Common indications for Referral to the Healthcare system for COVID-19 recovered patients versus Qatar Biobank study population: A descriptive analysis

Marwa Eldeeb[1], Eleni Fthenou[1], Noha Elkousy[1], Nadia Sheikh[1], Mustafa Nasr[1], Nahla Afifi[1], Asma Al Thani[1 2 3], Michael Frenneaux[4]

[1]Qatar Biobank, Qatar Foundation for Education, Science, and Community, Doha, Qatar; [2]College of Health Sciences, Qatar University, Doha, Qatar; [3]Qatar Genome Program Committee, Doha, Qatar; [4]Hamad medical corporation, Doha, Qatar

Abstract. *Background and Aim of the Work:* Qatar Biobank (QBB) is actively acquiring data on the range of short- and long-term health impacts associated with COVID-19. This is performed through the COVID-19 biorepository National project. In this report, we describe the most common indications for the referral to Qatar's healthcare system of COVID-19 biorepository participants in comparison with the Qatar Biobank (QBB) general population study. *Methods:* Patients with a laboratory diagnosis of COVID-19, who were Qatar residents that could communicate in Arabic, English, Hindi and Urdu were eligible to participate in the COVID-19 biorepository project. Biological samples of Consented participants were collected on a weekly basis until recovery, and then monthly for a year. Participants were also offered a bone density scan three months after recovery and non-contrast MRI brain and whole-body scan six months after recovery. Number of participants requiring referral for medical follow up after recovery for any abnormal clinically significant findings were recorded and statistically compared to general population referred participants. *Results:* The majority of referrals for the general population study was for osteopenia versus diabetes for the COVID-19 biorepository project *Conclusion:* Descriptive analysis of the referral data of the COVID-19 participants and QBB general population (not previously affected by the virus) shows a clear difference between the two populations' reasons for referrals. Diabetes for COVID 19 recovered participants versus osteopenia for general population. (www.actabiomedica.it)

Key words: COVID19, Reason for Referrals, Diabetes, Qatar biobank

Methods

Patients with a laboratory diagnosis of COVID-19, who were Qatar residents that could communicate in Arabic, English, Hindi and Urdu were eligible to participate in the COVID-19 biorepository study. Biological samples from Consented participants were collected on a weekly basis until recovery, and then monthly for a year, in addition to a bone density scan three months after recovery and non-contrast MRI brain and whole-body scan 6 months after recovery. The QBB Medical Review Office is referring participants with abnormal results of clinical importance back to the healthcare system of Qatar. Similarly, for the ongoing QBB population-based cohort study the Medical Review Office is referring QBB participants (Qataris or long-term residents, lived in Qatar ≥15years) to the healthcare system for any result requiring follow up. Statistical analysis of the referral reason was conducted for both studies.

Results

For QBB population-based cohort study, during the year 2020, 1955 participants were recruited. Out of them, the commonest referral reason was osteopenia (n=403, 30.55%), referral for diabetes whether known uncontrolled diabetes, or new diabetes was the fourth referral reason (n=114, 8.64%). Other causes are shown in (figure 1). As for COVID-19 project, 2258 participants were recruited during the same year, counting to a total of 2327 follow up visits after recovery. The most common reason for referral for the COVID-19 participants attending during the follow up visits was diabetes (known uncontrolled, or new onset) (n=276, 23,02%) and on the other hand osteopenia was the fourth referral reason (n=103, 8.60%). Other causes of referral are shown in (figure 2).

Discussion

Recent literature relating diabetes and COVID 19 infection suggests that a higher prevalence of COVID 19 infection is seen in diabetic patients (1) as well as higher risk of complications and death (2). It was also noted that COVID 19 infection was associated with new diabetes or hyperglycaemia (3). New onset diabetes/hyperglycaemia might be attributed to stress, effect of COV2 on pancreatic cells or angiotensin converting enzyme 2 receptor as noticed with other similar respiratory viruses, or secondary to the use of certain medications like steroids during the management of COVID 19 infection (4). This complex relation between COVID 19 infection and diabetes may explain our findings and the change in the indication for referral even after recovery of patients. Research concerning COVID 19 infection is evolving daily which may lead to changes in the current explanation and relation between diabetes and COVID 19 infection (1).

Conclusion

Descriptive analysis of the referral data of the COVID-19 participants and QBB general population (not previously affected by the virus) shows a clear difference between the two populations reasons for referrals.

NUMBER AND PERCENTAGE OF REFERRALS, ACCORDING TO THE COMMENEST REASONS FOR REFERRALS, QBB COHORT STUDY 2020
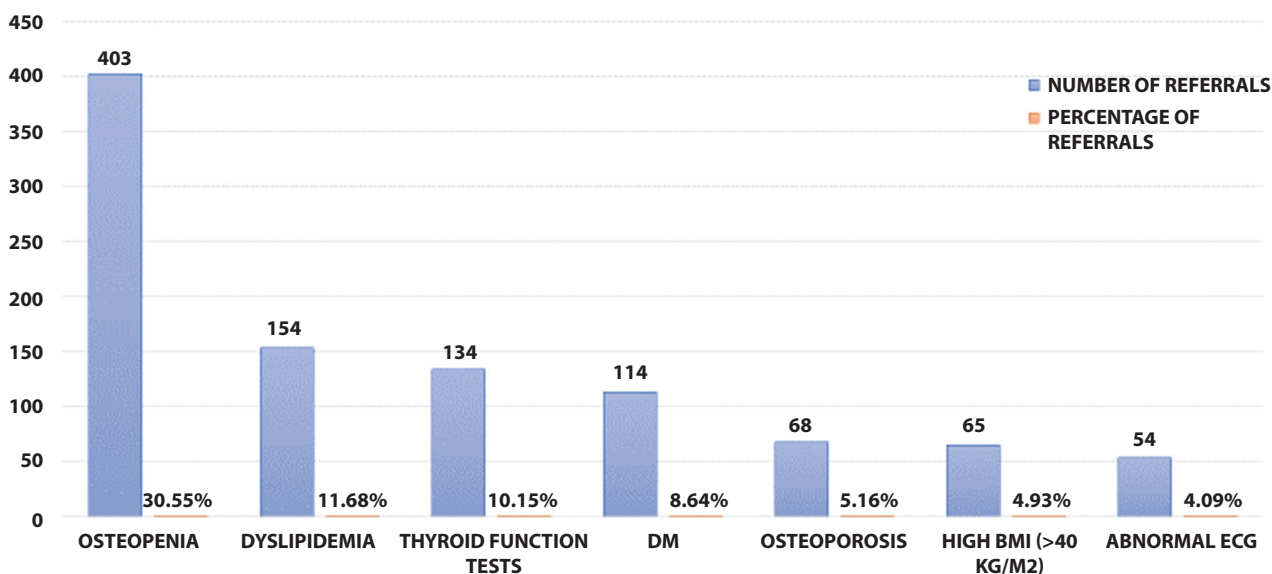

Figure 1.

NUMBER AND PERCENTAGE OF REFERRALS, ACCORDINGLY TO THE COMMONEST REASONS FOR REFERRAL, COVID-19 BIOREPOSITORY STUDY (2020)
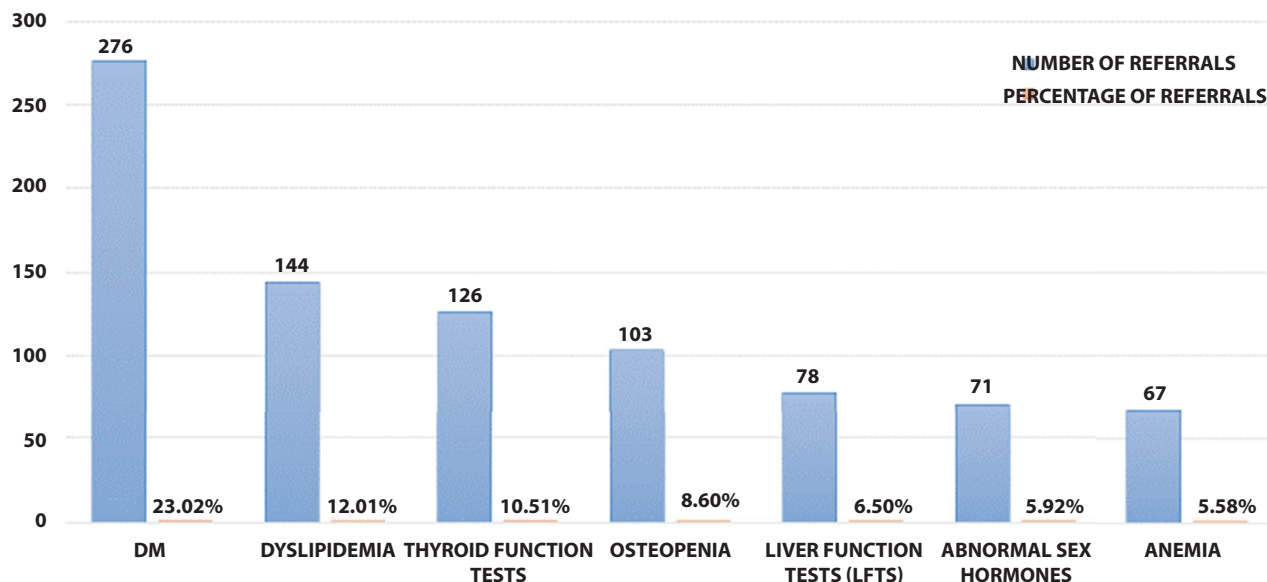

Figure 2.

Further analysis needed to show if these differences in the indication of referrals are related to the virus exposure or are due to the population characteristics.

Conflicts of interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

References

1. Awadhesh KS, Ritesh G, Amerta G, Anoop M. Diabetes in COVID-19: Prevalence, pathophysiology, prognosis and practical considerations. Diabetes Metab Syndr. 2020 July-August; 14(4): 303–310

2. Wu C, Chen X, Cai Y, et al. Risk factors associated with acute respiratory distress syndrome and death in patients with coronavirus disease 2019 pneumonia in wuhan, China, JAMA Intern Med. 2020 Jul; 180(7): 1–11

3. Konstantinos M, Ioannis I. COVID-19 and hyperglycemia/diabetes. World J Diabetes. 2021 May 15;12(5):642–650.

4. Singh AK, Singh R. Hyperglycemia without diabetes and new-onset diabetes are both associated with poorer outcomes in COVID-19. Diabetes Res Clin Pract. 2020 Sep;167:108382

Correspondence:
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Marwa Eldeeb
Qatar Biobank, Qatar Foundation for Education, Science, and Community, Doha, Qatar
E-mail: maeldeeb@qf.org.qa