**Survey on Insulin Resistance**

**by the ESPE Obesity Working Group**

**Introduction page**

On behalf of the Scientific Committee the ESPE Obesity Working Group, we invite you to participate in a survey on Insulin Resistance.

**Purpose of the survey study**

We want to know how the diagnosis of hyperinsulinemia and insulin resistance is made in different types of hospitals (e.g., University, Government, private, out and in-patient clinic) as well as in different countries. We are interested in knowing the cut-off for hyperinsulinemia and insulin resistance employed, which is essential when we discuss both concepts in children with obesity. We consider that different concepts are currently used and this information will help us to better understand the method of diagnosis in the various hospitals and countries.

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| --- | --- | --- | --- |
|  | Personal information |  |  |
|  | What is your name? |  |  |
|  | What is your sex? |  |  |
|  | * Male |  |  |
|  | * Female |  |  |
|  | What is your country of residence? |  |  |
|  | What is the highest degree of education you completed? |  |  |
|  | What is your current position? |  |  |
|  | * Professor |  |  |
|  | * Researcher |  |  |
|  | * Trainee |  |  |
|  | * Clinician |  |  |
|  | * Other |  |  |
|  | Provide please your contact e-mail |  |  |

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|  | | Center information |  |  |
|  | | **At what kind of clinic do you practice?** |  |  |
|  | | * University hospital |  |  |
|  | | * Governmental hospital |  |  |
|  | | * Private hospital |  |  |
|  | | * Out-patient clinic (polyclinic for some countries) |  |  |
|  | | * In-patient clinic |  |  |
|  | | * Other (please specify) |  |  |
|  | Do you have an obesity/weight management center in your clinic? | |  |  |
|  | * Yes | |  |  |
|  | * No (but it’s available in my area of residence) | |  |  |
|  | * No (but it’s available in my country) | |  |  |
|  | * No | |  |  |
|  | **Who is responsible for the obese patients consulting at your clinic?** | |  |  |
|  | * GP | |  |  |
|  | * Pediatrician | |  |  |
|  | * Pediatric endocrinologist | |  |  |
|  | * Dietician | |  |  |
|  | * Multidisciplinary team | |  |  |
|  | * Other (please specify) | |  |  |
|  | **What is approximate number of the following subjects in your center?** | |  |  |
|  | * Obese children total under the supervision in center | |  |  |
|  | * Obese children total below 5 y.o. | |  |  |
|  | * Obese children per year (newly diagnosed) | |  |  |
|  | * DM 2 children total under the supervision in center | |  |  |
|  | * DM 2 children per year (newly diagnosed) | |  |  |
|  | **Are you able to provide an official statistics in your country?** | |  |  |
|  | * No | |  |  |
|  | * Yes (please follow): | |  |  |
|  | * Obese children total | |  |  |
|  | * Obese children total below 5 y.o. | |  |  |
|  | * Obese children per year (newly diagnosed) | |  |  |
|  | * DM 2 children total | |  |  |
|  | * DM 2 children per year (newly diagnosed) | |  |  |

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|  | Do you consider Insulin Resistance as? | | Tick |  |
|  | * Clinical phenomenon | |  |  |
|  | * Research phenomenon | |  |  |
|  | **How do you usually assess IR?** | |  |  |
|  | * Insulin measurement only | |  |  |
|  | * HOMA-IR index | |  |  |
|  | * QUIKI index | |  |  |
|  | * ISI index | |  |  |
|  | * Clump-test | |  |  |
|  | * OGTT | |  |  |
|  | * Other (provide please) | |  |  |
|  | **What cut-off for fasting hyperinsulinemia do you use?** | |  |  |
|  | * 16 µU/ml (111 pmol/l) | |  |  |
|  | * 25 µU/ml (174 pmol/l) | |  |  |
|  | * > Other (provide please) | |  |  |
|  | **What cut-off for HOMA-IR do you use?** | |  |  |
|  | * 2.6 | |  |  |
|  | * 3.0 | |  |  |
|  | * 3.6 | |  |  |
|  | * ≤ 95th percentile according charts (provide please title/link below) | |  |  |
|  | * Other (provide please) | |  |  |
|  | **In your experience, is it necessary to assess children for IR who are classified as overweight, but not obese?** | |  |  |
|  | * Yes | |  |  |
|  | * No | |  |  |
|  | * Circumstantially (provide please) | |  |  |
|  | **Do you routinely measure insulin and/or HOMA-IR for any of the following?** | |  |  |
|  | * All obese and overweight | |  |  |
|  | * All obese | |  |  |
|  | * Just severely obese | |  |  |
|  | * Obese pubertal | |  |  |
|  | * Obese pre-pubertal | |  |  |
|  | * Obese toddlers | |  |  |
|  | * Obese infants | |  |  |
|  | **Timing of decision making for insulin resistance:** | |  |  |
|  | * At the first patient visit | |  |  |
|  | * At any scheduled visit | |  |  |
|  | * After ineffective weight loss | |  |  |
|  | * Before start of weight management program | |  |  |
|  | * Before and after weight management program | |  |  |
|  | * Before, during and after weight management program | |  |  |
|  | **First visit protocol for investigation of overweight /obese child include:** | |  |  |
|  | * No laboratory tests | |  |  |
|  | * Fasting blood sugar only | |  |  |
|  | * Random blood sugar only | |  |  |
|  | * Fasting insulin only | |  |  |
|  | * HbA1C only | |  |  |
|  | * Fasting blood sugar & insulin | |  |  |
|  | * Fasting blood sugar & insulin & HbA1C | |  |  |
|  | * Fasting blood sugar & insulin & OGTT | |  |  |
|  | * Fasting blood sugar & insulin & OGTT & HbA1C | |  |  |
|  | **OGTT in your clinic include measurement of:** | |  |  |
|  | * Blood sugar capillary only | |  |  |
|  | * Blood sugar venous only | |  |  |
|  | * Blood sugar & insulin | |  |  |
|  | * Blood sugar & insulin & C-peptide | |  |  |
|  | | **OGTT time points in your routine practice:** |  |  |
|  | | * 0 min |  |  |
|  | | * 15 min |  |  |
|  | | * 30 min |  |  |
|  | | * 60 min |  |  |
|  | | * 90 min |  |  |
|  | | * 120 min |  |  |
|  | | * 150 min |  |  |
|  | | * 180 min |  |  |
|  | | **In your experience, is it necessary to use some extra OGTT time points?** |  |  |
|  | | * No |  |  |
|  | | * Yes (provide please) |  |  |
|  | | **What OGTT parameters do you usually analyze?** |  |  |
|  | | * IFG, IGT & DM (to reveal these states only) |  |  |
|  | | * AUC glucose |  |  |
|  | | * AUC glucose + AUC insulin |  |  |
|  | | * AUC for the first and second phase |  |  |
|  | | **Which parameter is more IR sensitive in the OGTT?** |  |  |
|  | | * Glucose level/curve |  |  |
|  | | * Insulin level/curve |  |  |
|  | | **Do you use an exact cut-off for the insulin response at OGTT?** |  |  |
|  | | * No |  |  |
|  | | * Yes (please provide) |  |  |

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|  | You consider insulin resistance is clinically significant if hyperinsulinemia coexists with following: |  |  |
|  | * “positive” OGTT (IFG, IGT, DM) |  |  |
|  | * “negative” OGTT (normal OGTT blood glucose at 0 and 120 min) |  |  |
|  | * HbA1C > 6.5 & “positive” OGTT |  |  |
|  | * HbA1C > 6.5 with any results of OGTT |  |  |

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|  | What diagnostic criteria for DM 2 do you use in your clinic |  |  |
|  | * Symptoms + OGTT |  |  |
|  | * Symptoms + HbA1C > 6.5 + OGTT |  |  |
|  | * Symptoms + HbA1C > 6.5 regardless OGTT results |  |  |
|  | * HbA1C > 6.5 + OGTT regardless of symptoms |  |  |
|  | * HbA1C > 6.5 regardless of symptoms |  |  |

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|  | What is the most controversial in DM 2 diagnosis  (open answer) |  |  |
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|  | Do you have a database available to be shared for the announced research project? |  |  |
|  | * No |  |  |
|  | * Yes |  |  |
|  | **If “Yes”, what kind of laboratory data can you provide?** |  |  |
|  | * Glucose (fasting) |  |  |
|  | * Insulin (fasting) |  |  |
|  | * HOMA-IR index |  |  |
|  | * QUIKI index |  |  |
|  | * ISI index |  |  |
|  | * Clump-test |  |  |
|  | * OGTT blood glucose |  |  |
|  | * OGTT blood glucose & insulin |  |  |
|  | * OGTT blood glucose & insulin & C-peptide |  |  |
|  | * HbA1C |  |  |
|  | * Lipids |  |  |
|  | **If “Yes”, what kind of anthropometric data can you provide?** |  |  |
|  | * BMI |  |  |
|  | * BMI-Z |  |  |
|  | * Height-Z |  |  |
|  | * Waist circumference, cm |  |  |
|  | * Waist circumference, percentile |  |  |
|  | * Waist to height ratio |  |  |
|  | * Sum of skin folds |  |  |
|  | * % of Fat |  |  |
|  | * Other (please specify) |  |  |
|  | **Are you willing to take part in the next set of our survey?** |  |  |
|  | * Yes |  |  |
|  | * No |  |  |

Closing page

**Thank you for your valuable time**