The Hashemite Kingdom of Jordan

Ministry of Health

Non-Communicable Diseases Directorate

National Registry of End Stage Renal Disease

(ESRD)

13th Annual Report
2020

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Jordan

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Foreword

More than seven thousand and seven hundred people in the Hashemite Kingdom of Jordan receive some forms of dialysis, which provide renal replacement therapy for end-stage renal disease (ESRD). The National Registry of End Stage Renal Disease which was established in 2007, collects case record data from patients with end stage renal disease treated in hospitals, which will enable calculating the incidence and prevalence rates for terminal renal disease, mortality rates of each Governorate. The regional data are pooled to get national statistics for end stage renal disease in order to adapt prevention to the main causes of renal failure.

I am pleased to present to you the thirteenth edition of the annual report of the revised and updated data Jordan National End Stage Renal Diseases Registry (ESRDR) for the year 2020, to develop concrete plans to improve the quality of life for dialysis patients.

I hope that this report will assist health care providers, public health officers and NGOs in their work to prevent and control renal disease in Jordan.

On behalf of the National Registry of End Stage Renal Disease, I would like to acknowledge the tremendous contributions of all those who fulfilled this report. Sincere appreciation and gratitude are extended to the members of the Working Group at the Ministry of Health for their great efforts.

The Ministry of Health will continue to support the National Registry of End Stage Renal Disease with all available resources. Thank you.

Minister of Health

Prof. Feras Ibrahim Hawari

Part one

Back ground

- The first kidney transplantation done in Jordan was on 18/05/1972 at the same main Military Hospital. It was the first to be done in the Middle East.

1981- The establishment of renal dialysis unit at Jordan university Hospital. The machine type was REDY "Sorbs system". It was portable, moving to Khaldi and Islamic Hospitals.

1982- The first renal dialysis Unit was established in private sector, it was at Al-Khaldi Hospital.

1984- The first kidney transplantation was done in private sector at Islamic Hospital, then at Al- Khaldi Hospital.

2009- The first kidney transplantation in Jordanian public hospital was done at Prince Hamza Hospital in October 2009 according to The Jordanian National Program Of Renal Transplantation of the JMOH.

So dialysis was introduced in Jordan in 1968. Ever since, there has been a continuous expansion of the dialysis centers in terms of the geographic coverage and capacity. The economic prosperity helped building the services all over the country.

Modern hemodialysis machines were installed in the vast majority of units, which allowed for the performance of bicarbonate dialysis, controlled ultra filtration, and sodium profile modeling. Also a wider choice of biocompatible dialyzers has become available during the last few years.

Recently, there has been an emerging concern about the projection of the increasing number of patients on dialysis and the future cost. Therefore, close observation of the development of dialysis has been a demand of the

Jordan center for organ transplantation. Preparing annual reports about all the modalities of RRT has become a demand activity.

National ESRD Registry, which is based on center and patient forms, is a useful tool to assess the quality of dialysis services and activities used to improve the adequacy of hemodialysis.

Jordan has had a growing number of persons developing CKD leading to ESRD. It is important to have a national registry in order to define the cause of ESRD, and to be able to perform (Inter) National comparisons in renal epidemiology.

Such a registry will monitor the causes, incidence, and prevalence of ESRD and any emerging trend.

A national ESRD registry will allow the determination of the burden of disease as well as planning and policy formulation in the health care sector.
As the Registry develops, data will become available for patients with ESRD, as is reported here.

Finally, it is a great achievement to establish the National ESRD Registry, a new achievement in renal events in Jordan.

National Registry of End Stage Renal Disease:

The National Registry of End Stage Renal Disease was created in May 3 rd, 2007 under the jurisdiction of the Ministry of Health by the order of his Excellency the Minister of Health.

Objectives of the National Registry of End Stage Renal Disease:

- Establish a national database system about patients of ESRD.
- Determine the burden of that disease, on country basis.
- Determine governmental payment on dialysis.
- Provide data about patients and their suitability to be transplanted, on a basis of priority.
- Stimulate beginning studies and researches about ESRD.
- Improve facilities of diagnosis and treatment for ESRD patients. Moreover, train dialysis technicians and national registry employees.

Methodology:

The National Registry of End Stage Renal Disease was created in 2007 and supported by the Ministry of Health. It is a database-system that collects data and information about almost all patients undergoing Renal Replacement Therapy (RRT), i.e. either dialysis (hemodialysis and peritoneal dialysis) or Kidney transplantation.

This is the 13th national ESRD Registry report. Data were received from (81) dialysis units in Jordan , in the year 2020 , due to the worldwide Covid-19 pandemic a number of hospitals were dedicated by an agreement with MOH , to receive only Covid-19 patients , so ESRD patients were transferred from them to other hospitals .

It is assumed that those undergoing treatment in these units are represent the number of all ESRD cases , because all cases are treated on the expense of the government and even the patients undergoing home peritoneal dialysis.

Data about all ESRD patients (all nationalities) who are receiving treatment in all dialysis units in Jordan (governmental ,military ,private and university hospitals) (RRT) during the year 2020 from 1ist Jan -31 Dec -2020 were collected from all dialysis units in the hospitals and then analyzed using special software statistical analysis(SPSS) , Epi Info 7 and Microsoft Excel .

Two questionnaires (forms) used for data collection from hospitals. The first one is for the dialysis units: including number of beds, type of insurance of patient, nationality (Annex1).

The second form is for the patients, this form consist of demographic data, clinical data, source of treating facility, follow up and vital status of the patients and all these data will entered on special software for ESRD patients (Annex2). Patients who are not on Renal Replacement Therapy (RRT) and those who only received urgent dialysis or died shortly afterwards (less than 90 days) were not included in this report.

Method of Data Collection:

Data was collected from all renal dialysis units in Jordan, through the following methods: two types of data collection methods were applied:

1- Passive Data Collection: in this system forms filled by dialysis units technicians and send to national renal registry - MOH/NCDs Directorate.

2- Active Data Collection: In this system the head of Renal Registry Unit visited the dialysis units and fills the forms on the unit and complete all the variables from medical record of those patients. This to ensure more complete and accurate data

All forms were reviewed at the Renal Registry Unit and filtered and checked for any duplication and also document follow up data if the patient still alive or dead cause of death dates of last dialysis.

Data entered to special software designed for data of renal patients, Data analysis was done by using statistical package for the social sciences SPSS . Epi info 7 , and Microsoft excel .

Incidence and prevalence calculations in this report are based on the population by Department of Statistics (DOS) site information 2020

Table (1) Population of Jordan 2020

الفئة العمرية	ذكور	إناث	المجموع
0-4	426410	435410	861820
5-9	453400	466100	919500
10-14	393680	400270	793950
15-19	377270	367480	744750
20-24	391800	350610	742410
25-29	345780	304530	650310
30-34	297590	277510	575100
35-39	265000	244860	509860
40-44	228990	210820	439810
45-49	194270	176460	370730
50-54	140360	133150	273510
55-59	95440	95650	191090
60-64	64690	65810	130500
65+	133320	141340	274660
المجموع	**3808000**	**3670000**	**7478000**

Figure (1) Population Pyramid – Jordan 2020

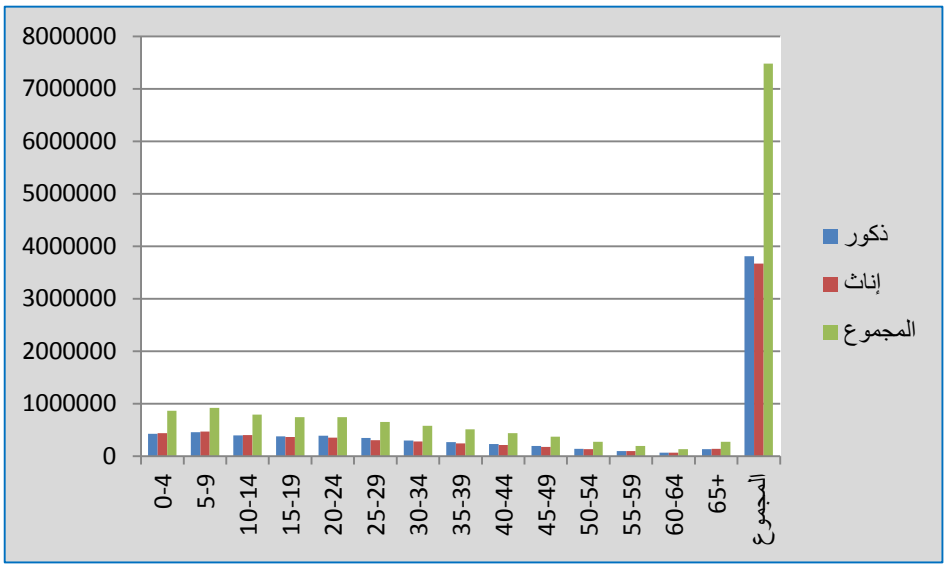
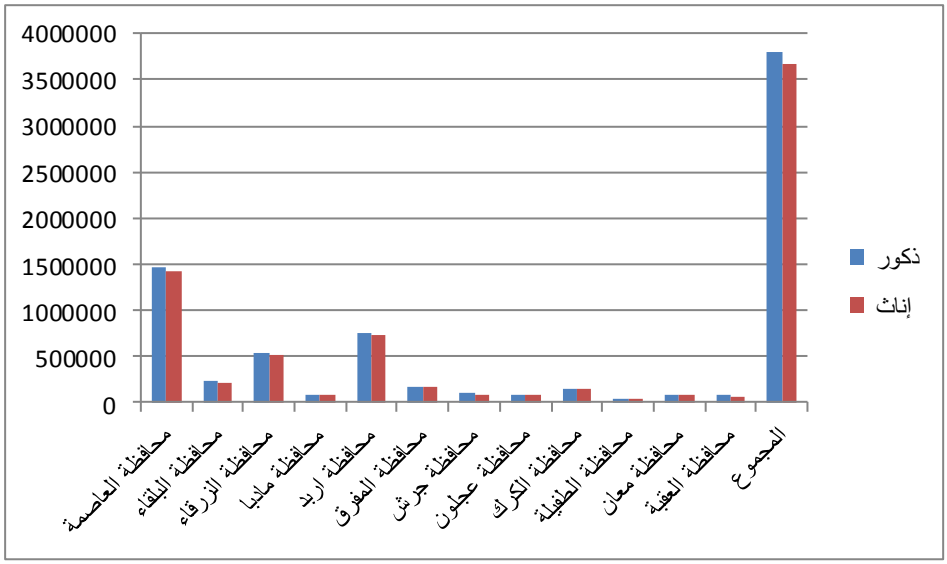


Table (2) Population distribution by Governorate and Gender 2020

Governorate	Male	Female	Total
محافظة العاصمة	1462300	1421200	2883500
محافظة البلقاء	226900	221100	448000
محافظة الزرقاء	534000	508400	1042400
محافظة مادبا	90300	86600	176900
محافظة اربد	759400	726600	1486000
محافظة المفرق	181500	173000	354500
محافظة جرش	97100	92200	189300
محافظة عجلون	90300	87100	177400
محافظة الكرك	154900	152600	307500
محافظة الطفيلة	52000	49700	101700
محافظة معان	80800	77600	158400
محافظة العقبة	78500	73900	152400
المجموع	3808000	3670000	7478000

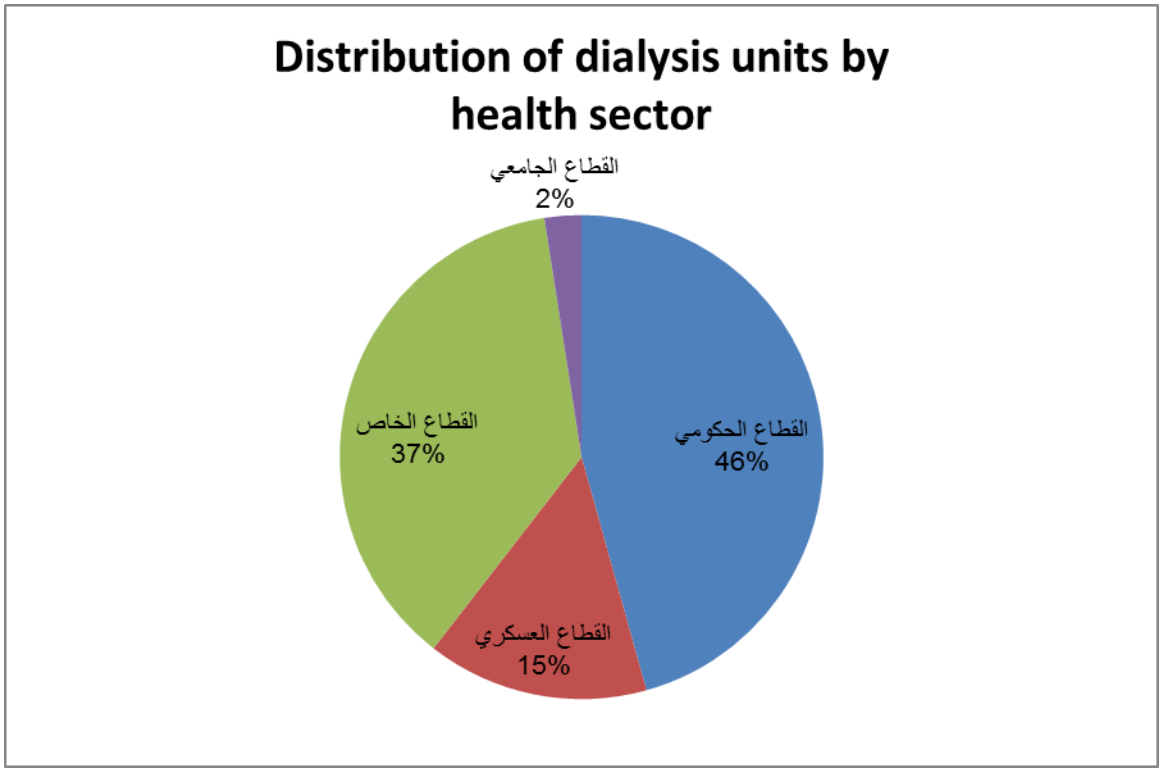


Part Two

Dialysis Units in Jordan

There were 81 working Dialysis Units distributed all over the country. 37 units (46%) administered by Ministry of Health (MOH), 12 units (15 %) administered by Royal Medical Services (RMS), 2 units (2 %) administered by university hospitals: one administered by Jordan University Hospital, one by King Abdullah University Hospital (KAUH) and 30 units (37%) administered by Private Sector (PS),(Figure 2).

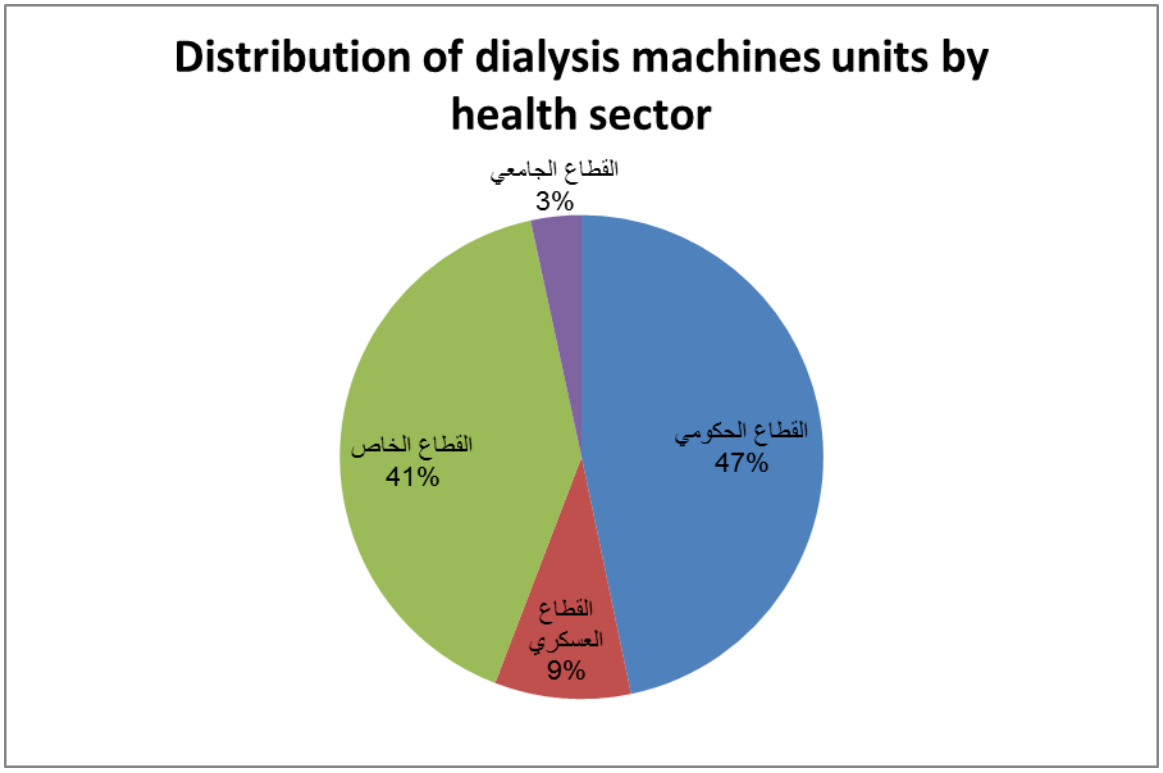
Figure (2) Distribution of dialysis units by health sector, Jordan 2020



Distribution of Dialysis Machines by Health Sector, Jordan 2020

The total number of dialysis machines (944) in all units was distributed as followed: 441 (47%) machines in MOH units, 86 (9%) machines in RMS, 32(3%) machines in universities hospitals and 385 (41%) machines in private sector hospitals, (Figure 3).

Figure (3) Distribution of Dialysis Machines by Health Sector, 2020



The focal points in all 81 Dialysis Units filled the special form of data collection and send it to National ESRD Registry located in the Ministry of Health. (Annex1), data about ESRD patients was received from all hospita

Part three

ESRD patients in Jordan

Prevalence of ESRD patients in Jordan (2020)

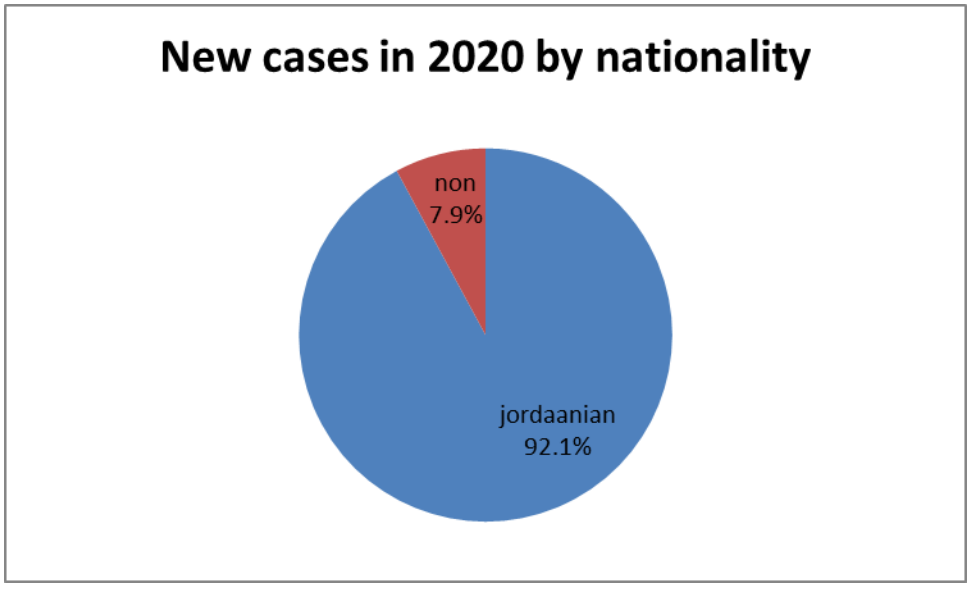
The total numbers of patients treated and registered in the Jordan Renal Registry by the end of 2020 was 7747 patients , of them 7290 were Jordanians (94,1 %) and 457 were non Jordanians (5,9 %) .

This part of the report only includes Jordanian patient –prevalence 2020

The number of Jordanian patients that registered in ESRD and treated in hospitals for the year 2020 was 7290 patients, while the number of new cases of ESRD for the year 2020 was 975 patients , out of them 898 patients (92.1 %) were Jordanians , 77 (7.9 %) were non Jordanians.

Figure 4 shows the distribution of new ESRD cases in 2020 by nationality.

Figure (4) Distribution of new cases in 2020 by nationality



Prevalence of ESRD Patients in Jordan, 2020

The total number of ESRD patients during the year 2020 was 7290 patients who are receiving hemodialysis or peritoneal dialysis in the hospitals from all sectors.

Distribution of ESRD patients according to age groups and gender, 2020

Table (3) shows the distribution of ESRD patients according to the age groups and gender.

The median age of patients was (57) years, (56 years for males and 60 years for females).

Table (3) also shows the distribution of ESRD cases by prevalence rate per million populations (PPM), the overall prevalence per Million Populations in Jordan was (974.86 /1,000,000).

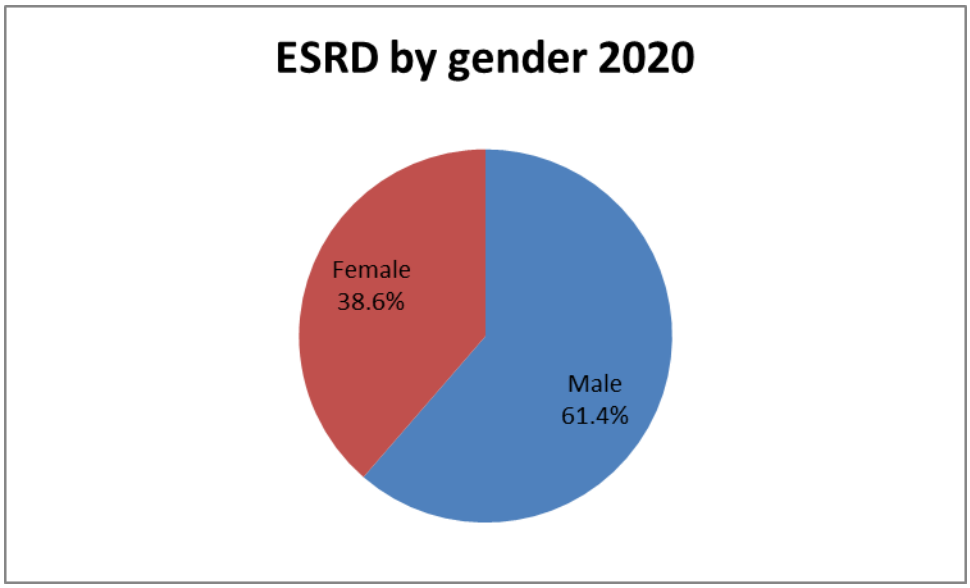
Table (3) Distribution of ESRD according to age groups and gender and Prevalence Rate per million (PPM) , 2020

Agegroup	Male		Female		Total		
	No	PPM	No	PPM	No	PPM	%
0-10	61	16.02	41	11.2	102	13.64	1.40
10_20	136	35.71	124	33.8	260	34.77	3.57
20-30	258	67.75	171	46.6	429	57.37	5.88
30-40	391	102.68	218	59.4	609	81.44	8.35
40-50	629	165.18	312	85.0	941	125.84	12.91
50-60	1030	270.48	465	126.7	1495	199.92	20.51
60-70	932	244.75	712	194.0	1644	219.84	22.55
>70	865	227.15	676	184.2	1541	206.07	21.14
Missing	171	44.91	98	26.7	269	35.97	3.69
Total	4473	1174.63	2817	767.6	7290	974.86	100.00

Socio demographic characteristics of ESRD prevalent patients:

Figure (5) shows the distribution of patients who underwent dialysis treatment in renal dialysis units in all Jordanian hospitals during the year 2020 according to gender. The number of patients treated in the Dialysis Units was 7290 patients , out of them 4473 were male patients which accounted (61,4 %) , and 2817 were female patients accounted (38,6 %) , with male to female ratio 1.6:1.

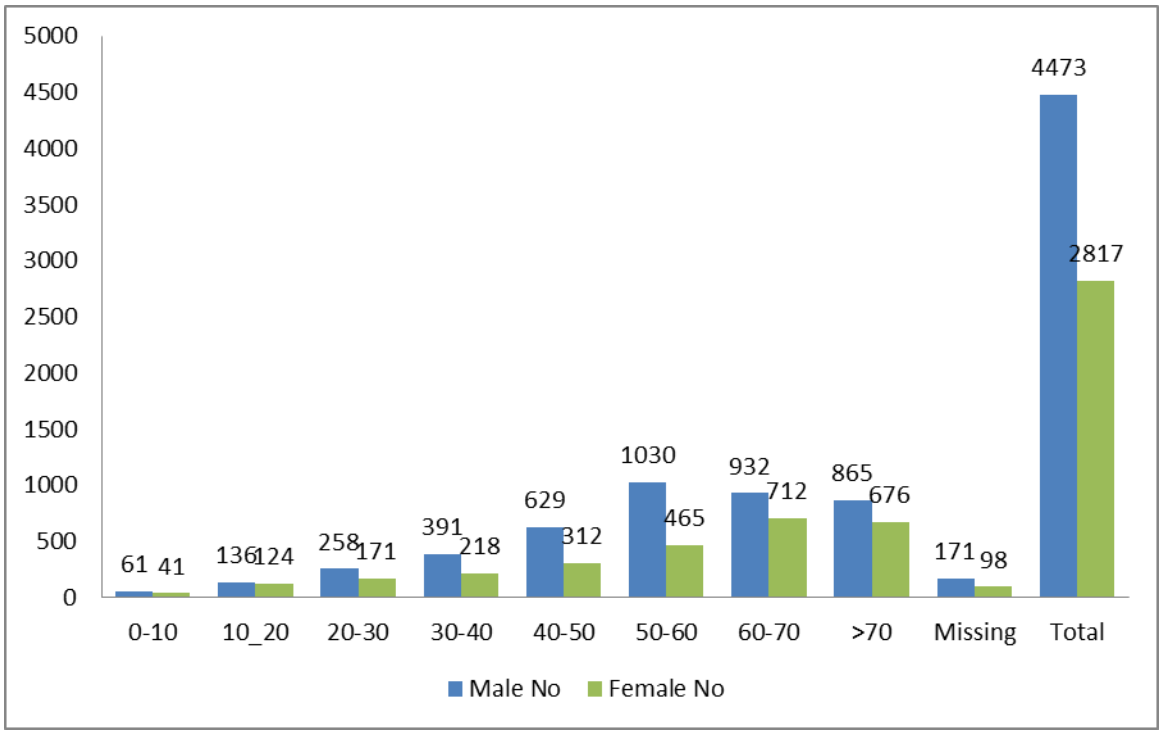
Figure (5) Distribution of ESRD patients by Gender 2020



Distribution of ESRD patients by Age group 2020

Age group	Male		Female		Total	
	No	%	No	%	No	%
0-10	61	1.4	41	1.5	102	1.4
10_20	136	3.0	124	4.4	260	3.6
20-30	258	5.8	171	6.1	429	5.9
30-40	391	8.7	218	7.7	609	8.4
40-50	629	14.1	312	11.1	941	12.9
50-60	1030	23.0	465	16.5	1495	20.5
60-70	932	20.8	712	25.3	1644	22.6
>70	865	19.3	676	24.0	1541	21.1
Missing	171	3.8	98	3.5	269	3.7
Total	4473	100.0	2817	100.0	7290	100.0

Figure (6) ESRD cases according to Age groups and gender 2020



Distribution of ESRD patients according to marital status and gender

Table (4) shows that the majority of ESRD patients were married (**74 %**), while (**13.6 %**) of the ESRD patients were singles, (**1.2 %**) of the patients were divorced , missing data accounted for (3.2 %) .

Tables (4) Distribution of ESRD patients according to marital status 2020

Marital Status	male		female		total	
	no	%	No	%	No	%
Married	3611	80.73	1785	63.37	5396	74.02
Single	586	13.10	409	14.52	995	13.65
Divorced	31	0.69	58	2.06	89	1.22
Widow	84	1.88	489	17.36	573	7.86
Missing	161	3.60	76	2.70	237	3.25
Total	4473	100.00	2817	100.00	7290	100.00

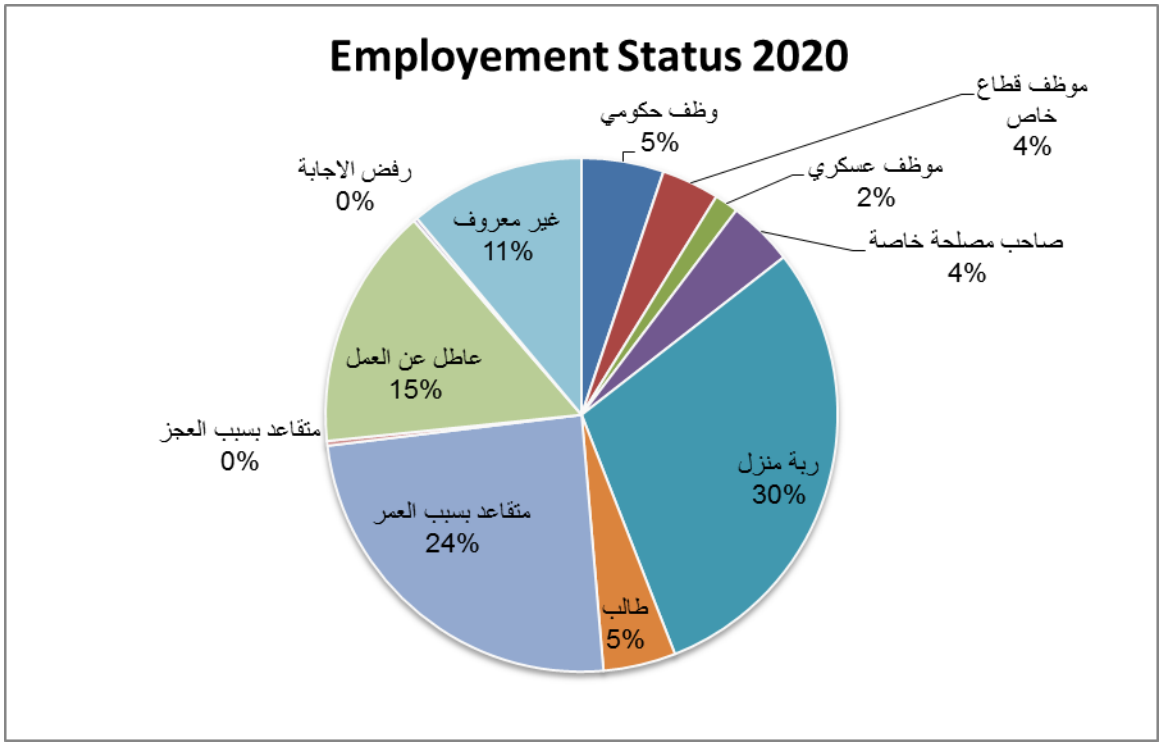
Distribution of ESRD patients according to employment status and gender

Table (5) and figure (6) shows the distribution of the ESRD patients according to their employment status for both genders. House wife's accounted (29.6 %) , (10.3%) of the patients were employed either governmental or non-governmentally and military services , (24.7%) were retired , and (4.6%) were students, (15.3%) of the patients were unemployed, missing data about employment was (11%) .

Table (5) Distribution of ESRD patients by employment status 2020

Employment	male		female		total	
	no	**%**	**No**	**%**	**No**	**%**
وظف حكومي	324	7.2	53	1.9	377	5.2
موظف قطاع خاص	249	5.6	16	0.6	265	3.6
موظف عسكري	104	2.3	6	0.2	110	1.5
صاحب مصلحة خاصة	296	6.6	6	0.2	302	4.1
ربة منزل	0	0.0	2159	76.6	2159	29.6
طالب	178	4.0	155	5.5	333	4.6
متقاعد بسبب العمر	1713	38.3	68	2.4	1781	24.4
متقاعد بسبب العجز	20	0.4	2	0.1	22	0.3
عاطل عن العمل	955	21.4	159	5.6	1114	15.3
رفض الاجابة	9	0.2	8	0.3	17	0.2
غير معروف	625	14.0	185	6.6	810	11.1
Total	**4473**	100.0	**2817**	100.0	**7290**	100.0

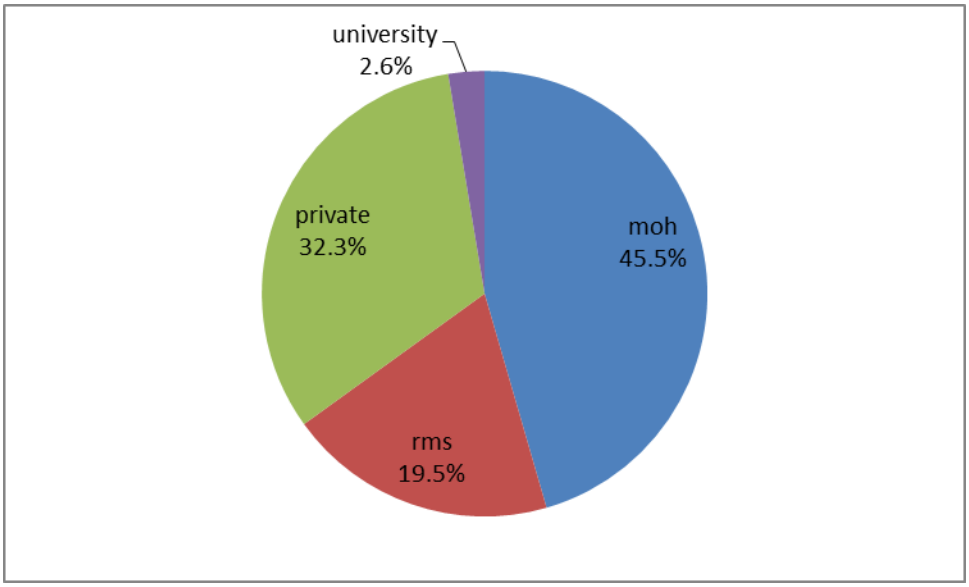
Figure (7) Distribution of ESRD patients by employment status 2020



Distribution of prevalent ESRD patients by health sector

Out of the all 7290 prevalent ESRD patients , 3318 patients (45.5%) were treated in MOH Dialysis Units , 1424 patients (19.5 %) treated in RMS Dialysis Units, 191 patients (2.6 %) treated in university hospital Dialysis Unit, and 2357 patients (32.3 %) treated in Private Sector Dialysis Units. (Figure 8)

Figure (8) Distribution of prevalent ESRD patients by Health Sector, 2020



Distribution of ESRD cases according to the type of insurance

Table (6) shows the distribution of ESRD patients according to insurance type. (97.8%) of patients were insured by one of the various types of health insurance. (39%) of the patients were insured by Kidney Patients Fund in health insurance directorate in Ministry of health. (0.4%) were not covered by any type of insurance

Table (6) Distribution of ESRD patients by type of insurance and gender 2020

Insurance Type	male		female		total	
	no	%	No	%	No	%
حكومي	1050	23.47	610	21.65	1660	22.77
قطاع خاص	46	1.03	20	0.71	66	0.91
عسكري	1356	30.32	931	33.05	2287	31.37
ص. مرضى الكلى	1765	39.46	1087	38.59	2852	39.12
جامعة	100	2.24	80	2.84	180	2.47
وكالة الغوث	3	0.07	2	0.07	5	0.07
فقراء	27	0.60	24	0.85	51	0.70
لا يوجد تأمين	21	0.47	8	0.28	29	0.40
غير معروف	105	2.35	55	1.95	160	2.19
Total	**4473**	100.00	**2817**	100.00	**7290**	100.00

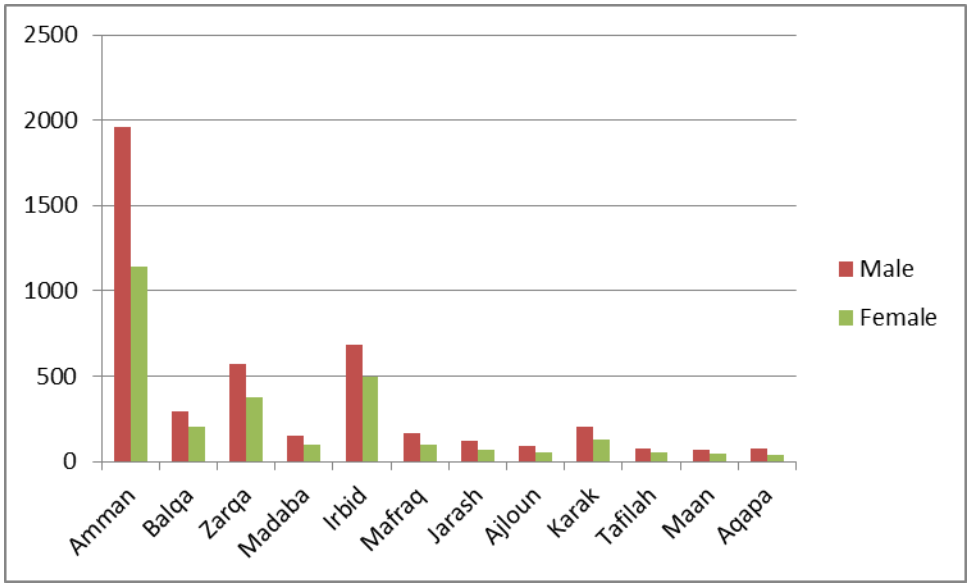
Distribution of ESRD patients by Governorate

The overall prevalence per Million Population in Jordan is (974.86 /1,000,000), the highest percent was found in Amman governorate (42.5%) followed by Irbid governorate (16.1 %) Zarka governorate (13) Table (7) and Fig. (8)

Table (7) Distribution of ESRD patients by Governorate 2020

Governorate	Male	Female	Total	%
Amman	1958	1140	3098	42.5
Balqa	293	206	499	6.8
Zarqa	568	377	945	13.0
Madaba	148	98	246	3.4
CENTRAL REGION	2967	1821	4788	65.7
Irbid	681	492	1173	16.1
Mafraq	166	100	266	3.6
Jarash	117	70	187	2.6
Ajloun	93	56	149	2.0
NORTH REGION	1057	718	1775	24.3
Karak	202	127	329	4.5
Tafilah	75	56	131	1.8
Maan	67	45	112	1.5
Aqapa	78	38	116	1.6
SOUTH REGION	422	266	688	9.4
missing	27	12	39	0.5
Total	4473	2817	7290	100

Fig. (8) Distribution of ESRD patients by Governorate 2020



Distribution of ESRD prevalent patients by primary cause

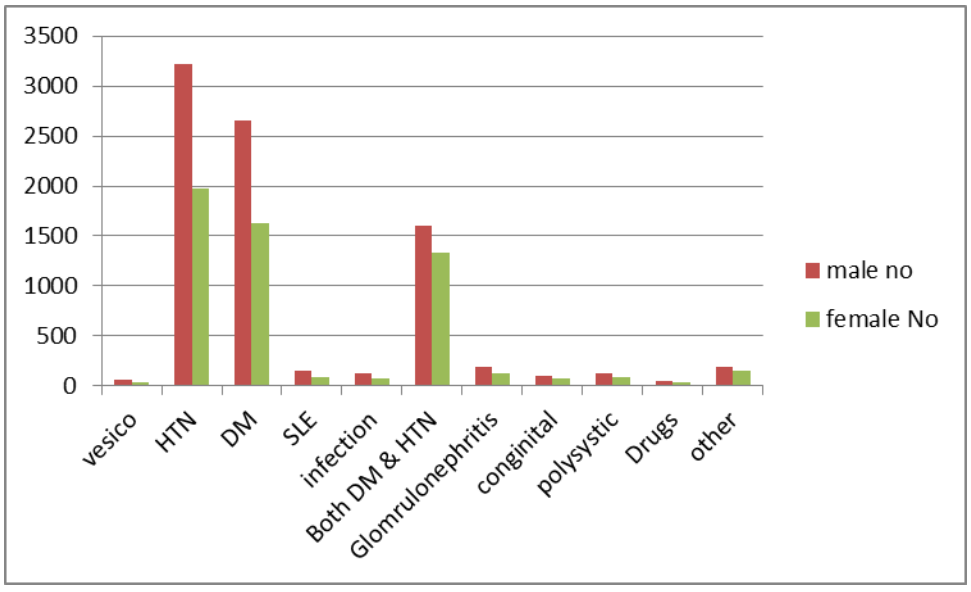
Table (8) and Fig.(9) shows the main primary causes of ESRD:

The most common primary cause is Hypertension (HTN), followed by Diabetes mellitus (DM) and followed by Diabetes Mellitus and Hypertension .

Table (8) Distribution of primary causes of ESRD for the year 2020

causes	male	female
	No	No
vesico	59	40
HTN	3217	1980
DM	2649	1630
SLE	151	86
infection	131	77
Both DM & HTN	1599	1331
Glomerulonephritis	189	122
congenital	97	77
polycystic	129	91
Drugs	46	36
other	189	151

Fig. (9) Distribution of primary causes of ESRD for the year 2020



Co-morbidity and some risk factors with ESRD

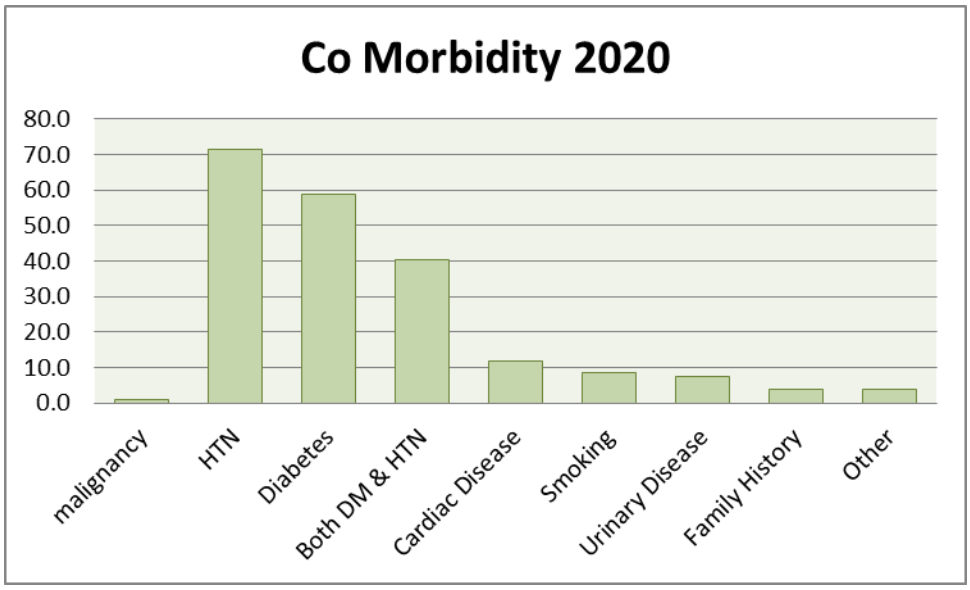
The data showed the presence of other medical conditions coexisting with the ESRD condition itself.

The prevalence of co-morbidity in ESRD patients showed that (71 %) of patients were hypertensive, (59%) Diabetes , while cardiovascular diseases were found in (12%) of ESRD patients. Smoking in ESRD was (8.6%) and (4%) of the patients had family history of renal diseases, Table (9). And Fig.(10)

Table (9) Prevalence of co-morbidity and some risk factors with ESRD 2020

co morbidity	Total	%
malignancy	68	0.9
HTN	5197	71.3
Diabetes	4279	58.7
Both DM & HTN	2930	40.2
Cardiac Disease	866	11.9
Smoking	625	8.6
Urinary Disease	535	7.3
Family History	293	4.0
Other	271	3.7

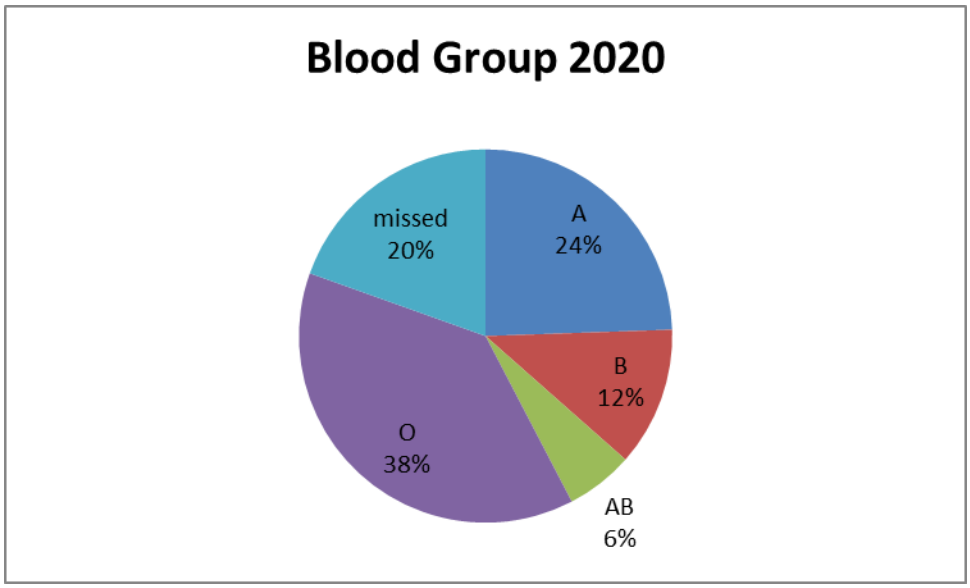
Fig (10) Prevalence of co-morbidity and some risk factors with ESRD 2020



Distribution of ESRD patients according to Blood Group

Figure (11) shows that 2777 (38%) were blood group O , and 1783 (24%) were blood group A , 879 (12%) were blood group B , and 426 (6 %) were blood group AB . Data was not available for 1425 ESRD patients which constitutes (20 %), of the ESRD
patients.

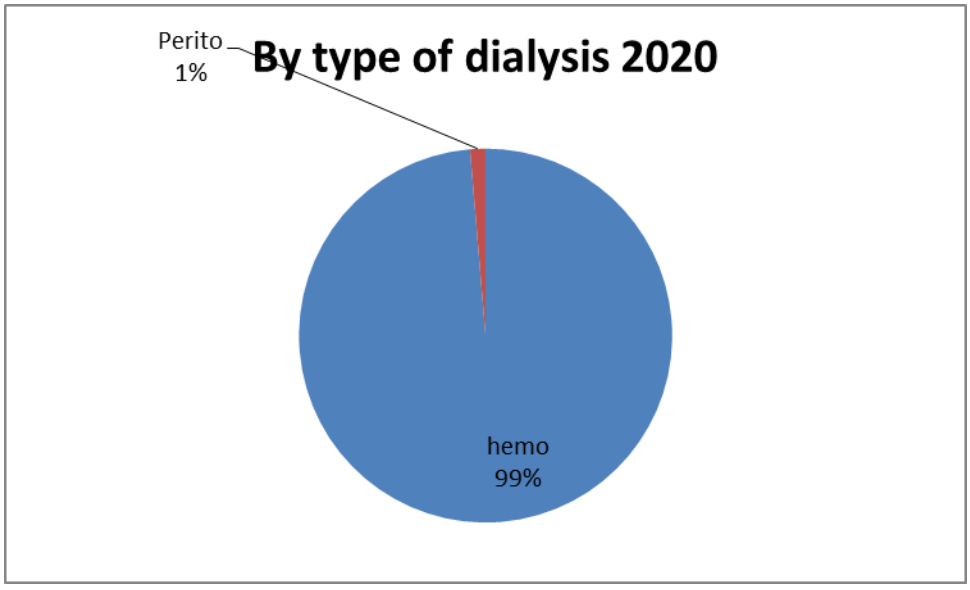
Figure (11) Distribution of ESRD patients according to Blood group



Distribution of ESRD patients according to type of Dialysis 2020

Figure (12) shows that 96 patients (1 %) were treated by peritoneal dialysis, while 7105 patients (99 %) were treated by hemodialysis.

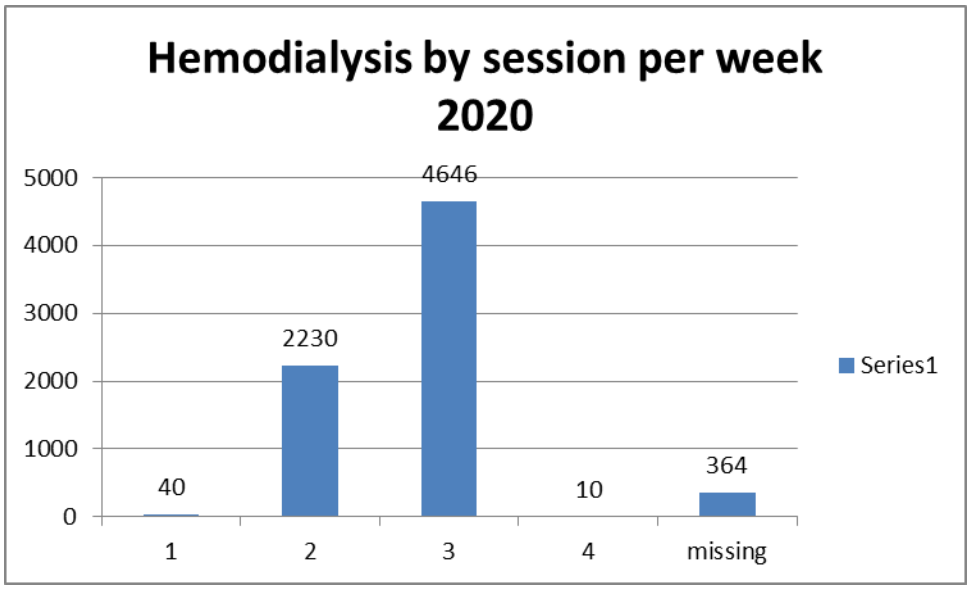
Figure (12) Distribution of ESRD patients by type of Dialysis 2020



Distribution of Hemodialysis patients by number of sessions /week

Figure (13) shows that (63 .7%) of the patients underwent Hemodialysis thrice a week , twice a week 1988 (30.6 %) , once a week 40 (0.5 %) , and 10 (0.1%) four times a week.
Missing data accounts for 364 cases (5 %)
The average duration of every session is almost four hours.
7105 patients , are in hemodialysis .

Figure (13) Distribution of Hemodialysis patients by number of sessions /week



session	1	2	3	4	missing	total
hemo	40	2230	4646	10	364	7290
%	0.5	30.6	63.7	0.1	5.0	100.0

Distribution of ESRD cases according to fitness for transplantation

Table (10) and Fig.(14) shows that 2598 (35.6 %) from both genders were considered candidates for transplantation, and 4321 not candidates for transplantation (59,3 %), no available data on 371 (5,1 %) of ESRD patients.

Fig. (14) Distribution of ESRD patients by fitness for transplantation

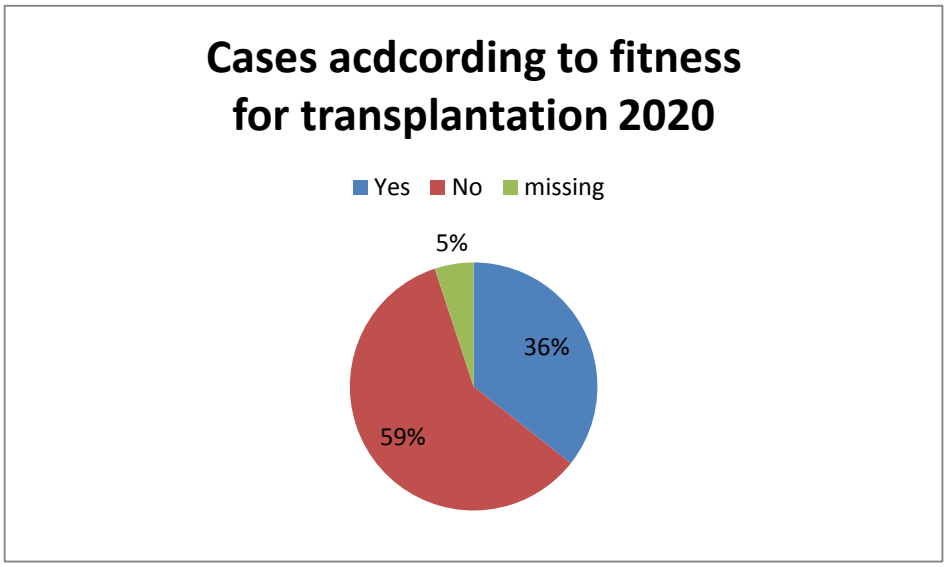


Table (10) Distribution of ESRD patients by fitness for transplantation

Candidate	Gender		Total	%
	Male	Female		
Yes	1675	923	2598	35.6
No	2567	1754	4321	59.3
Unknown	231	140	371	5.1
Total	3881	2435	6316	100.0

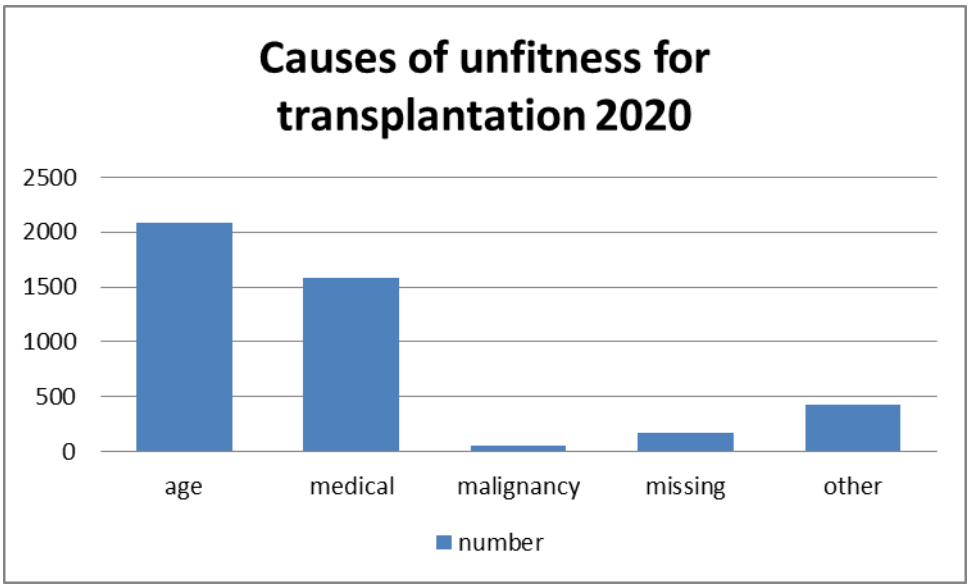
Distribution of ESRD cases according to unfitness for transplantation

Table (11) and Figure (15) show that the main causes of unfitness for transplantation were as followed: age 2087 patients (48,3%), medical causes 1579 patients (36.5 %) of all cases, malignancies in 54 patients (1.2%), while unknown causes for the cases were 168 patients (3,9%) of all patients.

Table (11) Causes of unfitness for transplantation

cause	No	%
Age	2087	48,3
Malignancy	54	1.2%
Medical causes	1579	36,5%
other causes	433	10
missing	168	3,9
Total	4321	100.0

Figure (15) Causes of unfitness for transplantation



Distribution of fitness of ESRD patients by priority level for transplantation

Figure (16) and Table (13) show the priority level for transplantation for patients who are candidate for transplantation 963 patients (42.5%) were considered of high priority level for transplantation and 736 patients (32.5 %) considered of medium , and 304 patients (13.4 %) of low priority and 264 (11.6 %) had no data about their priority level.

Figure (16) Distribution of fitness of ESRD patients by Priority level for Transplantation

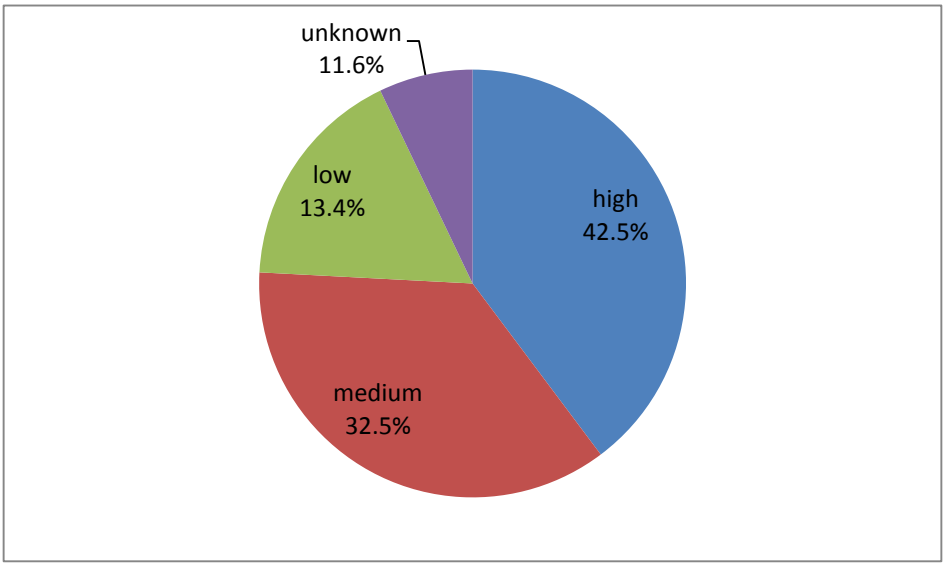


Table (13) Priority level for ESRD patient candidate for transplant-2020

priority	male		female		Total	
	no	%	no	%	no	%
High	589	35.16	313	34	902	34.72
medium	724	43.22	389	42	1113	42.84
low	320	19.10	208	23	528	20.32
unknown	42	2.51	13	1	55	2.12
Total	1675	100.00	923	100	2598	100.00

Distribution of ESRD cases according to availability of a donor 2020

Figure (17) shows that 2183 patients (84%) , had no available donor, and 368 patients (14,2%) had available donor, 47 patients (1,8 %) had no data about available donor, this reflects the burden of ESRD in Jordan.

Figure (17) Distribution of ESRD patients by availability of a donor
Prevalence of Hepatitis B and C in prevalent ESRD patients

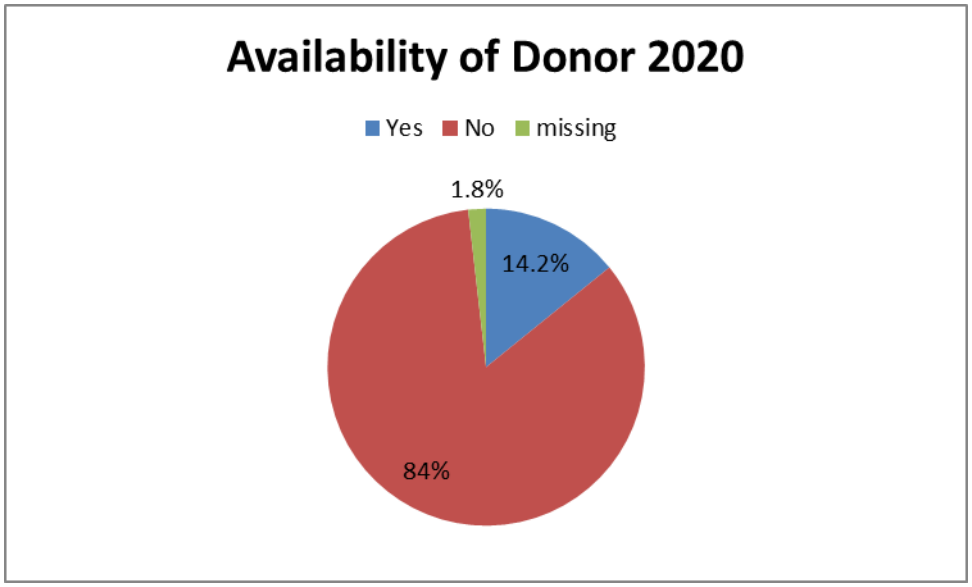


Table (14) Prevalence of Hepatitis B and C in ESRD patients 2020

Hepatitis	B				C			
	Male	female	total		Male	female	total	
Gender	No	No	No	%	No	No	No	%
positive	53	28	81	1.1	117	70	187	2.6
negative	3728	2377	6105	83.7	3661	2333	5994	82.2
missed	692	412	1104	15.1	695	414	1109	15.2
total	**4473**	**2817**	7290	100.0	**4473**	**2817**	**7290**	100.0

Table (14) shows the Prevalence of Hepatitis B and C in ESRD patients (1.1 %) of the cases had Hepatitis B , and (2.6 %) had Hepatitis C.

Part Four

Incidence of ESRD Patients

The total number of Jordanian patients who treated in the dialysis units by the end of 2020 were (7290) patients, but the number of new cases for the year 2020 was 975 patients , of them (898) were Jordanians (92,1 %) and (77) were non Jordanians (7,9 %).

This part of the report only include Jordanian patient – incidence 2020, The number of new cases of ESRD Jordanian patients for the year 2020 was 898 patient.

Incidence of ESRD, 2020

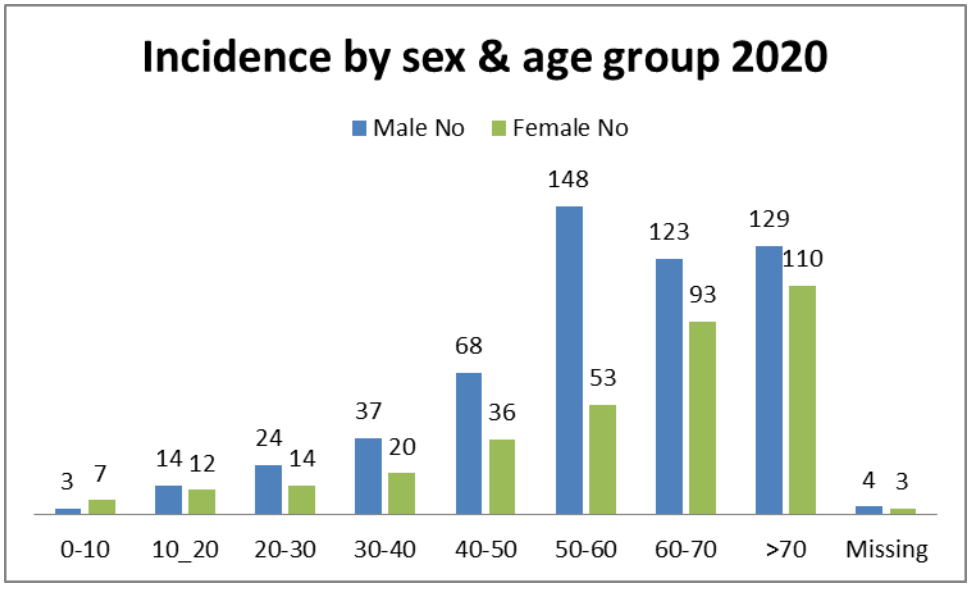
Table (15) and Figure (18) sho w the distribution of **ESRD** incident patients in 2020 according to the age group and gender, with a mean age of 55 years, and median age of 56 years. Table (15) also shows the distribution of ESRD patients by Age-Specific Incidence Rate per million (ASIR). The overall Incidence per Million Populations in Jordan was (120.1/1,000,000).

Table (15) Distribution and ASIR of ESRD cases by gender and age group - Incidence 2020

Age group	Male		Female		Total		
	No	PPM	No	PPM	No	PPM	%
0-10	3	0.8	7	1.9	10	1.3	1.11
10_20	14	3.7	12	3.3	26	3.5	2.90
20-30	24	6.3	14	3.8	38	5.1	4.23
30-40	37	9.7	20	5.4	57	7.6	6.35
40-50	68	17.9	36	9.8	104	13.9	11.58
50-60	148	38.9	53	14.4	201	26.9	22.38
60-70	123	32.3	93	25.3	216	28.9	24.05
>70	129	33.9	110	30.0	239	32.0	26.61
Missing	4	1.1	3	0.8	7	0.9	0.78
Total	550	144.4	348	94.8	898	120.1	100.00

***ASIR per Million population**

Figure (18) Incidence of ESRD Jordanian by sex & age group-2020



Distribution of incident ESRD patients by health sector

Figure (19) shows that the new number of patients treated in the Dialysis Units in 2020 were 898 patients , 316 patients (35%) treated in MOH dialysis units, 274 patients (31%) treated in RMS dialysis units, 27 patients (3%) treated in university hospital dialysis unit, and 281 patients (31 %) treated in Private Sector dialysis units.

Figure (19) Distribution of ESRD patients by health sector, 2020

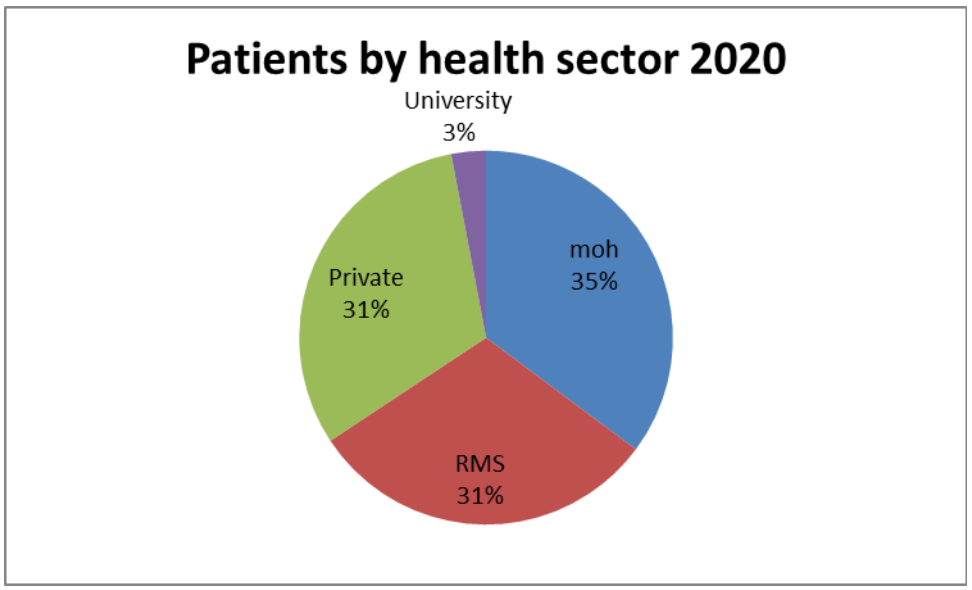
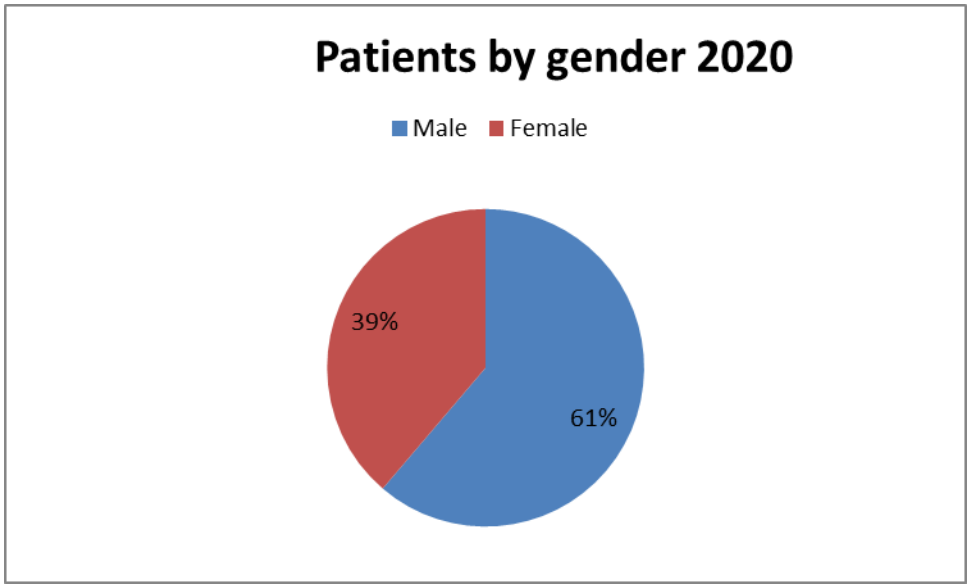


Figure (20) Distribution of ESRD patients by gender, 2020



Distribution of ESRD incident patients by gender

In the years 2020, out of the total (898) new cases of ESRD, 550 patients (61%) were males and 348 patients (39 %) were females with male to female ratio1.6:1 Figure (20)

Distribution of ESRD patients by primary cause

Table (16) shows the main primary causes of ESRD Incident patients,

The most common primary cause was Hypertension together (28%), followed by DM (26%), DM & Hypertension together (25%) , Glomerulonephritis (6%) Polycystic kidney disease (3 %) , infection (3%) , congenital causes (3 %), , Vesico uretric reflux (1%), Drugs (1%) **,** SLE (1%) **,** and others was (3 %) of the patients.

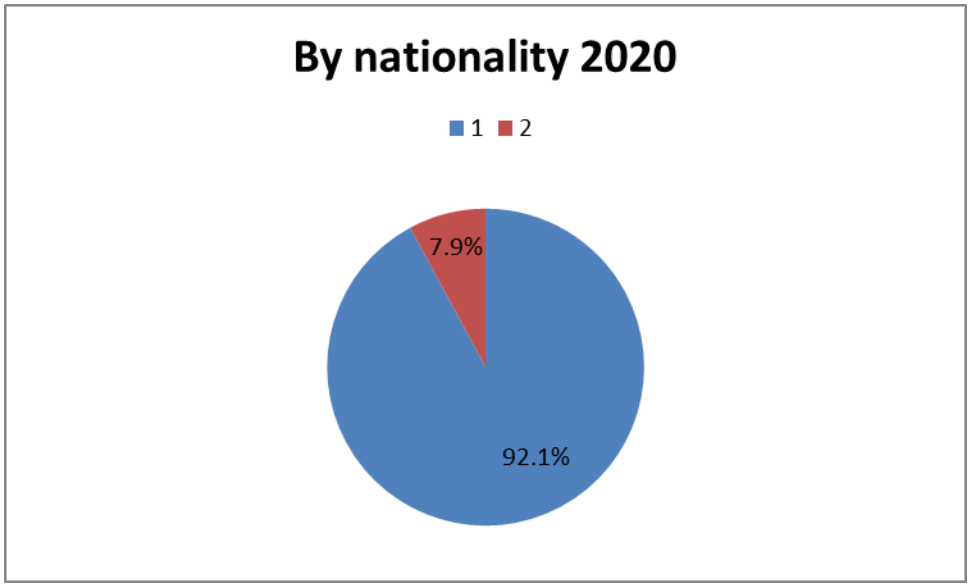
Table (16) Primary causes of ESRD for the year 2020 Incidence

causes	male		female		total	
	No	**%**	**No**	**%**	**No**	**%**
vesico	7	1	3	0.9	10	1
HTN	153	28	94	27.0	247	28
DM	137	25	95	27.3	232	26
SLE	1	0	4	1.1	5	1
infection	18	3	7	2.0	25	3
Both DM & HTN	146	27	82	23.6	228	25
Glomerulonephritis	41	7	17	4.9	58	6
congenital	15	3	12	3.4	27	3
polycystic	14	3	11	3.2	25	3
Drugs	6	1	5	1.4	11	1
other	12	2	18	5.2	30	3
Total	**550**	100	**348**	100.0	898	100

Distribution of ESRD patients by Nationality

Figure (21) shows the distribution of ESRD patients according to Nationality, in 2020 there were (77) non-Jordanian patients accounted (7,9%) and 898 Jordanian patients accounted (92,1%).

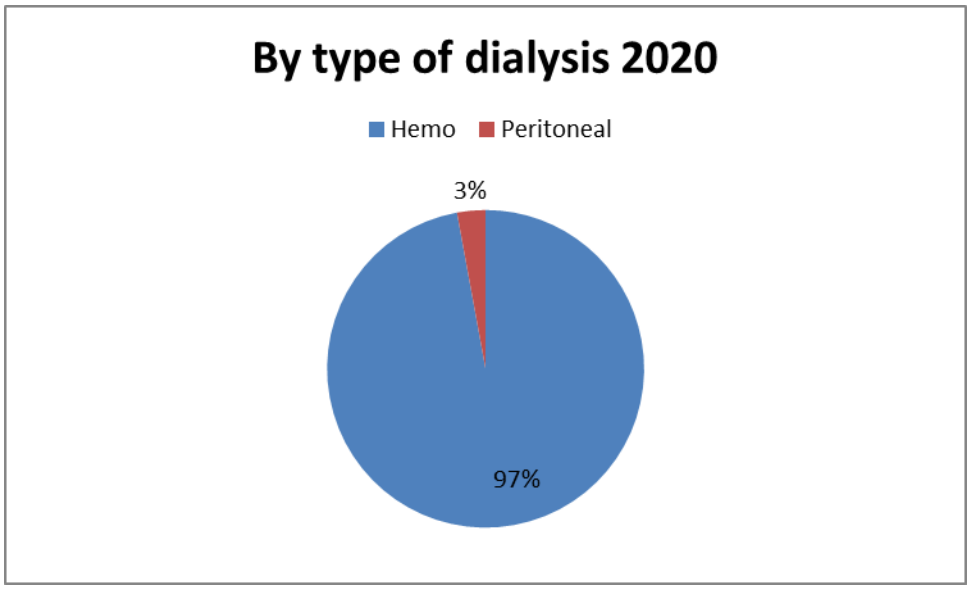
Figures (21) Distribution of ESRD patients by Nationality 2020



Distribution of ESRD patients according to type of Dialysis

Figure (22) shows that in 2020 , only 26 patients (3 %) were treated by peritoneal dialysis, while 872 patients (97%) were treated by hemodialysis.

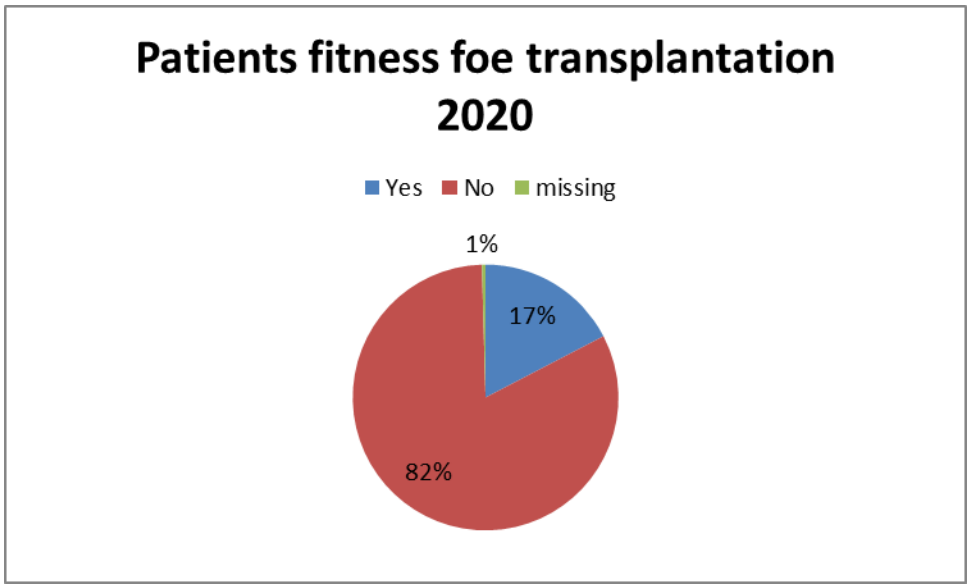
Figure (22) Distribution of ESRD patients by type of Dialysis, 2020



Distribution of ESRD cases according to fitness for transplantation, 2020

fitness	Yes	No	missing	Total
No	156	738	4	898
%	17	82	0	100

Figure (23) shows that there were 156 (17 %) candidates for transplantation, and 738 (82%) are not candidates for transplantation.

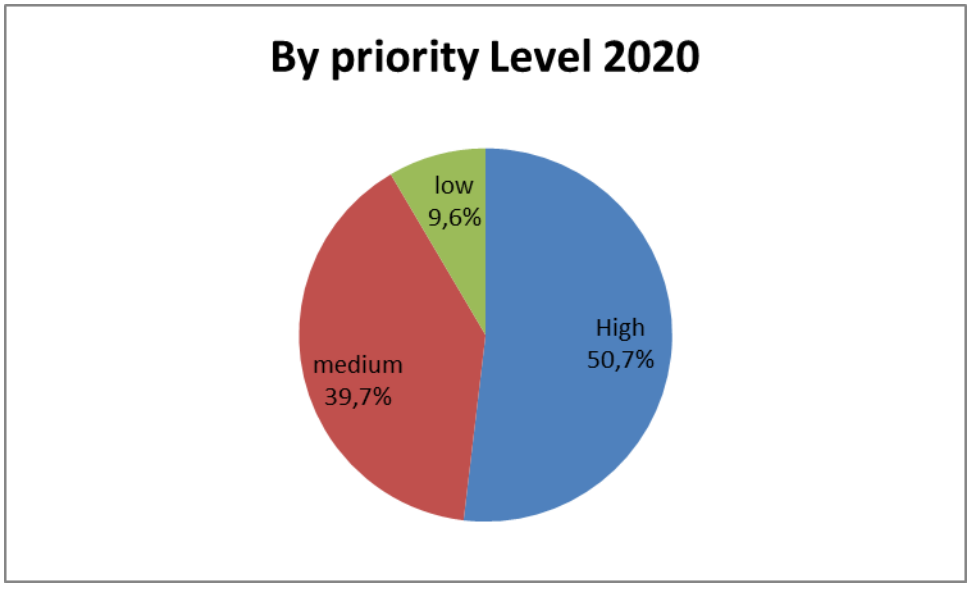


Distribution of fitness of ESRD patients by Priority level for transplantation

Figure (24) shows the priority level for transplantation: in 2020 it was found that 79 patients (50.7 %) were of high priority level for transplant, 62 patients (39.7 %) of medium , and 15 patients (9.6 %) of low propriety level .

priority	male		female		Total	
	no	%	no	%	no	%
High	55	52	24	48	79	50.64
medium	42	40	20	40	62	39.74
low	9	8	6	12	15	9.62
unknown	0	0	0	0	0	0.00
Total	106	100	50	100	156	100.00

Figure (24) Distribution of fitness of ESRD patients by Priority level for Transplantation 2020



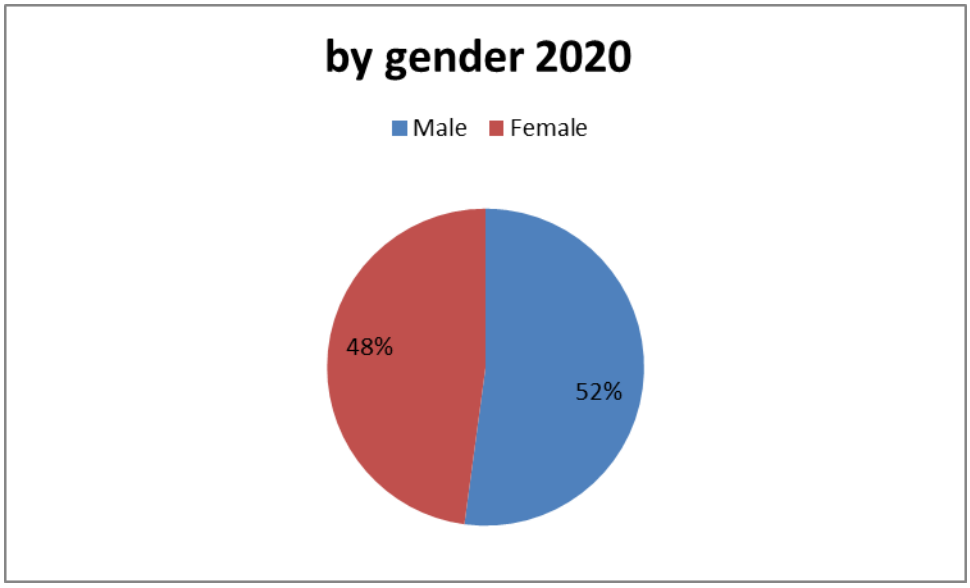
Part Five:

Pediatric ESRD

The total number of pediatric patients from 0-14 years was 234 patients in 2020

Figure (25) shows the distribution of Pediatric ESRD who treated in renal dialysis units in all hospitals during the year 2020 according to sex. There were 234 patients , out of them 122 were males (52%) and 112 were female patients accounted (48 %).

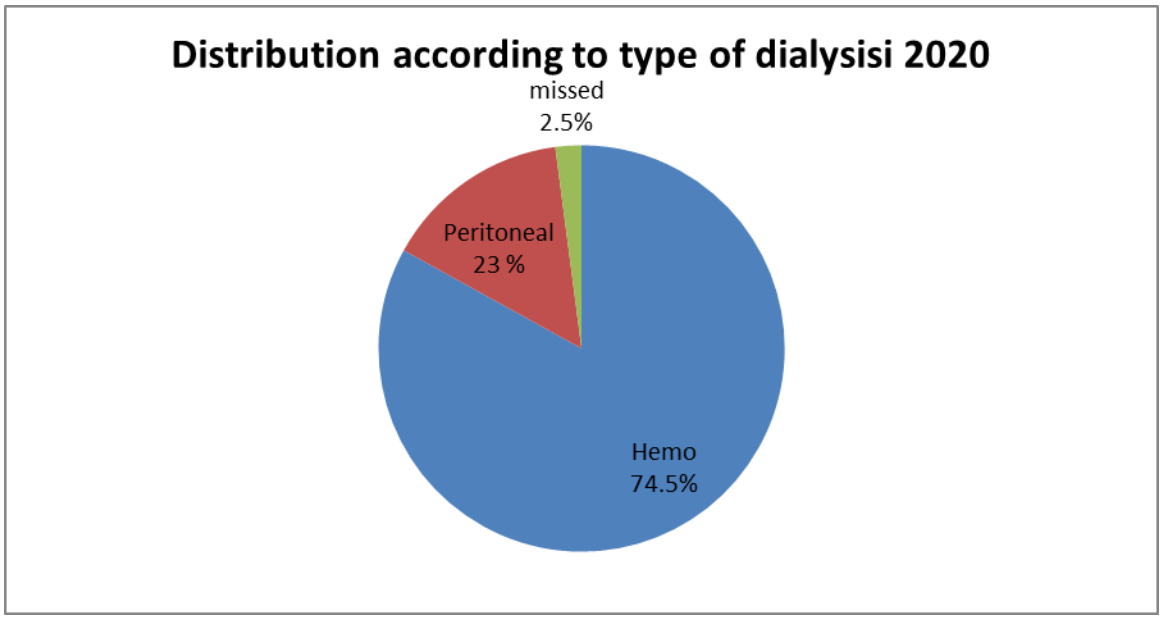
Figure (25) Distribution of ESRD pediatric patients by Gender



Distribution of Pediatric patients according to type of Dialysis

The total number of pediatric patients from 0-14 years was 234 patients. Out of them 174 (74.5%) patients were treated by hemodialysis , and 54 (23%) on peritoneal dialysis , while missing data accounted for 6 (2.5 %) patients . Figure (26) shows distribution of pediatric patients according to type of dialysis.

Figure (26) Distribution of Pediatric patients according to type of Dialysis



Causes of ESRD in Pediatric patients

Table (17) shows that the primary cause of ESRD in pediatric patients (those below 14 years): the commonest causes of ESRD Vesicouretic reflux (14%) Congenital renal anomalies(11%) followed by polycystic kidney (9%) Hypertension (8 %) Glomerulonephritis (7%), Hypertension (10.3%), Nephrotic syndrome (5%) , DM (4%)
Drug induced (2%) , SLE (1%), while other causes were not determined in (40%) of the pediatric patients.

Table (17) Causes of ESRD in Pediatric patients 2020

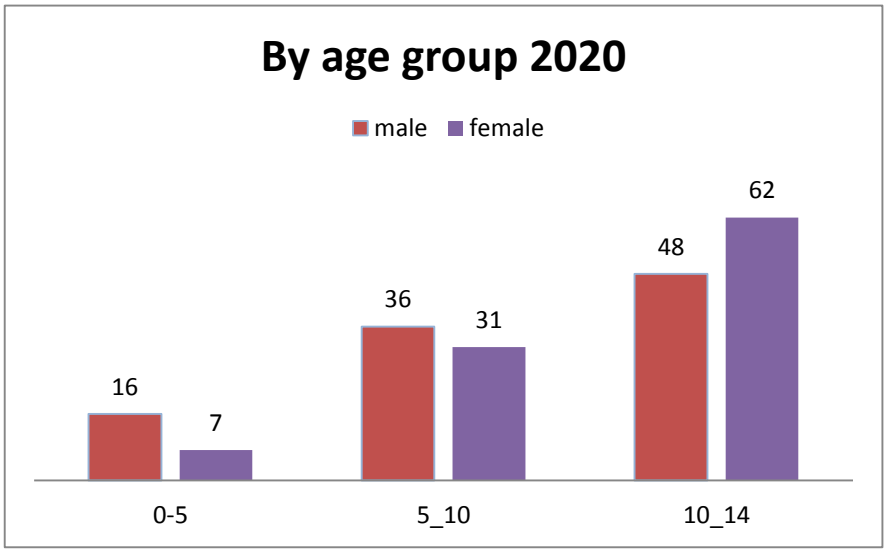
causes	male		female		total	
	no	**%**	**No**	**%**	**No**	**%**
vesicoureteric	19	16	12	11	31	13
HTN	11	9	9	8	20	9
DM	7	6	4	4	11	5
SLE	0	0	1	1	1	0
infection	2	2	0	0	2	1
Nephrotic Syndrome	9	7	7	6	16	7
Glomerulonephritis	6	5	14	13	20	9
congenital	11	9	15	13	26	11
polycystic	9	7	9	8	18	8
Drugs	1	1	2	2	3	1
other	31	25	30	27	61	26
missing	16	13	9	8	25	11
Total	**122**	100	**112**	100	**234**	100

Pediatric ESRD patients according to age groups and gender, 2020

Figure (27) shows the distribution of pediatric patients according to the age groups and gender in 2020 , which indicates that the highest occurrence of the cases was among the age group (10-14) years 128 (55 %) for both genders, with a mean age of 9.3 years and median 10.00.

Agegroup	Male		Female		Total	
	No	%	No	%	No	%
0-5	19	16	8	7	27	12
5_10	44	36	35	31	79	34
10_14	59	48	69	62	128	55
total	122	100	112	100	234	100

Figure (27) Distribution of pediatric patients according to age groups



Part six

ESRD Mortality

Distribution of mortality among ESRD patients

Figures (28,29) and table (18) show the distribution of deaths for ESRD patients 691 patients died during the year 2020 . 434 (62.8 %) of them were males, and 257 (37.2 %) were females.

Median age at death was 70 years, (66 years for males and 70 years for females).

In the year 2020, 117 patients (20%) of the death cases , died due to COVID-19 infection . (85 male and 32 female)

Figure (28) Distribution of mortality in ESRD patients according to gender

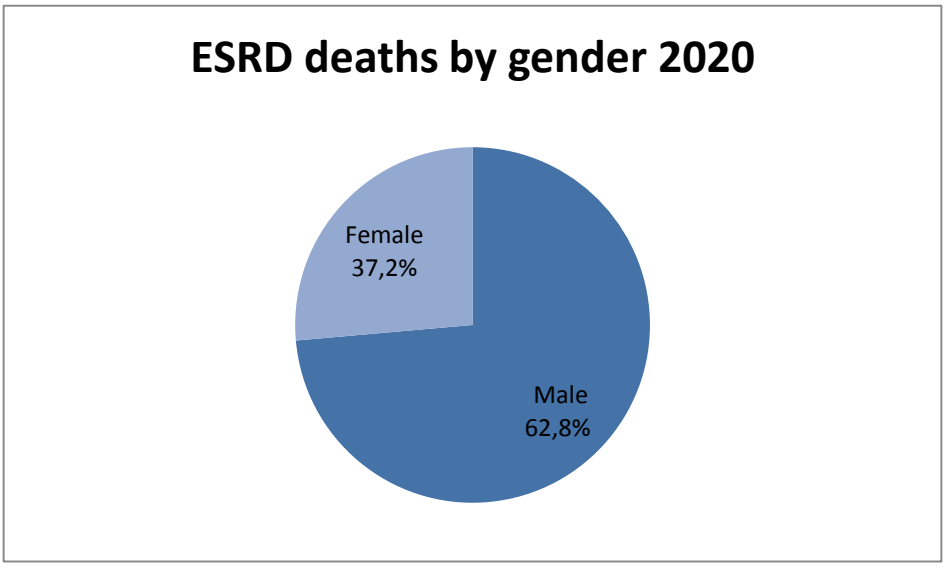


Figure (29) Distribution of mortality in ESRD patients by age group and gender

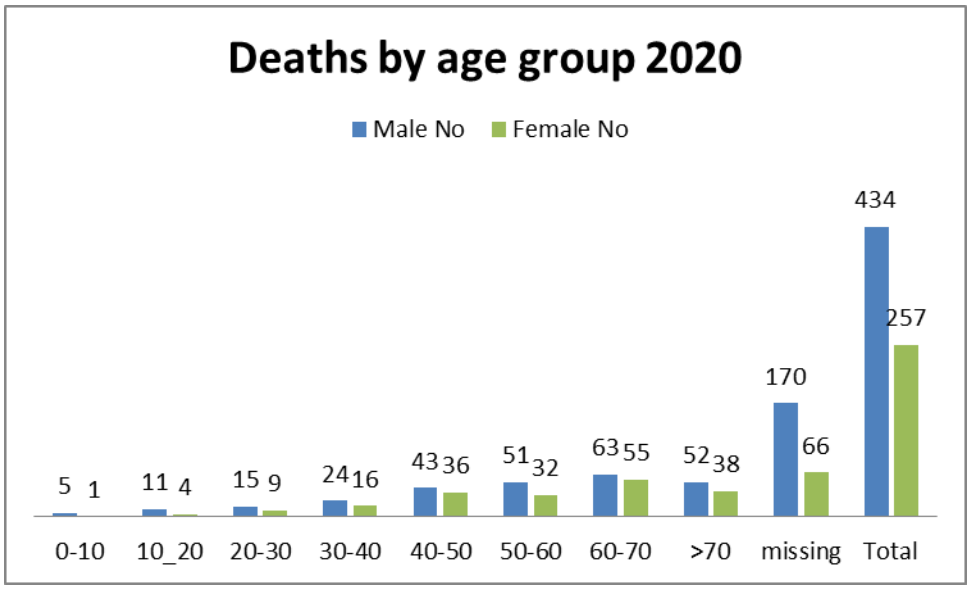


Table (18) Distribution of mortality in ESRD patients by age group and gender

Agegroup	Male		Female		Total	
	No	%	No	%	No	%
0-10	5	1.2	1	0.4	6	0.9
10_20	11	2.5	4	1.6	15	2.2
20-30	15	3.5	9	3.5	24	3.5
30-40	24	5.5	16	6.2	40	5.8
40-50	43	9.9	36	14.0	79	11.4
50-60	51	11.8	32	12.5	83	12.0
60-70	63	14.5	55	21.4	118	17.1
>70	52	12.0	38	14.8	90	13.0
missing	170	39.2	66	25.7	236	34.2
Total	434	100.0	257	100.0	691	100.0

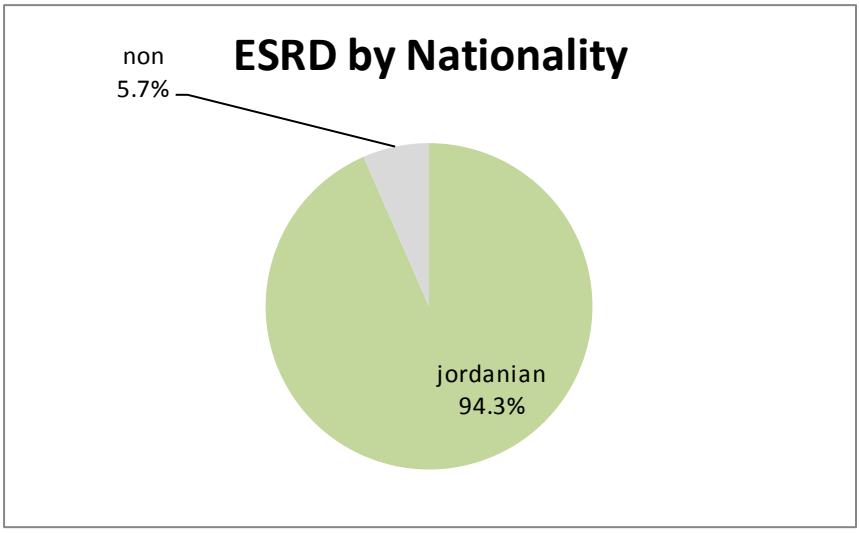
Part seven :

ESRD patients among Non-Jordanians , 2020

Distribution of ESRD patients by Nationality

Figure (30) shows the distribution of ESRD patients according to Nationality, The total number of patients among Non-Jordanians was 457 (5.7%) .

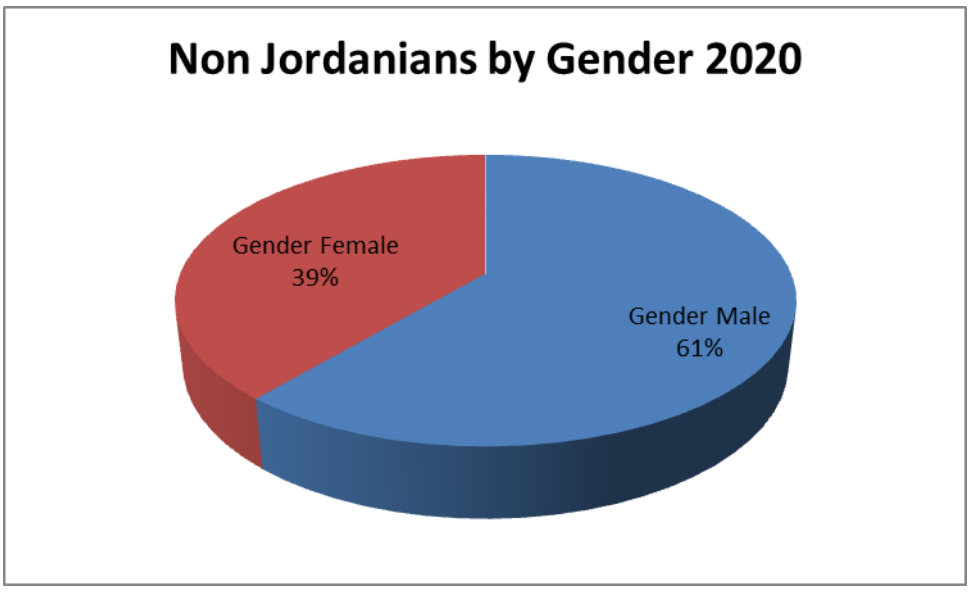
Figure (30) Distribution of ESRD patients by Nationality



Distribution of ESRD patients among Non-Jordanians by Gender

Figure (31) shows the distribution of Non-Jordanians ESRD patients who treated in renal dialysis units in all Jordanian hospitals during the year 2020 according to gender, the number of patients treated in the Dialysis Units were 457 patients, 279 (61 %) male , and 178 (39 %) female

Figure (31) Distribution of ESRD patients among Non-Jordanians by gender



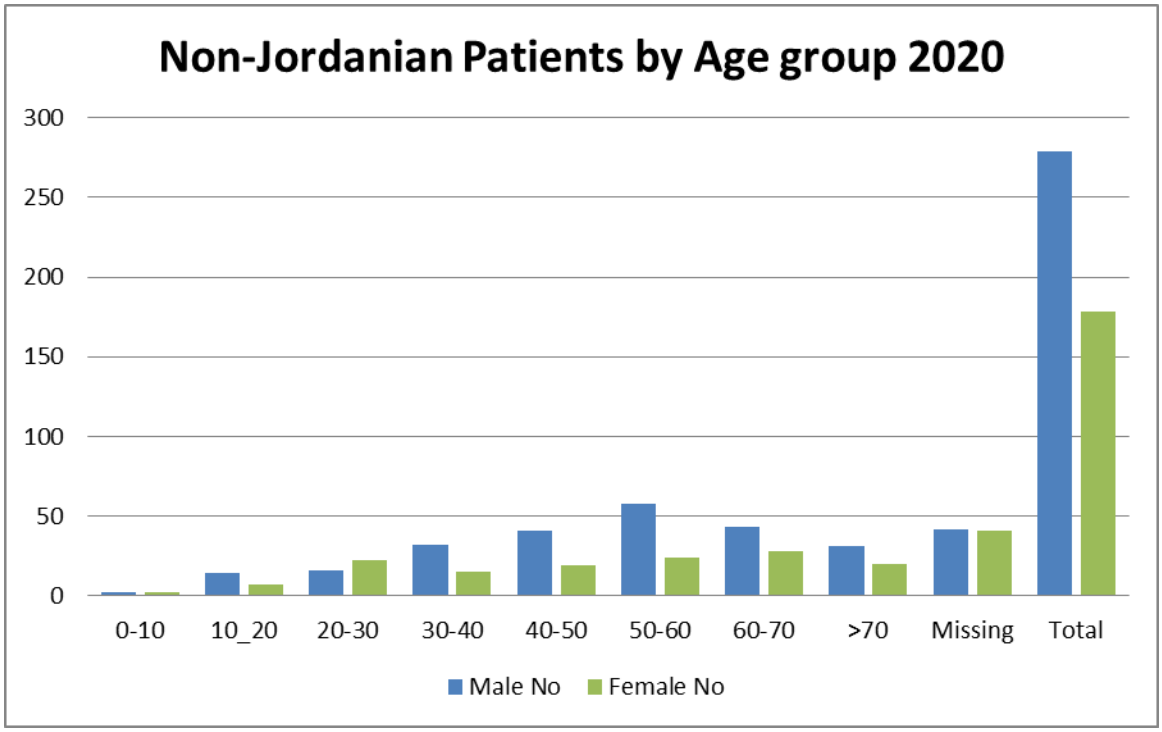
ESRD patients among Non-Jordanians according to age groups

Table (19) Figure (32) shows the distribution of Non-Jordanians patients according to the age groups and gender, which indicates that the highest occurrence of the cases was among the age group (50-60) years , followed by age-group (60-70) years

Table (19) Distribution of ESRD patients among Non-Jordanians according to age groups and gender, 2020

	Male		Female		Total	
Agegroup	No	%	No	%	No	%
0-10	2	0.7	2	1.1	4	0.9
10_20	14	5.0	7	3.9	21	4.6
20-30	16	5.7	22	12.4	38	8.3
30-40	32	11.5	15	15.0	47	10.3
40-50	41	14.7	19	10.7	60	13.1
50-60	58	20.8	24	13.5	82	17.9
60-70	43	15.4	28	15.7	71	15.5
>70	31	11.1	20	11.2	51	11.2
Missing	42	15.1	41	23.0	83	18.2
Total	279	100.0	178	100.0	457	100.0

Figure (32) Distribution of ESRD patients among Non-Jordanians according to age groups and gender, 2020



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(Annex 1)

المملكة الأردنية الهاشمية
وزارة الصحة
مديرية الأمراض غير السارية
السجل الوطني لمرضى الفشل الكلوي
استمارة معلومات حول وحدات الديلزة الكلوية

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<tr><td>8- الطبيب المعالج واختصاصه</td><td colspan="10">9- رقم الهاتف</td></tr>
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