

Onset of Diabetes Pediatric Age and Comorbidity in the last 12 years and urgent Covid Vaccination in Sanitary Agency in Bergamo - Italy

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Abstract

Introduction

Diabetes is a chronic disease as a result of absent or low intake in internal production of Insulin or glucose tolerance in a large diffusion population of 3.27 million people in Italy. 5,4 thousand of Italian people for ISTAT in a future prospective and there will be an increase in the next years for high increase risk of new cases every year until now. We have Diabetes type II (T2DM, older in 90%), and Diabetes type I (T1DM, younger in 10%), both are Prevent with Auxological Screening and early Intervention with Nutritional Applied Behavior Analysis (A.B.A.). An early diagnosis determines a survival of 5,000 patients for year. In our patients affected by T1DM, during pandemic of Coronavirus disease (SARS-CoV type 2 and variants), we have noted an increase of glycemia during respiratory infections with more comorbidities and complications for them.

Clinical Study

We study 181 patients who have accessed in Treviglio-Caravaggio Hospital in these years since 1/1/2009 to 1/6/2020. we have 181 records divided for sex: 104 males and 77 females. With follow-up for 55 patients with severe comorbidities and 4 were transferred to HUB Center for risk of coma in severe compliances and during Covid lock down 44 patients were suggested to take care in HUB center of Bergamo or Milan to prevent their hospitalizations in security environment. The children's accesses affected by Diabetes type 1 was in our Emergency and Pediatric Department of Treviglio Hospital in the last 12 years, since 1 January 2009 to 1 June 2021, are 129 total patients and 52 new patients during Auxological-Nutritional Ambulatory for Pediatric T1DM outpatients before and during 2020-2021 controls of metabolic diet therapy in follow-up, now, with cellphone and in Meet.

Materials and Methods

We have records data in excel and Pivot graphic and analysis in Anova Statics Program with follow-up of 181 patients divided in 2 period of age: preschooler 23, and scholar e adolescent 157. 125 patients are divided in 123 Diabetes Mellitus (with Italian code 775.1 e 250.1 national record), 2 MOBY cases and 57 patients with one or more comorbidity. From date of case-history, we need now analysis 3 groups with outset of diabetes during 2 years of life of which 19.2% with comorbidity 21.6% with many comorbidities and cases of Insulin-dependent Diabetes after 2 years of life are 77.7%, with severe comorbidity in 24%. With comorbidity outset in the 39.2% and during follow-up in 42.4%. From report 21% patients have for the major part "Celiac Disease" and 6.4% other infections (*Helicobacter Pylori* and enteritis). Whereas 28% have metabolic-auxological endocrinological diseases (acute/chronic evolution during up-growth). Underweight young with T1DM (BMI < 15 Kg/m²) or obesity (BMI > 35 Kg/m²) have a high risk to be infected and dead for COVID-19 owing to complications of their status of health.

Conclusions

Until 1/31/2018, we allow to do a distinction: the first since 2009-2014 within 20.6% early diagnosis and discovered in later age the second since 2014-2019 with more 38.4%. In the last years since 2019-2021 about, the early neonatal respect to mellitus DMT1 of last period, presents a predictive index of 55.5% with a better stature-ponderal development, neurological-behavior, and nutritional-compliance monitoring in 12 years of periodic controls. Since 11 March 2020 with WhatsApp, Hangouts and Meet or Skype, our data of SARS-CoV-19 infection in T1DM patients showed more than 65% positive patients by serological test after a period of suspect disease in 12 patients (6,6%) against a few symptoms in 107 patients (59,11%) with positive nasal-pharyngeal test during quarantine or observation in a second lockdown, since September 2020 to May 2021.

Keywords: Lichtenstein Repair, Desarda Repair, Inguinal Hernia, Randomized Trial

Introduction

World Health Organization declared a Pandemic time on March 11, 2020 for SARS-CoV-19 infection. In China, Wuhan country, SARS- CoV-2 was identified as the pathogenic caused by Coronavirus disease, in December 2019. In Italy, during the first week of February, we have recorded an increase access into hospital for respiratory or gastrointestinal symptoms.

In Ambulatory of Auxological Pediatric of Local Sanitary Agency of West Bergamo there are a significant number of patients with Diabetes Mellitus (DM type 1) up set during 2009-2019 and a periodic follow-up since March 2019 to June 2021 by video-conference to reduce possible of Covid co-morbidity in sanitary assistance.

Diabetes is a chronic disease as a result of absent or low intake in internal production of Insulin or glucose tolerance in a large diffusion population of 3.27 million people in Italy. 5,4 thousand of Italian people for ISTAT in a future prospective and there will be an increase in the next years for high increase risk of new cases every year until now.

We have Diabetes typo II (DMT2, older in 90%), and Diabetes typo 1 (DMT1, younger in 10%), both are Prevent with Auxological Screening and early Intervention with Nutritional Applied Behavior Analysis (A.B.A.). Early diagnosis determines a survival of 5,000 patients for year. In our patients affects by DM type 1, during pandemic of Coronavirus disease (SARS-CoV type 2 and variants) we have noted an increase of glycemia during respiratory infections.

Clinical Study

In this long time, we have follow-up 181 patients on 256 patient's diagnoses up set of Diabetes Mellitus (DM disorder) with weekly or monthly control of glycemia data to our attention during lockdown 2019-2021. We value daily hospital database records with decision to recommended a hospitalization in HUB Center in 44 patients: 10 patients were sent to Milan (3.9%) and 34 patients in Bergamo (18.78%) in a Endocrinological Department for metabolic disorders.

The children's accesses affected by Diabetes was in our Emergency and Pediatric Department of Treviglio Hospital in the last 12 years, since 1 January 2009 to 1 June 2021, are 129 critical DM patients and 52 new patients during Auxological-Nutritional and Endocrinological-Diabetes Pediatric before and during 2020-2021 control of metabolic diet therapy, they are follow-up now with telephone WhatsApp and Duo and also in Hangouts or Meet periodic controls.

We study 181 patients that have accessed in Ambulatory of Treviglio Hospital in these years since 1/1/2009 to 1/6/2021. we have

181 patients divided for sex: 104 males and 77 females. With follow-up for 55 patients (30.38%) with severe comorbidities and 4 were transferred to HUB Center for risk of coma in severe compliances (2.20%) and during Covid lock down other 44 patients (24.30%) were suggested to take care in HUB center of Bergamo or Milan to prevent hospitalizations in security environment.

The median age of patients infected with SARS-CoV-2 is in the range of 6-29 years' age. Male are 116 patients (64%) and female are 65 patients (36%). The average incubation period is 5-4 days about, and 74 of these patients (66%) develop symptoms with acute respiratory disease (ARD) or pathology (6,60%) with serologic test of confirm, when it was possible, in September 2020, after the first lockdown in West Bergamo of Italy.

The number of asymptomatic are significant 59,11% with nasal-pharyngeal infection and quarantine obliged, during the second semester of 2020, for a sure case of COVID in co-worker or class-mate in ARD with: fever, fatigue, respiratory distress (cough or dyspnea), gastrointestinal (nausea or diarrhea and vomiting) symptoms, and rarely there are significant abnormalities on chest imaging.

Material and Methods

We have records data in excel and Pivot graphic and analysis in Anova Statics Program with follow-up of 181 patients divided in 4 periods of age: preschooler 24 (13,25%), scholar 157 (86.74%), adolescent (86.18%) and preadolescent (13.81%) actuality. 125 patients are divided in 123 Diabetes Mellitus (67.9% with Italian code 775.1 e 250.1 national record), 2 MOBY cases (1.1%) and 56 patients with one or more comorbidity (30.9%).

From date of case-history, we need now analysis 3 groups with outset of diabetes during 2 years of life of which 19.2% with comorbidity, 21.6% with many comorbidities and cases of Insulin-dependent Diabetes after 2 years of life are 77,7%, with severe comorbidity in 24%. With comorbidity outset in the 39.2% and during follow-up in 42.4%.

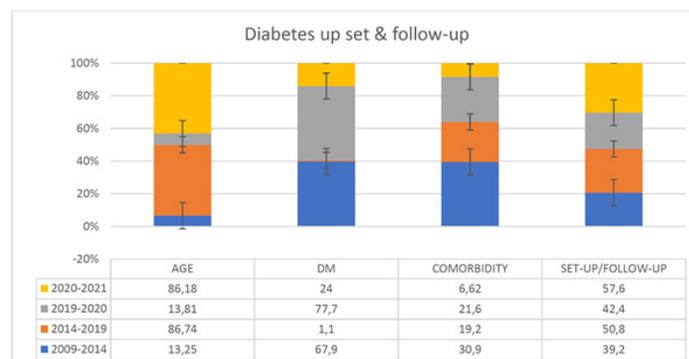


Figure 1: During this time of Covid pandemic event, we have improved our set up and follow up abilities.

From report, 21% patients have for the major part “Celiac Disease” and 6,4% other infections (Helicobacter Pylori and enteritis). Whereas 28% have metabolic-auxological endocrinological diseases (acute/chronic evolution during up-growth). Underweight young with DM (BMI<15 Kg/m²) or obesity (BMI>25 Kg/m²) have a high risk to be infected and dead for COVID-19 owing to complications of their status of health.

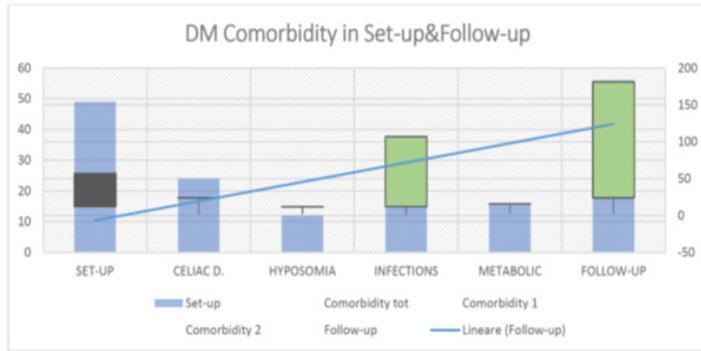


Figure 2: Follow-up has permit us to study infection evolution in our patients thanks to telemedicine way.

Two patients with pneumonia have respiratory symptoms and positive findings in chest imaging owing to severe SARS-Covid pneumonia and acute respiratory distress syndrome (ARDS) leading to severe clinical cases with respiratory failure, hypoxia until to transplantation of pneumonia with successful in the first time in one patient of 18 years of age, and in other patient of 17 years of age there was a rejection of the first transplanted lung and a new try in September of last years and only now he is starting to recover himself.

Analysis data of our patient groups with upset of Diabetes during 2-6 years of life was of 19,2%, comorbidity of neonatal and children diabetes was of 21,6% and Diabetes cases in insulin-dependent after 24 month of life is also now of 77,7%.

These patients are vaccinated during these first months of 2021 like weak people for risk of Covid infection in a prevent level of vaccine mass in Italian population. We record cases of obesity in male respect to female groups with celiac or underweight comorbidity or other diseases that complicated their quality of life.

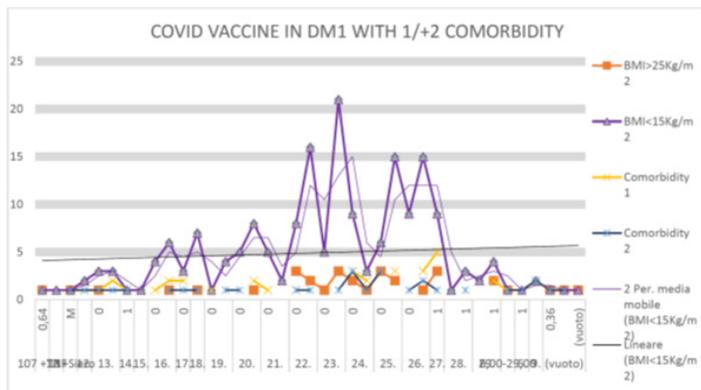


Figure 3: Precedective line shows us that underweight DM type 1 is major in male that in female patients.

During this period of weekly or monthly controls, the system database gives up opportunity to monitor their compliance to insulin and diet therapy, that in lockdown time closed meeting with doctor and diet-therapist with patients and parents.

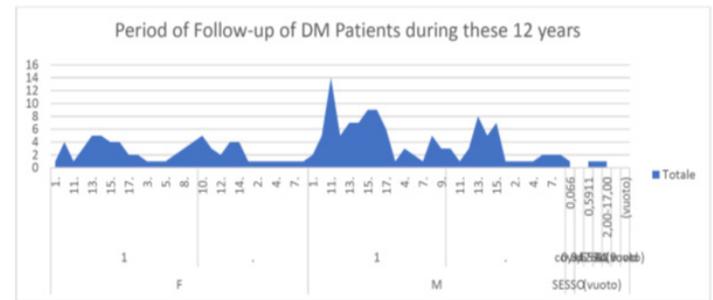


Figure 4: Period of follow-up is of 12 years and it is evident in boy with early diagnosis at 1 years of age.

To continue monitoring, we have preferred to go on request of our patients and their families to maintain contact in videoconference thanks to Meet Group once to week with free possible to enter the day of appointment; or almost once monthly to study the adhesion to medical indications.

The spam of maximum period of control was in a little boy of 13 years of old now, during these 12 years of monitoring so we can describe female groups with a late diagnosis and a short period of monitoring before and during lockdown time respect to male group with an early diagnosis and a long period of follow-up also during covid pandemic emergency and a their precocious Covid vaccine.

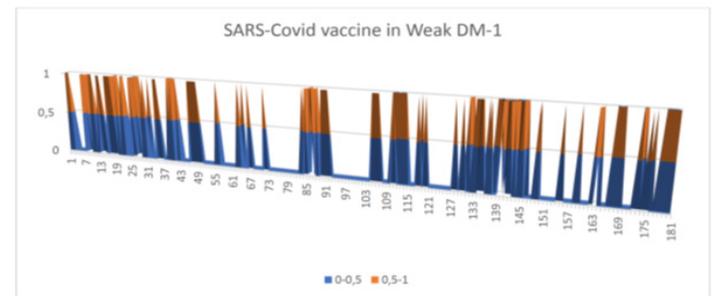


Figure 5: During these first months of 2021 all patients of our sample was vaccine by SARS-CoV2-2019.

In 2020-2021, we have read in literature a major risk for Diabetes People upper fifth years of old then young adult or adolescent had Covid complications in case of symptomatic infection for SARS-Cov-2. For this region, we have in videoconference or WhatsApp maintain a selective attention for a weak sample of 181 patients under 30 years’ age for Diabetes Mellitus (70.70%).

Whereas 75 patients (29,29%) of total change center to care in independent way or with our indication or to do insulin implantation in the skin for a better control of their glycemia or with chronic respiratory diseases like in our sample. Of which 19 patients (7,42%) refer us that have Covid infection before or during their hospitalization with symptom or no symptom clinical case but just serological test. Only 2 had severe respiratory distress with lung transplantation in Milan Hub Clinical Center.

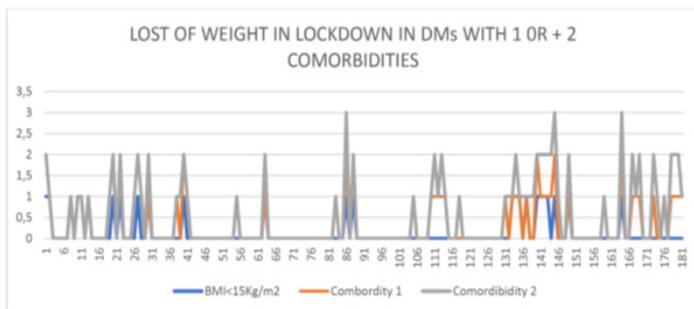


Figure 6: underweight DM patients with a BMI < 15 Kg/m² have in our sample a significant comorbidity 1-2.

Conclusions

The Statistical Analysis of our data put in evidence that the pre-game Covid vaccine with a priority for weak people affect by chronic diseases had successful thanks to a priority to access Covid vaccine for people with Diabetes type 1 and celiac disease with obesity or underweight.

In fact, our patients with more of one comorbidity was protected by SARS-Cov2 vaccine mRNA after elder people and sanitary personal worker. For this region, we suggested them to fix appointment as soon as possible to reduce the numbers of complications in underweight and obesity Diabetes Mellitus type 1 in insulin and diet therapy.

The Chi Square distribution of our data since 1/1/2019 until 6/1/2021, we allow to confirm a significant correlation both: Diabetes Mellitus type 1 (T1DM) female 65 and male 116 with a X² distribution of 0.001746152. Analysis data show a significant distribution of 0.000230849 on base of age of female in 42% of these patient's respect to male in 58% with a distribution of 0.727302304.

Thanks to the Governate Law indication to vaccine for weak people with Diabetes Mellitus type 1 (T1DM), we get an evidence and a significant correlation of 0.000616436, in case of 1 comorbidity there is a distribution of 0,014737149; while more comorbidities have a significant distribution of 0,029324658. So, in the same group, we have a X² distribution of 0,035055967 and both groups of 0,011459447.

In fact, the 13.81% patients with underweight (BMI < 15 Kg/m²) correspond to weak people, 7.19% normal-weight (BMI 15-25 Kg/m²) and 71.81% (BMI > 25 Kg/m²) are overweight or obesity with a control group of 66.5% and a predictive index of tendency about 71% during Covid pandemic period.

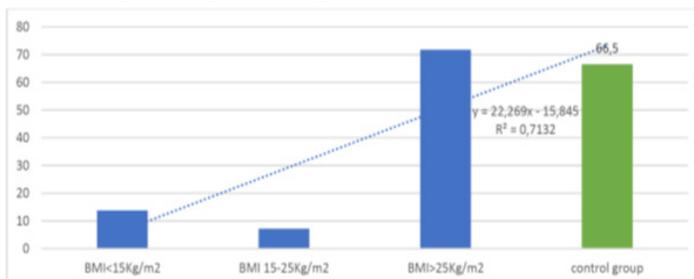


Figure 7: Weak patients underweight and obesity need Covid-vac-

cine respect to standard weight and control.

The first patients, since 2009-2014, had in 20.6% an early diagnosis and discovered in later age the second group of patients, since 2014-2019, with the 38.4%. In the last years, since 2019-2021 about, the early neonatal of diabetes mellitus T1DM represents a predictive index of 55.5% with a better stature-ponderal development, neurological-behavior.

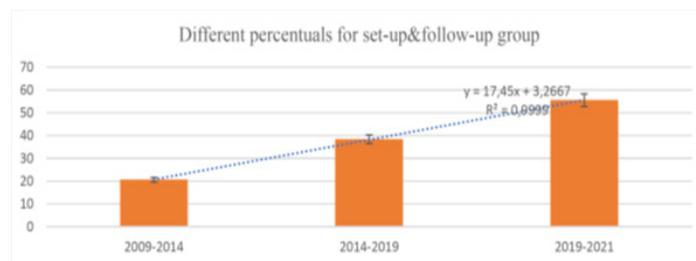


Figure 8: Different groups of T1DM patients according to period of upset and follow-up in 12 years.

Our data of SARS-CoV-19 infection in DM patients showed more than 65% positive patients by serological test after a period of suspect disease in 12 patients (6,6%) against a few symptoms in 107 patients (59,11%) with positive nasal-pharyngeal test during quarantine or observation in a second lockdown since September 2020 to June 2021.

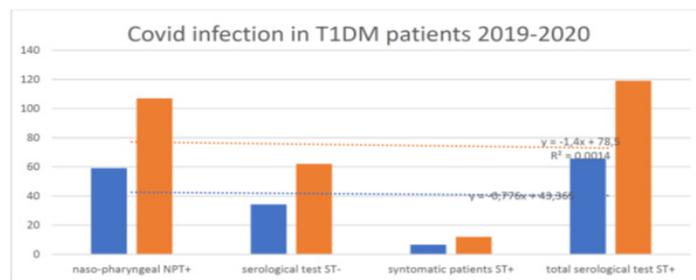


Figure 9: A significant percentual of patients resulted positive to serological test and nasopharyngeal test.

Distribution of serological and nasopharyngeal test on total positive SARS-COV-IgM in blood of our random sample of T1DM patients have a significative X² correlation of 0,000580109. Nutritional-compliance monitoring in 12 years with periodic controls, and since 11 March 2020 with WhatsApp, Hangouts or Meet to discuss with a good group of parents with their schedules of diet therapy, I receive some days before the date again today by cell phone or email.

This way to monitoring their compliance to nutrition indication has given us the possible to control their apport intake is regular or not respect to before lockdown Covid situation that reflected their regular style of life, and gym and swimming pool activities.

I suggested them to run, dance and jump in the garden of house so to maintain their body in action and to share the time closed at home with different activities not only mentality, also physically to try a correct balance both therapy and diet for diabetes, and a regular nutritional style of life.

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