from the tedium of the medical course, to encourage self-directed learning, to enable students to observe and participate in medical practice in different setting, and to foster professional development, general education and personal growth. Career choice is a frequent reason for selection of electives (1,2,3).

The purpose of this study is to know the pattern of selection of electives during the rotating internship, to review their relevance to potential interns' careers, and to find out if the college graduation grades or the evaluation of electives have influence on the choice of electives.

Methods:

All Saudi graduates from the College of Medicine at King Faisal University who completed their internship during the period August 1994 till July 2000 were included in the study. Their records were reviewed for the relevant data presented. This included sex, age, the college graduation grade, and the evaluation of their one-month elective during the internship. A score out of 4 point scale was assigned for graduation grade and the evaluation of the elective rotation as follow: Fair = 1, Good = 2, Very good = 3 and Excellent = 4. Statistical analysis was done using spss statistical software.

Results:

A total of 478 medical graduates were included in the study. Their demographic features are shown in Table (1). There were more males (63.6%) than females. There was no difference in mean age between the

sexes. Table (2) shows the percentage distribution of the college graduation grades and the evaluations of electives. Female interns have significantly higher scores than males for both variables. 81.8% of interns have fair to good grades at the college graduation while 88.5% have very good to excellent in their evaluations of electives. Table (3) shows the pattern of elective rotations chosen by interns during their internship in descending frequency. The most frequently chosen rotations are dermatology (29.7%), and radiology (19.2%) , both accounting for almost half of the elective rotations. These are followed by anesthesia (8.2%), internal medicine (7.7%), ophthalmology (7.1%) and emergency medicine (6.9%). The percentage frequency of each of the other rotations is less than 5%. Statistically significant differences are observed between genders with more males in radiology and urology and more females in pediatrics.

The mean scores for the graduation grades and electives evaluations are shown in table (3). Comparison of the college graduation grade score of each elective rotation with others is shown in table (4). Psychiatry comes first in attracting interns with high graduation grade; exceeding 11 other rotations, which represent 85.3% of interns. It is followed by internal medicine and anesthesia exceeding 6, and 3 other rotations that represent 64.6% and 55.8% of interns respectively. Comparison of the elective evaluation score of each elective rotation with others is shown in table (5). Higher evaluation scores are awarded by emergency medicine, obstetric and gynecology and internal medicine which exceed 5, 5, and 4 other rotations representing 58.6%, 58.6%, and 57.9% of interns respectively. Though frequently chosen, dermatology, radiology, anesthesia and ophthalmology ranked much lower in the award of higher evaluation score. The leading rotation that awards lower evaluation score is radiology, which is less than 12 other rotations representing 77.4% of interns. This is followed by urology, which is lower than 7 other rotations representing 33.3% of interns.

Discussions:

Available literature is scarce about electives in rotating medical internship (2,4). Electives in the senior year of U.S medical schools are frequently addressed (3,5,6,7). There is no rotating internship in these medical curricula (8). Accordingly, the scope for comparison of such literature with the data in this article is limited.

The data reveal a preponderance of male graduates. This is a reflection of the college admission policy of a 2:1 male to female ratio. Both the college graduation grades and evaluations of electives are higher in female interns. There was a female preference to pediatric electives, and male preference to urology electives, indicating that gender has effect on their choice. Radiology attracted more males than the expected gender distribution.

The most common choice of electives in available literature is for anesthesia, emergency medicine and clinical pathology in addition to the major subjects of medicine, surgery, pediatrics, obstetric and gynecology, and family and community medicine which are mandatory in our internship (5). However these electives are chosen by the students in their final year, and these schools do not have rotating internship (3,5). The most frequently chosen elective rotations by our interns are dermatology and radiology, which accounts for almost 50% of elective choices. This is followed by less frequent but still popular rotations including anesthesia, internal medicine, ophthalmology and emergency medicine. These six specialties account for more than three quarter of elective choices. There is therefore a clear difference in the choice of electives by our graduates and those of other medical schools. This not only reflects differences in curricula, but may also be related to availability of residency programs and health care systems. Since our interns do not have an opportunity to do their internship and the electives outside the Kingdom, they miss the valuable experience of exposure to other systems overseas (4).

The College graduation grades for dermatology and radiology were not higher than the rest of electives. Psychiatry, internal medicine, anesthesia, ophthalmology and pediatrics electives attracted graduates with higher undergraduate performance. Since the majority of interns, have college graduation grade of fair to good, psychiatry rotation is the elective that attracted interns with the best undergraduate performance. These interns represent a small percentage. Such observation can not definitely contradict the view of Sobral that the college graduation grade has no influence on the selection of electives (2). This factor as well was not significant in attracting interns to take electives in dermatology or radiology.

Higher end of rotation evaluation scores were awarded by emergency medicine, obstetric and gynecology, and internal medicine departments. These include only two of the six popular elective rotations. Radiology department awarded lower evaluation scores than most other departments even though evaluations of electives are typically inflated (6). Despite its lower evaluations, radiology attracted a significant number of interns. The majority of interns have evaluations in the range of very good to excellent, none of them fair. These observations indicate that evaluations do not have much effect on selection of electives.

Data from the 1999 annual report of the Saudi Council for Health Specialties, reveal, that there were 1551 registered trainees in the various programs (9). There were 18 established residency programs. The leading six programs are pediatrics, internal medicine, obstetrics and gynecology, general surgery, family medicine and ophthalmology, with 20.6%, 14.3%, 12.7%, 11%, 9.5% and 4.8% of trainees respectively and a total of 72.9% of trainees. Only internal medicine and ophthalmology were ranking high in the frequency of electives as well in the national residency programs. While Dermatology program represented only 2.6% of total trainees and ranked 13 in order. Radiology program accounted for 4.2% of trainees and ranked 7, but it was established during 1999.

Dermatology elective rotation is relevant to residency programs like pediatrics, internal medicine and family medicine and could be so for obstetric and gynecology (7), but not for general surgery. Radiology is relevant to the popular residency programs mentioned above especially the

surgical specialties (6,7). Anesthesia elective rotation is a proper choice for surgical specialties.

Medical graduates in our country are posted mainly by the ministry of health to primary health care centers. This is a mandatory service lasting between 6 months to 2 years prior to pursuing any specialty training. Dermatology and radiology electives are relevant and appropriate for practice in the setting of primary health care.

Dermatology and radiology are viewed as relatively light duty rotations compared with the four main mandatory ones. This might be a contributing factor in their being frequently chosen. As discussed above their relevance to the career of most interns is apparent. All the listed electives are taught in the undergraduate curriculum with the exception of emergency medicine. The dermatology and radiology courses are 3 and 2 weeks long respectively. Revision of the extent of exposure to these rotations is warranted.

Conclusions:

Interns do not necessarily choose subjects known to award high evaluation scores. Dermatology is a popular elective, so is radiology even though it is known to award low scores. Both of these subjects are relevant to most of the national residency programs and primary health care services. These facts may have relevance in their popularity. The college graduation grades do not have definite relevance to the choice of electives. It is my suggestion that further studies of the elective rotations and the duration of exposure to dermatology and radiology in the undergraduate curriculum are recommended. Medical schools should guide and advise their interns about the relevance of electives toward future specialty and practice.

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Table 1. The demographic Features of interns studied.

	Males	Females	Total
Number of interns	304	174	478
Percentage	63.6	36.4	100
Age in years (mean \pm SD)	26.4 \pm 1.8	26.1 \pm 1.7	26.3 \pm 1.8*

* P value = 0.109 (Student t-test)

Table 2. Percentage distribution of the college graduation grades and evaluations of electives and their scores.

	Excellent	Very good	Good	Fair	Score mean \pm SD
<u>Grade</u>					
Male	2	13.8	49.7	34.5	1.83 \pm 0.73
Female	1.7	20.7	54.6	23.0	2.01 \pm 0.71*
Total	1.9	16.3	51.5	30.3	1.90 \pm 0.73
<u>Evaluation</u>					
Male	46.4	39.8	13.8	0	3.33 \pm 0.71
Female	63.2	29.3	7.5	0	3.56 \pm 0.63 *
Total	52.5	36	11.5	0	3.41 \pm 0.69

* Statistically higher with P value 0.006 and 0.000 (Mann-Whitney U test)

Table 3. The pattern of elective rotations and the scores of the college graduation grades and the evaluations of electives.

Elective Rotation	Frequency (%)	Male %	Grade Score mean \pm SD	Evaluation Score mean \pm SD
Dermatology	142 (29.7)	63.4	1.73 \pm 0.68	3.44 \pm 0.68
Radiology	92 (19.2)	73.9 *	1.68 \pm 0.61	2.80 \pm 0.65
Anesthesia	39 (8.2)	53.8	2.21 \pm 0.77	3.64 \pm 0.63
Medicine	37 (7.7)	59.5	2.3 \pm 0.74	3.70 \pm 0.46
Ophthalmology	34 (7.1)	52.9	2.0 \pm 0.74	3.38 \pm 0.60
Emergency	33 (6.9)	69.7	1.82 \pm 0.58	3.82 \pm 0.39
ENT	18 (3.8)	61.1	1.89 \pm 0.68	3.56 \pm 0.51
Obstetrics & Gynecology	15 (3.1)	46.7	1.8 \pm 0.86	3.80 \pm 0.41
Psychiatry	14 (2.9)	85.7	2.64 \pm 0.93	3.50 \pm 0.65
Surgery	13 (2.7)	61.5	2.08 \pm 0.95	3.77 \pm 0.60
Pediatrics	13 (2.7)	7.7 *	2.15 \pm 0.69	3.77 \pm 0.44
Orthopedics	10 (2.1)	90.0	1.90 \pm 0.74	3.80 \pm 0.42
Urology	9 (1.9)	100.0 *	1.78 \pm 0.67	3.11 \pm 0.93
(0.6) Neurosurgery	3 (.6)	100	1.67 \pm 0.58	3.00 \pm 0.00
(0.6) Primary Health Care	3 (.6)	66.7	2.33 \pm 0.58	3.33 \pm 0.59
(0.4) Neurology	2 (.4)	0	2.50 \pm 0.71	4.00 \pm 0.00
(0.2) Histopathology	1 (.2)	0	3.0 \pm 0.00	3.00 \pm 0.00
Total	478 (100)	63.6	1.90 \pm 0.73	3.41 \pm 0.69

* Statistically significant difference between gender using Chi-Square test, with more males in radiology and urology and more females in pediatrics. P values 0.022, 0.030 and 0.000 respectively.

Table 4. Comparison of the college graduation grade scores among elective rotations

	D	R	A	M	O p	Em	E	Ob	Ps	S	P	Or	U	Ns
Dematology			-	-	-				-		-			
Radiology			-	-	-				-		-			
Anesthesia	+	+				+			-					
Medicine	+	+				+	+	+					+	
Ophthalmology	+	+							-					
Emergency			-	-					-					
ENT				-					-					
Obstetrics				-					-					
Psychiatry	+	+	+		+	+	+	+		+		+	+	+
Surgery									-					
Pediatrics	+	+												
Orthopedics									-					
Urology				-					-					
Neurosurgery									-					

The abbreviations in the first row are the electives listed in the same order as in the first column.

One-way analysis of variance (ANOVA) with post-Hoc multiple comparisons using least square difference (LSD). The rotation listed in first column is significantly higher (+) or significantly lower (-) than others with $P = <0.05$. Empty cells signify no difference.

Primary health care and neurology are not different from any other rotation. Histopathology is not included because the cell number is one.

Table 5. Comparison of the evaluation scores among elective rotations.

	D	R	A	M	Op	Em	E	Ob	Ps	S	P	Or	U	Ns	N
Dematology		+		-		-		-							
Radiology	-		-	-	-	-	-	-	-	-	-	-			-
Anesthesia		+											+		
Medicine	+	+			+								+		
Ophthalmology		+		-		-		-							
Emergency	+	+			+								+	+	
ENT		+													
Obstetrics	+	+			+								+	+	
Psychiatry		+													
Surgery		+											+	+	
Pediatrics		+											+	+	
Orthopedics		+											+	+	
Urology			-	-		-		-		-	-	-			
Neurosurgery						-		-		-	-	-			
Neurology		+													

The abbreviations in the first row are the electives listed in the same order as in the first column.

One-way analysis of variance (ANOVA) with post-Hoc multiple comparisons using least square difference (LSD). The rotation listed in first column is significantly higher (+) or significantly lower (-) than others with $P = <0.05$. Empty cells signify no difference.

Primary health care is not different from any other rotation. Histopathology is not included because the cell number is one.

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الغرض : التعرف على نمط اختيار أطباء الامتياز للدورات السريرية الاختيارية خلال فترة الامتياز الطبية ومدى أهمية ذلك ودراسة تأثير تقدير التخرج من كلية الطب والتقييم في نهاية الدورة الاختيارية على أختياراتهم .

الطريقة : جمع المعلومات عن أطباء الامتياز السعوديين المتخرجين من جامعة الملك فيصل خلال الفترة من أغسطس ١٩٩٤ - يوليو ٢٠٠٠م ، وقد شمل العمر ، الجنس ، التقدير عند التخرج من الكلية والتقييم في نهاية الدورة الاختيارية .

النتائج : شملت الدراسة (٤٧٨) طبيب امتياز . منهم ٦٣,٦% ذكر . كان تقدير التخرج من الكلية من مقبول إلى جيد بنسبة ٨١,٨% . كان تقدير نهاية الدورة الاختيارية من جيد جداً إلى ممتاز بنسبة ٨٨,٥% . اختار اطباء الامتياز الجلدية والاشعة بنسبة ٢٩,٧% و ١٩,٢% على التوالي . الطب النفسي اجتذب ذوا التقديرات العالية عند التخرج . تقديرات نهاية دورة الاشعة كانت أدنى من معظم الدورات الاخرى .

الاستنتاجات: الجلدية دورة اختيارية شائعة وكذلك الأشعة مع أن تقييم نهاية الدورة أقل من الدورات الأخرى . أن الاختيارات الاكثر شيوعاً ذات قيمه لمستقبل معظم أطباء الامتياز سواء بالانضمام إلى برامج التدريب العالي أو العمل في الخدمات الصحية . تقدير التخرج من الكلية ليس له تأثير أكيد على اختيار الدورات الاختيارية.